

On 1 July 2026, the CEPII and the OFCE merged to form the *IFE* (Institut Français d'Économie). Affiliated with Sciences Po and operating as an independent and nonpartisan center for applied economic research, it is set to become a leading voice in economic debate both in France and across Europe.

Immigrants' Regularization and Native Workers' Response

Gianluca Orefice, Giovanni Peri & Gianluca Santoni

Highlights

- We analyze the impact of the largest regularization of undocumented immigrant workers in Italy on wage, employment and mobility outcomes of natives.
- The policy had a small effect on the average wage of native workers and positive effects on their employment at the local labor market level. Moreover, native co-workers in firms more affected by the policy were more likely to change employers in the post-policy period.
- Such higher mobility resulted in a heterogeneous wage effect across switchers: workers that managed to transition towards better firms experienced wage gains in the medium- and long-run, while other workers experienced wage losses.



Abstract

Using employer-employee Italian data over the period 1998-2018 we analyze the impact of the largest regularization of undocumented immigrant workers in Italy on wage, employment and mobility outcomes of natives. Our empirical strategy takes advantage of the 2002 Bossi-Fini law that unexpectedly regularized 634,000 undocumented non-EU immigrants, with variation across firms and provinces that was not correlated with previous economic performance. We find that the policy had a small effect on the average wage of native workers and positive effects on their employment at the local labor market level. Additionally, native co-workers in firms more affected by the policy were more likely to change employers in the post-policy period. Such higher mobility resulted in a heterogeneous wage effect across switchers: workers that managed to transition towards better firms experienced wage gains in the medium- and long-run, while other workers experienced wage losses. This implied an increase in wage dispersion for natives and some losers among Italian workers.

Keywords

Workers, Firms, Immigrant Regularization, Local Labor Market.

JEL

F16, J20, J61.

Working Paper



© CEPII, PARIS, 2026

Centre d'études prospectives
et d'informations internationales
20, avenue de Ségur
TSA 10726
75334 Paris Cedex 07

contact@cepii.fr
www.cepii.fr – @CEPII_Paris
Press contact: presse@cepii.fr

CEPII Working Paper
Contributing to research in international
economics

CEPII (Centre d'Études Prospectives
et d'Informations Internationales) is a
French institute dedicated to producing
independent, policy-oriented economic
research helpful to understand the
international economic environment and
challenges in the areas of trade policy,
competitiveness, macroeconomics,
international finance and growth.

EDITORIAL DIRECTOR:
ANTOINE BOUËT

VISUAL DESIGN AND PRODUCTION:
LAURE BOIVIN

ISSN 2970-491X

July 2026

To subscribe to
The CEPII Newsletter:
www.cepii.fr/KeepInformed

All rights reserved. Opinions expressed
in this publication are those of the
author(s) alone.

RESEARCH AND EXPERTISE
ON THE WORLD ECONOMY



1. Introduction

Introduction

This paper contributes to our understanding of how the regularization of undocumented immigrants affects native labor market outcomes, and how firm and worker mobility mediate those effects. While the literature on the labor market effects of immigration is vast, spanning countries and empirical approaches,¹ and the role of firms in mediating these effects has recently received wide attention,² the literature on the impact of immigrant regularizations is more limited, albeit growing.

We use Italian longitudinal employer-employee data covering the universe of workers over 1998–2018, together with the regularization of immigrant workers introduced by the Bossi-Fini law of 2002, to analyze the employment and wage effects of this regularization on natives at the local level. New to this literature, the matched employer-employee data allow us to go beyond employment outcomes and analyze the dynamic response of native workers to the amnesty: their cross-firm mobility in the post-amnesty period, changes in employer quality, and the implications for their wage dynamics.

The Bossi-Fini Law of 2002 (d.l. 189/2002) was the largest immigrant regularization in Italy.³ Its main objective was to move undocumented immigrants from informal to formal employment by granting them work-residence permits. This provision – introduced in September 2002 – allowed immigrants who had worked (irregularly) and lived in Italy for at least three months before the implementation of the policy to regularize their position.⁴

The law also regulated post-2002 inflows of new non-EU immigrant workers into occupations characterized by shortages.⁵ It gave the Prime Minister authority to set the number of *non-EU workers* admitted to Italy each year with a valid “residence contract” (*contratto di soggiorno*), issued conditional on an employment contract signed by an employer and the immigrant worker.⁶ The law created dedicated offices in each Italian province to manage recruitment procedures for immigrant workers, and employers could recruit non-EU workers directly from lists held by Italian embassies and consulates abroad.⁷ The law can therefore be considered a short- and medium-run increase in “documented” workers in the Italian labor market, as it increased the inflow of documented non-EU immigrants and gave them a legal path toward employment and residence.⁸

¹Classics are Borjas 2003, Card 2001, Ottaviano and Peri 2012, Dustmann et al. 2013, Edo 2019, Peri and Sparber 2009, and Fogel and Peri 2016, among many others.

²e.g. Mitaritonna et al. 2017, Beerli et al. 2021, (Orefice and Peri, 2024).

³Law 189/2002 was approved in July 2002, but the regularization for private employees was introduced only in September 2002 with D.l. 195/2002. The regularization procedure resulted in around 700,000 applications – see Colombo et al. (2002), Di Porto et al. (2023), and Carrozzo (2022) for more details.

⁴To regularize informal immigrant workers, Italian employers had to pay a 700€ lump-sum tax covering past unpaid taxes. Irregular immigrant workers had to be hired on a contract of at least one year.

⁵<https://www.gazzettaufficiale.it/eli/id/2002/08/26/002G0219/sg>.

⁶<https://www.eurofound.europa.eu/publications/article/2002/new-legislation-regulates-immigration>. After the expiration of the contract, the immigrant worker had to leave Italian territory.

⁷The Bossi-Fini law also regulated family reunification immigration to Italy and deportation requisites for irregular immigrants (who could be deported, accompanied to Italy's borders, and required to leave Italian territory).

⁸Residence permits issued for employment reasons lasted a maximum of two years and could be renewed if

On the one hand, by increasing the supply of documented workers (and decreasing that of undocumented ones), these features of the Bossi-Fini law potentially increased competition between regularized immigrants and native workers. By making newly regularized immigrants more comparable to natives in their access to jobs, the law could displace natives or depress their wages in the short and medium run. On the other hand, a larger pool of documented immigrant workers may attract firms and increase labor demand in the formal labor market (as argued in [Bahar et al. \(2025\)](#)); immigrants can complement natives by taking different occupations ([Peri and Sparber \(2009\)](#)); or, by improving the conditions and bargaining power of immigrants, the amnesty could reduce the bargaining power of firms and push wages up for all workers ([Chassamboulli and Peri \(2015\)](#)). As these effects can coexist, the total impact of the regularization on the wages, employment, and mobility of Italian native workers is an empirical and policy-relevant question that this paper addresses.

The recent literature has analyzed the labor market impacts of a few regularization policies.⁹ [Bahar et al. \(2021\)](#) studied the effects on Colombian workers of the *Permiso Especial de Permanencia* (August 2018), an amnesty program granting work permits to undocumented Venezuelan migrants. They found no significant effect of this amnesty on hours worked, wages, or labor force participation of Colombians in the short to medium run (i.e., almost one year after implementation). More recently, [Bahar et al. \(2025\)](#) showed that a regularization of immigrants may generate larger firm entry in the formal sector, as more workers become available, increasing overall employment with small (negative) effects on the wages of native formal workers. [Elias et al. \(2024\)](#) analyzes a significant regularization program in Europe, namely the regularization of 600,000 non-EU immigrants in Spain in 2004. The study shows that while the policy did not affect the formal employment or wages of Spanish workers in general, it significantly decreased the informal employment of *low-skilled* Spanish natives and immigrant workers.

A different set of papers, such as [Kossoudji and Cobb-Clark \(2002\)](#) and [Amuedo-Dorantes et al. \(2007\)](#), studies the effect of regularization (specifically the Immigration Reform and Control Act – IRCA) on the labor market outcomes of the legalized population itself. This work shows that legalization increased labor market opportunities and job mobility for men after the amnesty, with a weakly positive ([Kossoudji and Cobb-Clark, 2002](#)) or insignificant ([Amuedo-Dorantes et al., 2007](#)) effect on their wages. [Kaushal \(2006\)](#) studies the effect of the Nicaraguan Adjustment and Central American Relief Act (NACARA) on the employment and earnings of non-citizen men from Cuba, Nicaragua, Guatemala, and El Salvador, finding no significant effect of the amnesty on employment but a statistically significant positive effect on weekly earnings.¹⁰ While these papers do not provide evidence on the labor market effects of amnesties on *native* workers, they suggest that regularized workers access new jobs – both

employment conditions were maintained at the end of the first period. After six years of regular residence in Italy, non-EU immigrant workers with sufficient economic means to support themselves and their families could apply for a permanent permit.

⁹Theoretical contributions such as [Chassamboulli and Peri \(2015\)](#) and [Casarico et al. \(2018\)](#) show that legalization, as a policy to reduce illegal migration, has significant positive economic effects, which are even stronger in tight labor markets.

¹⁰Under the Nicaraguan Adjustment and Central American Relief Act, Cuban and Nicaraguan nationals who had lived no more than 180 total days outside the U.S. since 12/1/95 could be eligible for permanent residence. Nationals from Guatemala, El Salvador, and the former Soviet Bloc countries could apply for a stay of removal if they had been continuously present in the U.S. for at least seven years and had applied for asylum by specific deadline dates in 1990 and 1991.

complementing and competing with natives – and earn higher wages after regularization, likely reflecting improved productivity and greater bargaining power.

Only a few studies have analyzed the consequences of the regularization program introduced by the Bossi-Fini law. They mostly focus on the impact on regularized workers themselves and consider either a rather limited post-reform period. [Carrozzo \(2022\)](#) analyzes only the very short-run effects of the regularization (one to three months after it) and finds a negative employment effect on Italian natives (i.e., a lower probability of formal-sector employment) but positive effects on wages. [Devillanova et al. \(2018\)](#) restricts the analysis to the city of Milan and studies the consequences of the Bossi-Fini law for the employment probability of immigrant workers themselves, showing that eligibility for the amnesty had a significant positive effect on their employment probability. [Di Porto et al. \(2023\)](#) analyze the effect of the regularization on immigrant workers themselves and on firms that selected into the program. Using an identification strategy based on a subset of audited firms, they find a very small (weakly significant) wage effect and only a short-run positive employment effect for Italian firms (between 1.5 and 1.8 additional workers in the four months after the policy).

Our paper contributes to the empirical literature on the labor market consequences of amnesties in several ways. First, we test the effect of the Bossi-Fini law on Italian natives at the local, firm, and individual levels – a unique feature in this literature – and we are the first to analyze channels of adjustment of native workers, including firm-to-firm mobility. Second, while we use the standard shift-share IV identification, we adapt it to capture the intensity of immigrant regularization – rather than immigrant inflows – and test its validity. Third, we analyze the long-run effects of the amnesty (more than ten years after the policy) by following native workers employed in firms that regularized large numbers of immigrants, characterizing their mobility between firms and other outcomes.

At the local labor market level, we find that areas with larger regularizations did not experience significant changes in native average wages in the formal sector up to ten years after the policy. These labor markets saw a statistically significant increase in overall formal employment, driven partly by immigrants but also by natives. An event study approach shows no pre-trends in employment and wages for strongly treated areas, consistent with the positive employment effect being driven by the amnesty. Finally, native workers in firms that experienced larger increases in documented non-EU immigrant workers due to the regularization were more likely to change employers and move across firms in the long run. This generated winners and losers: workers who transitioned to higher-quality firms experienced wage gains in the medium and long run, while others experienced wage losses. The increase in mobility, and the heterogeneous wage effects of firm-to-firm transitions, raised the wage dispersion of high- relative to low-productivity native workers against a relatively unchanged average wage.

The rest of the paper is organized as follows. Section 2 discusses the institutional context and the evolution of Italian migration policy over time. Section 3 sketches the conceptual framework used to interpret our results. Section 4 presents the data sources and some stylized facts about immigration in Italy. Section 5 outlines the empirical strategy, and Section 6 discusses the results. The final section concludes.

2. The Bossi-Fini law and the Italian Immigration Policy

International migration became significant in Italy starting only in the late 1980's and especially in the 1990's.¹¹ The Foschi Law approved in 1986 introduced for the first time rules for employers hiring non-EU workers (Ambrosetti and Paparusso, 2018; Zincone and Caponio, 2006). According to the law, employers had to prove the absence of native or EU workers willing to fill the specific job in order to employ non-EU immigrant workers.

Italian borders were quite porous in those years and immigrants were able to enter illegally and join the informal Italian labor market. This produced backlash and social tensions between illegal immigrants and native workers.¹² In February 1990, a new immigration policy, the Martelli-law, was introduced. This was the first comprehensive Immigration Law in Italy and it: (i) introduced the asylum right in Italy (Art. 1), (ii) regulated the entry of non-EU citizens in the Italian territory *via* a compulsory entry visa requirement and more effective controls at the borders to detect and expel illegal immigrants, (iii) regularized the immigrants already present in the Italian territory (namely, all non-EU immigrants present in Italy before 31 December 1989 could apply for regularization regardless of their employment position). The amnesty implied the regularization of 218,000 non-EU workers (Ambrosetti and Paparusso, 2018). With the collapse of the Soviet Union (in 1990), the Italian borders experienced an unprecedented pressures from ex-Communists countries (mainly from Albania, Bosnia, Croatia, Serbia and Kosovo) and a new amnesty policy was approved by Prime Minister Dini in 1995 to regularize these new immigrant workers. The Dini law was mainly an amnesty, but introduced for the first time in Italy some basic health care rights to immigrant workers (in case of serious illness and accidents) and gave the right to children of illegal immigrants to attend public schools in Italy.

The Dini law anticipated by few years the second comprehensive Italian Immigration Act ratified in 1998 and known as the Turco-Napolitano act. The Turco Napolitano Act: (i) established the creation of temporary accommodation centres (*centri di prima accoglienza*) to host undocumented immigrants while waiting for entry approval or expulsion, (ii) promoted the integration of legal immigrants who resided in Italy for at least five years by giving the opportunity to apply for permanent residence card, (iii) extended some health care rights to illegal immigrants, and (iv) introduced a further amnesty the regularized about 220,000 illegal stayers (Zincone and Caponio, 2006). Importantly, the Turco-Napolitano Act regulated the entry of non-EU immigrant workers *via* the introduction of "sponsorship" to facilitate the entry of workers within annual quotas. Temporary permits were granted to non-EU immigrant workers looking for jobs in Italy if sponsored by an Italian citizen. The Turco-Napolitano Act was finally amended in 2002 by the Bossi-Fini law. A chronology of the evolution of the Italian migration policy is reported in Table 1.

To signal the discontinuity with previous Immigration Acts, the Bossi-Fini law abolished the "sponsorship" system for new entry, increased to six years the residence period to apply for

¹¹Other EU countries experienced important immigration episodes after the Second World War (Germany, Netherlands and Belgium) as well as during the 1960's (France, Switzerland). Italy was historically an origin country of migrant workers, moving towards North and South America, Australia and Western Europe (Germany, Belgium, Netherlands, France and UK).

¹²In this context the immigrant worker Jerry Essan Masslo was murdered by a group of right-wing extremists in Villa Literno in the south of Italy.

Table 1 – Migration Policy in Italy: a chronology

Law ID	Named	Date	Main objectives
D.I. 943-1986	Foschi law	Dec 30, 1986	Hiring non-EU workers.
D.I. 39-1990	Martelli law	Feb 28, 1990	Border regulation; Visa requirement.
D.I. 489-1995	Dini law	Nov 18 1995	Amnesty.
D.I. 40-1998	Turco Napolitano Act	Mar 6 1998	Prevent illegal entry; Regulate new flows; Integration legal immigrants; Treatment of illegal stayers.
D.I. 189-2002	Bossi Fini law	July 2 2002	Prevent illegal entry; regulate new entry.

permanent residence card and tightened the penalties (up to imprisonment) for illegal immigrants who did not comply with an order of expulsion. Also, under the Bossi-Fini law, non-EU immigrant workers could access the Italian labor market only if in possession of a valid job contract of at least one year (in line with previous legislation in force, employers still had to prove the absence of native workers willing to fill the specific job – Colombo et al. 2002). Such restrictive features of the Bossi-Fini law came, however, with an important regularization of illegal non-EU immigrant workers already present in the Italian labor market: 634,000 non-EU immigrant workers (mainly coming from Eastern European Countries and some from Asia – see Zincone and Caponio 2006) were regularized.

This was the largest amnesty in terms of numbers, implemented in Europe (Paparusso et al., 2017) and employers were the applicants requesting regularization of their potential employees. They had to declare and show the informal employment status of the immigrant workers at least three months before the start date of the law. They needed to pay a lump-sum tax of about 700€, and hire the immigrant worker for at least one year.¹³ Applications could be submitted from September 10th (the day after the approval of the law) to November 13th 2002. After this period, the Italian police authorities checked the validity of regularization forms and finally granted residence permit to legalized workers. Such a screening process took about two years to be completed and approximately the 95% of applicants were legalized (Devillanova et al., 2018).

The extension of the amnesty to *all* immigrant workers in the private sector was introduced (unexpectedly) only in a supplement of the law (the d.l. 189/2002 approved in July 2002) which was implemented in September 2002. It is therefore unlikely that before July 2002 firms had any anticipation of it, as the law was not even discussed in the Parliament debate until the second half of the year 2002. One can reasonably rule out anticipatory effects (i.e., labor

¹³While the exact duration of the employment status was hardly measurable (making *de facto* such requirement not enforceable), the duration of stay in Italy (implicit condition to be employed informally) was verifiable. The amnesty application form asked to prove the date of entry in Italy by uploading a copy of the visa stamp (the great majority of irregular immigrants in Italy were visa over stayers).

demand/supply shifts) as also suggested in [Di Porto et al. \(2023\)](#).¹⁴

3. Conceptual Framework

The Bossi-Fini law had two main objectives. First, it allowed the regularization of employment for irregular immigrants, who were already working. Second, it made it easier for some employers to hire non-EU immigrants regularly, in the following years, by regulating the number of legal entries. The regularization of immigrant workers implied that they gained options to be employed in formal jobs, usually better paid and more protected. This typical role of amnesties has usually a positive effect on wages and returns to skills for newly legalized workers as shown in several papers ([Amuedo-Dorantes et al., 2007](#); [Kaushal, 2006](#); [Kossoudji and Cobb-Clark, 2002](#)). By getting legal status, the newly regularized immigrants can change employers more easily, achieving better returns to skills, and they may increase their bargaining power. These changes are expected to increase the wages of regularized workers relative to undocumented immigrants (i.e. those who did not meet the amnesty's requirement). Additionally this amnesty and the subsequent reorganization of regular entries increased the supply of regular immigrants to be formally hired by Italian firms.

Our analysis focuses on the effect of the regularization on *natives* in the formal sector. Following the framework illustrated in [Bahar et al. \(2025\)](#); [Elias et al. \(2024\)](#) one can think that more regularized immigrants decreased the bargaining power of employers (improving immigrant workers' outside option), potentially helping all workers, including natives, to bargain for a larger share of surplus and hence higher wages. However, the amnesty also increased the supply of regular workers and, potentially, increased the substitutability between immigrants and natives likely generating more competition and downward pressure on wages of native workers. Depending on the elasticity of supply these effects may also be reflected on native employment. Hence the wage and employment effect of amnesties on native workers are ambiguous and we need the empirical analysis to shed light on them. Finally, as firms had to pay fees to regularize undocumented, this may have affected the extent to which they took advantage of the amnesty, in a way that is correlated with outcomes, requiring an IV for the intensity of treatment.

Additionally, we focus on another dynamic effect of regularization. As newly legalized immigrants are likely to move to better jobs and potentially better matches with employers (as in [Dostie et al. \(2023\)](#)), native workers may try to escape such competition by moving out of firms and/or occupations that hire a large number of amnestied immigrants (as in [Foged and Peri \(2016\)](#)). The "upskilling" of natives, who may access alternative occupations, is likely encouraged by the regularization. Natives may realize better wage opportunities in jobs/firms with less competition from immigrants. This mobility response, however, may be very different depending on the characteristics of natives (those who suffer competition from regularized immigrants). Some may be able to move to jobs that compensate for their less substitutable skills, other less so. Hence, we test the effect of the Bossi-Fini law on the wages, employment and job mobility of native workers within five years from the implementation of the policy, which is long enough for these effects to have taken place.

To confirm that the pre-policy anticipation is unlikely to be relevant due to the unexpected

¹⁴See Figures 1 and 2 in [Di Porto et al. \(2023\)](#).

nature of the reform— as discussed in Section 2— we perform event-study analyses reported in section 6 and we confirm the absence of significant pre-policy trends in wages and employment of formally hired native workers.

Finally, in the long run, the amnesty might have additionally produced a “magnet” role for future immigrants to Italy, encouraging potential migrants by giving them legal access to Italian labor markets in some occupations. So, in the years following the law, native workers may have faced larger supply of legal immigrants and hence stronger competition in the labor market. To capture these consequences we look at the impact of the Bossi-Fini Law up to 10 years after its implementation (*long-run* effect of the Bossi-Fini Law).

4. Data and descriptive evidence

4.1. Data sources

To test the short- and long-run effect of the Bossi-Fini Law on native workers, we use matched employer-employee Italian data from the National Social Security Institute (INPS) over the period 1998-2018. This dataset provides detailed information for all workers and their employers operating in the Italian private sector. Specifically, we have information on the employment status, wage, sector, location of the firm, region, gender and age for the universe of workers in the private sector (natives and immigrants) in Italy in the period 1998-2018. The INPS dataset is longitudinal and it allows to track workers' employment history and cross-firm mobility. These data enable us to follow the career of each specific worker during the years of analysis and hence to measure the pre- and post-treatment labor market outcomes for all Italian workers.

Two features of INPS data make this source well-suited for our estimations. First, they include both the nationality of workers and the (broad) occupation; this is crucial to identify the policy-induced effects of the amnesty on *native* workers and to separate less skilled from more skilled ones (blue-, white-collar and managers). Second, by spanning twenty years, 16 of which after the policy implementation, the data allow us to analyze the long-run effect of the Bossi-Fini law, adopted in September 2002.

Finally, we match INPS employer-employee data with "Cerved" balance sheet data containing information on sales, revenues, costs and other variables relative to Italian firms in the private sector during the same time period as the INPS data. We use these to calculate the value added per worker in each firm, used here as a proxy for the firm-specific productivity. A detailed discussion of data sources, sample construction and variable definitions is provided in the Appendix section 1.

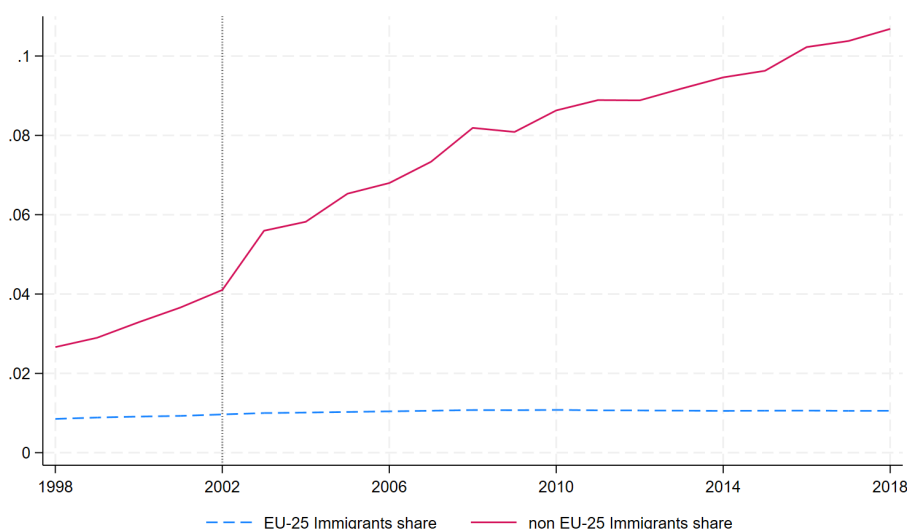
4.2. Descriptive evidence

Before moving to the formal econometric analysis we provide some stylized facts on the evolution of immigration in Italy, its characteristics, and some labor market dynamics during the period 1998-2018.

The share of immigrant workers in Italy grew continuously and significantly in the period 1998-2018 (Figure 1). From about 3% of the employment in 1998 immigrants grew to almost

10.6% in 2018. In terms of workers' type the growth was mainly among blue-collar immigrant workers. The same figure shows a break (jump up) in the share of immigrants between 2002 and 2003, the year of the amnesty. This sudden increase in the share of recorded documented immigrants likely reflects the legalization of undocumented foreign workers granted by the Bossi-Fini law in September 2002. Table 2 shows the change in the composition of immigrant workers in Italy, aggregating them by macro-occupation. During the period considered, the share of immigrants in blue-collar jobs grew from 69.7% to 82%, while the share in white-collar jobs declined correspondingly from 26.9% to 15.9%. In line with the larger availability of immigrant workers, there has been a marked increase in the share of Italian firms employing immigrant workers over the period: from 31.8% in 1998 to 54.9% in 2018.

Figure 1 – Share of immigrant workers from origins concerned *vs* not-concerned by the Bossi-Fini law.



Note: The figure reports the share of immigrant workers from treated (continuous line) *vs* not-treated origins (i.e. EU-25 member countries, dash line) in the period 1998-2018.

Table 2 – Immigrant workers in Italy in the period 1998-2018.

	1998	2008	2018	98-18 Δ p.p.
Share of immigrants (%)	3.5	8.6	10.6	7.1
Sh. blue-collar immigrants (%)	69.7	82.6	82.0	12.3
Sh. white-collar immigrants (%)	26.9	15.3	15.9	-11.0
Sh. manager immigrants (%)	3.3	2.1	2.0	-1.3
Sh. of firms employing immigrants (%)	31.8	51.2	54.9	23.1

Notes: Authors' calculation in INPS matched employer-employee data in the period 1998-2018. The last column report that percentage points change in the share of immigrants between 1998 and 2018.

An additional important fact documented in Figure 1 is the constant employment share of EU-25 immigrants in the 1998-2018 period, as this group was not affected by the Bossi-Fini law, which only involved extra-EU immigrants. As in most European countries the large increase in

immigration, and in this case the beneficiaries of the amnesty, were immigrants from non-EU origins – see respectively dashed and solid line in Figure 1.

Hence, once we account for the positive trend in non-OECD immigrants, the Bossi-Fini law appears to be a one-time permanent shift in the population of immigrants in the labor force. This suggests (as in [Elias et al. \(2024\)](#)) that the amnesty did not generate a subsequent increased immigration magnet at the aggregate level. This is only partially confirmed by results reported in Table 3. This table shows the correlation between pre-reform (i.e., 2002) population share of immigrants by world region and the 2009-2018 growth of such a share across Italian labor markets (i.e. provinces). A larger initial share of non-EU immigrants implies a stronger exposure to the Bossi-Fini amnesty, but it was not significantly correlated with positive change in immigrants workers in the long-run post-amnesty period (i.e. 2009-2018) for most regions of origin.¹⁵ The first row of Table 3 uses the simple population share of non-EU immigrants in 2002 as explanatory variable while the second row uses the *imputed* share in the pre-amnesty period (i.e., average in the period 1998-2002).¹⁶

Table 3 – Pre-policy exposure to non-EU immigrant workers and the long-run change (i.e. 2009-2018) in immigrant workers by macro-region.

	Dep var. : $\Delta_{2009-2018}$ Sh. immigrants by macro-region							
Non-EU mig	0.070 (0.096)	0.069** (0.027)	0.046* (0.024)	-0.008 (0.007)	-0.003 (0.012)	-0.006 (0.004)	0.025 (0.020)	-0.000 (0.012)
Imp. Non-EU mig	0.049 (0.075)	0.103*** (0.025)	0.080*** (0.022)	-0.002 (0.007)	0.002 (0.012)	-0.005 (0.004)	0.036* (0.022)	0.001 (0.013)
Obs.	106	106	106	106	106	106	106	106
Macro-region	EAP	EECA	EEC	LAC	MENA	NA	SA	SSA

Notes: Each entry of the table shows the results of a province-level regression correlating the observed (first row) or imputed (second row) share of non-EU immigrants in 2002 and the 2009-2018 change in macro-region specific share of immigrants. Macro-region definitions: East Asian Pacific (EAP), Eastern Europe and Central Asia (EECA), EU new member states (EEC), Latin American and Caribbean (LAC), Middle East and North Africa (MENA), North America (NA), South Asia (SA), Sub-Saharan Africa (SSA). Robust standard error in parenthesis. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

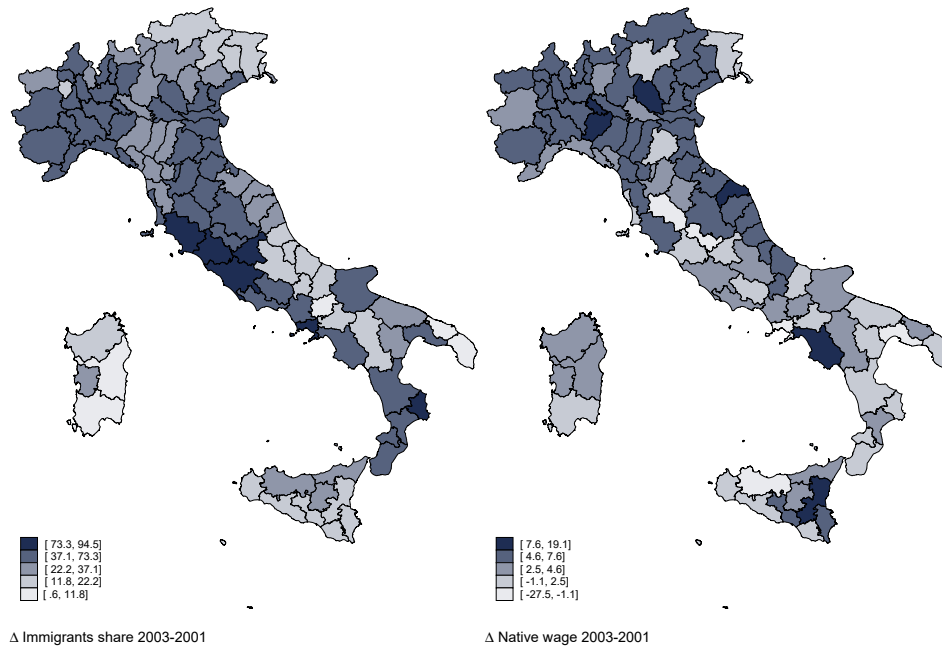
Crucial for our empirical strategy, the change in documented labor supply from immigrant workers, after the regularization, was different across Italian provinces. Figure 2 shows large increases in the regions of Latium, Lombardy, parts of Tuscany and Calabria, and a much lower increase in the rest of the South, Sicily and Sardinia. The *change* in the supply of regular immigrant workers from non-EU origins in the post-policy period across provinces is strongly correlated with the *pre-policy* share of immigrants from non-EU origins – see Figure B3. Provinces with larger share of non-EU immigrants in 2002 experienced larger legalization, and possibly larger inflows in the years immediately after the policy as the network of migrants increased the attractiveness of such local labor markets among the potential destinations. Accordingly, after ten years from the Bossi-Fini law, the share of firms employing non-EU immigrant workers grew by 25 percentage points: from 25.6% of Italian firms employing at

¹⁵A potential exception are immigrants coming from new EU members states (EECs) and Eastern Europe (non-EU) and Central Asian countries

¹⁶The imputed share of immigrants is based on the 1998 distribution of non-EU immigrants augmented with 1998-2002 origin-specific flows.

least one non-EU immigrant in 2001 to 50.6% in 2011.

Figure 2 – Change in immigrant share and average wage across Italian districts around the 2002 Bossi-Fini law.



Note: The figure plots the change in the share of immigrants (left) and average wage (right) between the pre- and post-policy period, i.e. 2001-2003.

Finally, we show the correlation between firm-to-firm mobility of natives and exposure to the Bossi-Fini law. In firms with larger exposure to non-EU immigrant workers, natives were more likely to change employer during the post-policy period. In Table 4 we show the probability that a native worker changes employer. The explanatory variable is the share of non-EU immigrant workers in firm f in the pre-policy period. Native workers in firms relatively more exposed to the Bossi-Fini law were more likely to change employer in the post-treatment period – see column (1) of Table 4. Interestingly, native workers in firms with larger exposure to non-EU immigrants show a specific re-allocation pattern: blue-collar native workers were more likely to change employer in the post-policy period, while white collar and manager workers were less likely to move – see column (2) of Table 4. This is suggestive evidence of a re-allocation process induced by immigration shock that potentially sorted natives across firms, based on their complementarity with regularized immigrants. The econometric analysis of the cross-employer re-allocation process of native workers in response to the law is developed in the next sections.

5. Identification strategy

We analyze empirically the labor market effects of the Bossi-Fini regularization of undocumented immigrant workers in the short- and long-run using three different levels of aggregation. We begin by testing the consequences in local labor markets p (approximated by Italian provinces) and then at the firm f level (section 5.1) looking at employment, wages, and job mobility of native workers as outcomes. Then, leveraging the longitudinal nature of our data,

Table 4 – The career path of native workers impacted by the Bossi-Fini law.

	Post-policy change in employer	
	(1)	(2)
Sh. non-EU immigrant: Total	0.258*** (0.005)	
Sh. non-EU immigrant: Blue-collar		0.026*** (0.001)
Sh. non-EU immigrant: White-collar		-0.071*** (0.002)
Sh. non-EU immigrant: Manager		-0.136*** (0.005)
Region-Sector FE	Yes	Yes
Age bin FE	Yes	Yes
Occupation FE	Yes	No
Estimator	OLS	OLS
Observations	3,222,172	3,222,172

Notes: The dependent variable is a dummy equal to one if the worker changes employer on the post-policy period. The pre-policy exposure (i.e. share of immigrant) is calculated at the level of the firm. Region-sector and age bin fixed effects included in all specification. Worker's occupation fixed effects included in column (1). Cluster standard error at region and sector level. *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

we analyze the response of individual workers i , post 2002, to the firm-specific exposure to the 2002 Bossi-Fini policy (section 5.2). Addressing endogeneity and omitted variable bias are critical issues and we will discuss and address them in section 5.3 below.

5.1. Local labor market and firm-level estimations

The empirical specifications in equations (1) and (2) below estimate the effect of the Bossi-Fini law on local labor markets and firms' outcomes:

$$\Delta y_{p,\bar{t}+l} = \text{Mig sh}_{p,t < \bar{t}} + \theta_{rs} + \varepsilon_{p,t} \quad (1)$$

$$\Delta y_{f,\bar{t}+l} = \text{Mig sh}_{f,t < \bar{t}} + \theta_{rs} + \varepsilon_{f,t} \quad (2)$$

In equation (1) the "treatment-intensity" variable $\text{Mig sh}_{p,t < \bar{t}}$ is the average population share of immigrant workers from the origin countries included in the Bossi-Fini regularization (i.e. non-EU immigrant workers) measured in the province p during the pre-policy period $t < \bar{t}$ (i.e. the average share between 1998 and 2001). $\bar{t}$ is the year of the implementation of the policy, 2002¹⁷. Hence we use the period pre-2002 (i.e. 1998-2001) as pre-treatment and the post-2003 ($t > 2003$) as the post-policy period, omitting year 2002 as the reference. The

¹⁷The Bossi-Fini law was enacted on July 30th 2002 (beginning the amnesty in September 2002) and employers could apply for regularization of non-EU workers up to early 2003

variable $\Delta y_{p,\bar{t}+l}$ is the *change* in province-level outcomes, namely the average wage and the total employment of native workers, in the province p , l years after 2003. We also test the firm-creation effect of immigrants by using the change in the number of firms in the local labor market p in the post-treatment period.

In equation (2) we consider instead firms f as units of analysis and the post-policy *change* in firm-level outcomes $\Delta y_{f,\bar{t}+l}$ for firms as dependent variable. The intensity of exposure to the treatment is $\text{Mig sh.}_{f,t < \bar{t}}$, capturing the pre-2002 average share of non-EU immigrants in firms' employment. Firm level outcomes are *changes* in the average wage of native workers in the firm, and changes in the total employment of natives in the firm. We consider the survival probability of the firm as additional outcome.¹⁸

As the outcomes are in changes, the sector-by-region fixed effects θ_{rs} included in both equation (1) and (2) capture any specific trend affecting area-sectors differentially in Italy.¹⁹ Hence, we identify the labor market effect of the Bossi-Fini law (at both province and firm level) by comparing, within a given region-sector, the short- and long-run *changes* in labor market outcomes of provinces/firms with different initial exposure to immigrants regularized by the Bossi-Fini law. The rationale for using pre-2002 share of immigrants from non-EU origins in province p and firm f in equations (1) and (2) as exposure implies that a larger share of workers from non-EU origins before the amnesty resulted in larger regularization rates. This is formally tested in Table 5 where we correlate the average pre-policy share of non-EU immigrants in province/firm $\text{Mig sh.}_{p/f,t < \bar{t}}$ with the number of *new* non-EU immigrant workers hires observed in the INPS data during the early six months after the passing of the law.²⁰ Reassuringly, the share of non-EU immigrants in province and firms in the pre-2002 period is very strongly correlated with the number of newly observed non-EU workers (see column 1 in Table 5). Additionally (as a placebo) we show that the same share is not correlated with the number of newly observed *EU workers*, not affected by the Bossi-Fini law (see column 2 in Table 5). This is an important validity check of our identification strategy: the pre-policy share of non-EU immigrants captures the exposure to the Bossi-Fini regularization and not to generic immigration intensity.

In the short-run, our identification strategy captures the labor market effects on natives from the regularization of the immigrant workers (the amnesty effect). In the longer run, as the pre-2002 share of non-EU immigrant workers in the province predicts the long-run change in the share of non-EU immigrant workers (see Figure B3), and specifically immigrants from new EU members states (EECs) and other Eastern Europe and Central Asian counties (EECAs) – see Figure 3, the effects may also capture a more standard immigrant labor supply increase.

¹⁸Since the wages of individuals are serially correlated within region and sector, standard errors are clustered at the region and sector level.

¹⁹Italian regions are larger administrative areas than provinces. There are 20 regions in Italy, each of them including on average 5.5 provinces.

²⁰To apply for regularization, the illegal workers had to be employed with the firm for at least three months before September 2002. So, we use the period June-December 2002 to count the new non-EU workers as proxy of the regularized workers within the Bossi-Fini amnesty. The fact that the number of newly observed non-EU immigrant workers in the period June-December 2002 is likely to reflect the Bossi-Fini law is supported by Figure B2 showing a clear peak in the number of newly hired non-EU immigrants exactly in June-December 2002 rather than in other years of the same semester.

Table 5 – Exposure to non-EU immigrant workers and regularized immigrants in June-December 2002.

Panel a : province level data		
	Δ non-EU immigrants June-December	Δ EU immigrants June-December
	(1)	(2)
Sh. non-EU immigrant _{$p,t < \hat{t}$}	12.328*** (2.694)	0.853 (3.000)
Obs.	3,041	2,670
Panel b : firm level data		
	Δ non-EU immigrants June-December	Δ EU immigrants June-December
	(1)	(2)
Sh. non-EU immigrant _{$f,t < \hat{t}$}	1.638*** (0.302)	-1.687 (1.055)
Obs.	84,118	74,865

Notes: In panel (a) we correlate the province-specific share of non-EU immigrants in the pre-policy period with the number of new non-EU hires in the period June-December 2002. In panel (b) we correlate the firm-specific share of non-EU immigrants in the pre-policy period with the number of new non-EU hires in the period June-December 2002. PPML estimations in both panel (a) and (b). Province and sector fixed effects are included in all specifications. Cluster standard error at province and sector level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

5.2. Worker-level estimations

In the second part of the analysis we test the individual-level consequences of the Bossi-Fini law, and we study the post-policy career path of individual native workers i employed in firms with different exposure to the policy in the pre-2002 period, i.e. firms having different levels of $\text{Mig sh.}_{f,t < \bar{t}}$, hence capturing the larger or smaller exposure to an increase in non-EU regular workers:

$$\Delta y_{i,\bar{t}+l} = \text{Mig sh.}_{f,t < \bar{t}} + \theta_{rs} + \varepsilon_{i,t} \quad (3)$$

We consider as outcome variable $\Delta y_{i,\bar{t}+l}$, respectively: (i) the change in native worker's wage in the post-policy period, (ii) the probability of being employed l years after the policy, and (iii) the probability of changing employer in the post-policy period. The explanatory variable is the share of firm's non-EU co-workers in the pre-policy period. Sector-by-region fixed effects θ_{rs} capture trends affecting the career-path of workers driven by regional and sector-specific factors.

5.3. Validity Test

The Bossi-Fini law was enacted by a conservative government (usually considered anti-immigration), as a way to regularize immigrants and set quotas and procedures for the future. The law was announced by the second Berlusconi government to regularize and manage previously illegal immigration, considered as a salient issue by the right-wing coalition governing the country (Casa delle Libertà). As discussed in Section 2, the extension of the amnesty to *all* workers in the private sector, rather than only to caretakers of the elderly, was introduced unexpectedly at the very end of the Parliamentary debate with an executive measure in September 2002 (the main law was approved in July 2002). So, firms were unlikely to anticipate it in their hiring decisions. Hence $(\text{Mig sh.}_{p,t < \bar{t}})$ and $(\text{Mig sh.}_{f,t < \bar{t}})$ are plausibly exogenous to the post-law performance of firms. The absence of any anticipatory effects is shown in Di Porto et al. (2023) and our event-study estimation reported in Section 6.2.1 confirms it.

Unobserved factors correlated with the *pre*-policy share of non-EU immigrant workers in local labor markets/firms and their *post*-policy labor market dynamics are however potential threats to identification. To reduce concerns of correlation with local pre-existing trends we adopt a 2SLS approach, and use a simple shift-share IV to instrument the share of immigrants in each province and firm in the pre-policy period. First, we calculate the *imputed* number of immigrants in province p and firm f coming from origins (non-EU) included in the regularization, $\bar{o} \in O$ in the pre-policy period $t < \bar{t}$ as follows:

$$\widehat{\text{Mig}}_{p,\bar{o},t < \bar{t}} = \sum_{\bar{o} \in O} \left[\frac{\text{Mig}_{p,\bar{o},1998}}{\sum_p \text{Mig}_{p,\bar{o},1998}} \times \text{Mig}_{\bar{o},t < \bar{t}} \right] \quad (4)$$

$$\widehat{\text{Mig}}_{f,\bar{o},t < \bar{t}} = \sum_{\bar{o} \in O} \left[\frac{\text{Mig}_{f,\bar{o},1998}}{\sum_{f \in p} \text{Mig}_{f,\bar{o},1998}} \times \text{Mig}_{p,\bar{o},t < \bar{t}} \right] \quad (5)$$

where $\text{Mig}_{p,\bar{o},1998}$ and $\text{Mig}_{f,\bar{o},1998}$ are the number of immigrants from treated origins $\bar{o} \in O$ in

respectively province p and firm f in year 1998 (the first available year in INPS data). The ratio in squared brackets represents the share of immigrants from origin $\bar{o}$ employed respectively in province p and firm f in 1998. This ratio is then augmented by the number of immigrants to Italy (eq. 4) or to province (eq. 5) from a given origin $\bar{o}$ in the years before the policy $t < \bar{t}$. Finally, our instrumental variables at respectively province and firm level are as follows:

$$\text{Mig sh}_{p,\bar{o},t<\bar{t}}^{IV} = \frac{\widehat{\text{Mig}}_{p,\bar{o},t<\bar{t}}}{\widehat{\text{Mig}}_{p,t<\bar{t}} + \text{Nat}_{p,t<\bar{t}}} \quad (6)$$

$$\text{Mig sh}_{f,\bar{o},t<\bar{t}}^{IV} = \frac{\widehat{\text{Mig}}_{f,\bar{o},t<\bar{t}}}{\widehat{\text{Mig}}_{f,t<\bar{t}} + \text{Nat}_{f,t<\bar{t}}} \quad (7)$$

where $\text{Nat}_{p,t<\bar{t}}$ and $\text{Nat}_{f,t<\bar{t}}$ are the observed number of native workers respectively in the province p and firm f in the pre-policy year; and $\widehat{\text{Mig}}_{p,t<\bar{t}}$ and $\widehat{\text{Mig}}_{f,t<\bar{t}}$ the *imputed* number of immigrants workers in p and f from non-EU origins as from eq. (4) and (5). The exclusion restriction holds if: (i) the geographic distribution of origin-specific immigrants workers across Italian provinces and firms in 1998 was uncorrelated with post-2002 labor market dynamics, and (ii) the aggregate inflows of immigrants in Italy in the period $t < \bar{t}$ are also uncorrelated to firm-specific dynamics. The second assumption is satisfied if each firm (or province) is too small to determine the overall number of non-EU immigrants in Italy. The orthogonality of the 1998 geographic distribution of immigrants with subsequent trends can be tested.

Omitted variable bias exists if unobserved province (or firm) specific variables affected the distribution of non-EU immigrant workers across local labor markets in 1998 as well as the wage/employment outcomes of provinces/firms persisting in the post-policy period. In Table B1 we perform validity tests and we show the correlation between the share of immigrants from non-EU origins as of 1998 (share component of our IV) and the pre-2002 *changes* in a series of labor market related outcomes at the labor market- (panel a) and firm- (panel b) level. They include the average wage of all workers and of blue and white collar workers. The estimated coefficients show no significant correlation, with a point estimate very close to zero. Finally, we show the absence of correlation between the share of immigrants from non-EU origins as of 1998 and both the change in value added and the size (i.e. employment) of firms in the period 1998-2002. This indicates the absence of pre-policy differential trends between firms and provinces with different exposure to the immigrants' regularization in 1998 (i.e. share component of the shift-share IV). Moreover, while treated firms (i.e. those having positive share of non-EU workers in the period 1998-2001) are larger than non-treated, the two groups of firms have not-statistically different average wage for all, skilled and unskilled workers – see Appendix Table B2. The results of these checks are consistent with the validity of our Instrumental Variables.

6. Results

In this section we first show the short- and long-run effect of the Bossi-Fini law on the average province-level (section 6.1) and firm-level (section 6.2) outcomes. Then, in section 6.3 we analyze how the career paths of native individual workers are affected by the amnesty, based

on the exposure of their firm in 2002. We focus on the 2SLS results in sections 6.1 - 6.3 and only report OLS results in the appendix section.

6.1. Province level results

Table 6 shows the estimated coefficients from a specification as in eq. (1) where the outcomes are changes in log wages in Panel (a) and changes in log employment in Panel (b). In the first column we show the effects over five years (i.e. $\bar{t} + 5$) capturing the short-run effect of the amnesty. In column (2) and (3) we show the effects over ten years ($\bar{t} + 10$) or more (i.e. $> \bar{t} + 10$). Appendix Table B3 shows the corresponding OLS estimates. In each panel the outcome for native workers is separated into “unskilled” (i.e. blue-collar workers) and “high skilled” (i.e., white-collar workers).

Two results emerge from looking at the regression coefficients. First, the average wages of native workers were not affected by the regularization. Provinces with large increase in legal immigrant employment after the amnesty were not associated to changes in average native wages. The positive labor supply effect and the increased bargaining power of workers (i.e., decreased firms' labor market power), may have offset each other and explain the null wage effect shown in Panel (a) of Table 6. This result is in line with the theoretical framework proposed by Elias et al. (2024). Second, provinces that were relatively more affected by the Bossi-Fini law experienced *null* employment change in the short-run (in line with results in Elias et al. 2024), and a *positive* employment change for natives in the long-run (i.e. $\bar{t} + 10$ or more) equal to 2-2.8 percentage point increase per one percentage point growth of immigrants.²¹ The positive effect on employment in the long-run is not driven by a *net* firm-creation because there is no significant net increase in number of firms in response to the regularization – see Panel (c) in Table 6.

The point estimates on wage and employment, suggest an expansionary effect of the amnesty on the local labor market opportunities of native workers in the long-run, compatible with complementarities in production between immigrant and native workers, and with expansion and investment at the firm-level following the amnesty – see next section. These results are consistent with Elias et al. (2024) who also find a non-negative effect on wages of formal Spanish high- and low-skilled workers after the amnesty.²² As our data only cover the formal sector in Italy we are unable to analyze what happens to informal workers as done in Elias et al. (2024).

6.2. Firm level results

Table 7 follows the same structure as Table 6 and reports the firm-level effect of the Bossi-Fini law. The two-stage-least squares results (our baseline) show mostly not significant average wage effect for native workers in firms relatively more exposed to regularized immigrants by the

²¹Similar effect is found in the OLS estimations in Appendix Table B3 and when excluding immigrants from Romania in Appendix Table B4.

²²Elias et al. (2024) actually find a small positive wage effect in the short-run – see Table 5 in Elias et al. (2024). This is likely due to the reduced firms' labor market power induced by the policy in Spain. Given the high unemployment rates in Italy, the reduction in firms' labor market power induced by the amnesty was not sufficient to drive wages up.

Table 6 – Labor market effect at province level. 2SLS estimations.

<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.020 (0.178)	0.101 (0.305)	0.104 (0.298)
Unskilled natives	0.027 (0.185)	-0.099 (0.271)	-0.103 (0.286)
Skilled natives	-0.142 (0.168)	0.257 (0.256)	0.181 (0.307)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.612 (0.808)	2.858*** (0.668)	2.814*** (0.791)
Unskilled natives	1.014 (0.878)	2.346*** (0.783)	2.352** (0.918)
Skilled natives	0.060 (0.338)	2.286*** (0.761)	2.426*** (0.719)
<i>Panel (c) : Active firms</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Δ Active firms	-0.314 (0.317)	-0.139 (0.272)	-0.123 (0.454)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.677***	0.677***	0.677***
Coeff. IV unskilled	0.694***	0.694***	0.694***
Coeff. IV skilled	0.705***	0.705***	0.705***
F-stat all natives	129.8	129.8	129.8
F-stat unskilled	145.3	145.9	144.6
F-stat skilled	216.6	212.8	219.8
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at province level using the instrumented exposure to Bossi-Fini law (i.e. $Migsh_{p,t < \bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the change in the number of active firms (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at province level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Bossi-Fini law.²³ While we do not observe any negative wage effect at both province and firm level, a positive employment effect, especially for native unskilled persists also at the firm-level in the long-run ($\bar{t} + 10$ and $> \bar{t} + 10$).²⁴ This is consistent with the idea that firms more affected by the amnesty experienced growth of employment but possibly also an inflow of less paid workers and/or downward wage competition. As these firms are likely specialized in the type of tasks and jobs previously performed by undocumented workers, they may have hired low-wage and low skilled natives in the post-policy period. Taken together results in Panel (a) and (b) of Table 7 suggest that firms intensively affected by the Bossi-Fini law did not pay lower wage for blue-collar workers in the long run, and grew in terms of employment by selecting mostly unskilled natives. A small/null wage effect of the Bossi-Fini law at firm level is also shown in Di Porto et al. (2023).

The expansion of some firms may have occurred at the expense of others (competition effect). This does not seem the case for Italy. The Panel (c) of Table 7 shows a non-significant effect of the amnesty on the survival probability of specific firms that hired a large share of undocumented, in line with province-level evidence reported in Table 6. Taken together, these results suggest that the increase in the employment at province level (Panel b of Table 6) is driven by the expansion of incumbent firms (Panel b of Table 7) as the firm-specific probability of surviving is not affected by the amnesty (Panel c of Table 7).

6.2.1. Event study approach

Before moving to the worker-level evidence, this section shows results of an event-study approach using firm-level data on both the average wage and employment of natives workers in Italian firms.²⁵ In line with our baseline regressions, the treatment is the share of non-EU immigrant workers in the firm in the pre-policy period. The excluded time period is 2002, the year in which the Bossi-Fini law was approved and implemented. To mimic the difference-in-difference approach adopted in the previous section, in the event study we control for firm fixed effects (i.e. within estimation), and control for region-year and sector-year fixed effect capturing any geographic or sector-specific labor market unobserved factor. Results for both average natives' wage and employment are reported in Figure 3. In line with the long-difference results discussed in the previous section, we find a null (weakly positive) wage effect for treated firms in the post-policy period, and a positive and significant effect on total employment of natives. In line with results in Table 7, the employment effect of the amnesty become significantly larger in the medium- and long-run. Reassuringly, Figure 3 also shows small and usually non-significant pre-trend estimates, supporting the causal interpretation of our baseline results.

6.3. Worker level results

Results on individual native worker's outcomes are reported in Tables 8 and 9 for wage and employment probability as outcomes. Two interesting results emerge. First, while skilled native workers do not face significant changes in their wage – see third row of Table 8, unskilled native

²³OLS results are shown in Appendix Table B5.

²⁴Results are robust to excluding immigrants from Romania – see Appendix Table B6.

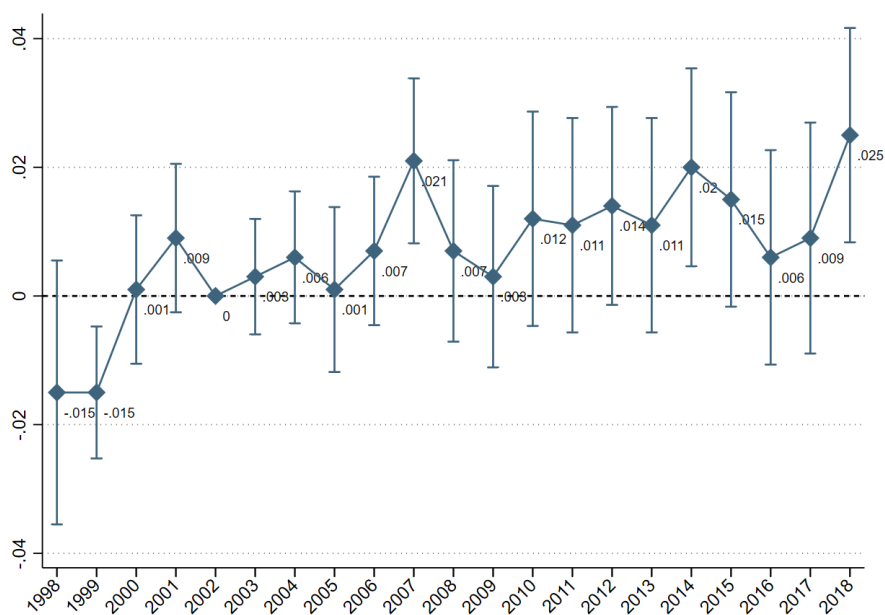
²⁵We decided to run the event-study approach at the level of the firm as this is the most “natural” unit of observation to define treated vs untreated units.

Table 7 – Labor market effect at firm level. 2SLS estimations.

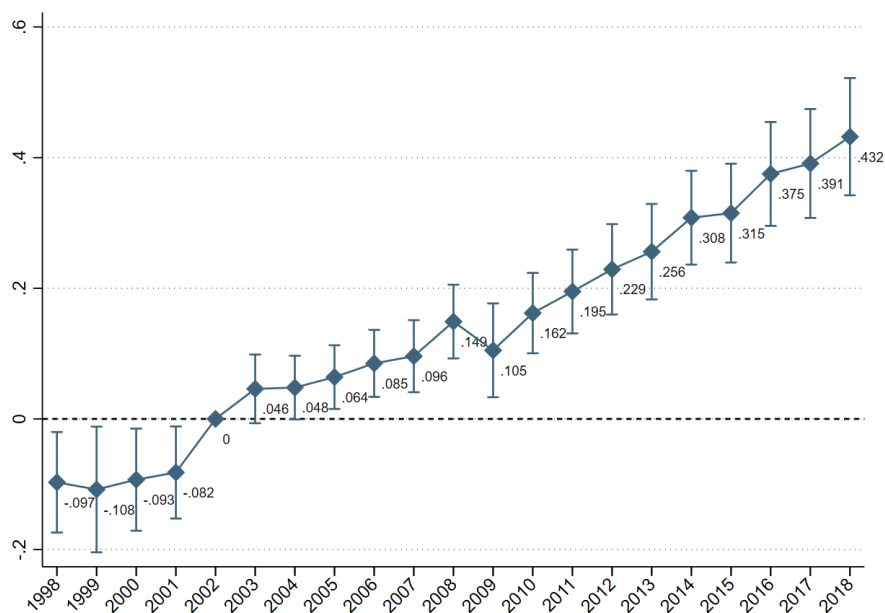
<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Native	-0.008 (0.012)	0.014 (0.013)	0.019 (0.019)
Unskilled natives	-0.015 (0.015)	-0.000 (0.013)	-0.022 (0.017)
Skilled natives	0.004 (0.018)	0.027 (0.030)	0.043 (0.031)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.042 (0.042)	0.131** (0.053)	0.177*** (0.059)
Unskilled natives	-0.037 (0.044)	0.087*** (0.030)	0.146** (0.064)
Skilled natives	0.030 (0.050)	0.065 (0.067)	0.080 (0.060)
<i>Panel (c) : Firms survival</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
$\mathbb{P}$ firm survival	-0.015 (0.033)	0.025 (0.047)	0.074 (0.056)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.665***	0.665***	0.665***
Coeff. IV unskilled	0.658***	0.657***	0.658***
Coeff. IV skilled	0.669***	0.669***	0.669***
F-stat all natives	2709	2709	2709
F-stat unskilled	2486	2307	2314
F-stat skilled	2044	2041	2284
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at firm level using the instrumented exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t < \bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the firm's survival probability (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at region and sector level. *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Figure 3 – The firm-level wage and employment effect of the Bossi-Fini law. An event study approach.



(a) Outcome : Average wage of natives (ln).



(b) Outcome : Number of native workers (ln).

Note: The figure plots the OLS estimated coefficients of the exposure to Bossi-Fini law (i.e. $Mig_{f,t} \cdot 1_{t < \bar{t}}$) interacted with a year dummy for the pre- and post-policy period. Regression includes firm, region-year and sector-year fixed effects. Standard errors are clustered by firm, region-year and sector-year fixed effects. In Panel (a) the outcome is the average wage of natives in the firm (in ln). In Panel (b) the outcome variable is the total number of native workers in the firm (in ln). Error bars show 90% confidence intervals.

workers experienced a significant reduction in their wage. This is consistent with the fact that the expansion of firms showed at both province (Table 6) and firm level (Table 7) hid a significant downward wage pressure for unskilled workers. Interestingly, when splitting the sample of workers based on quintiles of their residual pre-2002 wage,²⁶ we find that middle-ability workers suffer the most the competition from regularized immigrant workers. Workers in the first quintile of residual wage are not affected, likely because close to a lower bound of wage paid in the Italian labor market. The top-quintile workers are not affected as only weakly substitutable with regularized immigrant workers.

Second, native workers in firms with larger exposure to the amnesty did not experience significantly lower probability of remaining employed in the long run – see Table 9. Only workers in the first and second quintile of residual wage, likely with lower ability, suffered the competition from regularized immigrants and experienced a statistically significant reduction in the employment probability in the medium and long run. However, workers become more likely to leave the firm in the long-run – see Table 10. In particular, for unskilled workers who suffered higher competition with regularized immigrants, the probability of changing employer in the long-run increased (i.e. escape from competition effect).²⁷

Competition from regularized immigrants in the long run seems to take the form of pushing some natives to leave the firm (i.e., initial employer) and to decrease employment probability of those who did not (i.e. workers belonging to the first and second quintile of residual wage – see Table 9). Overall, the Bossi-Fini regularization seems to have increased the turnover of natives in the firm. The increased mobility on the workers' side corresponds to firm's losing some incumbents for less skilled new natives. Table B11 in the Appendix shows that, when hit by the amnesty, in firms with larger share of undocumented non-EU immigrants, native workers tend to be more likely to change sector but not local labor market.²⁸ Namely, native workers were more likely to re-allocate across firms and sectors in the post-policy period exiting firms with high share of regularized workers.

²⁶We use the residual wage as a proxy of the intrinsic worker's type. Residual wage is conditional on worker's age, age squared, gender, age $\times$ gender, age squared $\times$ gender, employer's size, occupation fixed effects and province-sector fixed effects.

²⁷OLS estimations in Tables B7 and B8 point to qualitatively the same results but with lower standard errors. Robustness check excluding immigrants from Romania in Tables B9 and B10 confirm our results.

²⁸Results are robust to OLS estimations in Appendix Table B12.

Table 8 – Wage effect at individual worker level. 2SLS estimations.

	Dep var : Δ Wage		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.015 (0.017)	-0.037* (0.018)	-0.079** (0.034)
Unskilled natives	-0.040** (0.015)	-0.068*** (0.015)	-0.112*** (0.026)
Skilled natives	0.019 (0.026)	0.007 (0.035)	-0.025 (0.054)
Stayers native	-0.018 (0.019)	-0.019 (0.016)	-0.034 (0.029)
Switchers natives	-0.023 (0.030)	-0.088** (0.041)	-0.161*** (0.055)
1 st quint. worker type	0.029 (0.032)	0.027 (0.050)	-0.048 (0.067)
2 nd quint. worker type	-0.041** (0.016)	-0.071*** (0.023)	-0.108*** (0.035)
3 rd quint. worker type	-0.042** (0.017)	-0.046*** (0.014)	-0.090*** (0.029)
4 th quint. worker type	-0.022 (0.020)	-0.043** (0.016)	-0.088*** (0.019)
5 th quint. worker type	-0.013 (0.022)	-0.041** (0.016)	-0.068* (0.039)
Coeff. IV all natives	0.674***	0.680***	0.685***
Coeff. IV unskilled	0.674***	0.681***	0.688***
Coeff. IV skilled	0.673***	0.678***	0.681***
Coeff. IV stayers	0.670***	0.677***	0.680***
Coeff. IV switchers	0.683***	0.685***	0.691***
Coeff. IV 1 st quint.	0.680***	0.685***	0.691***
Coeff. IV 2 st quint.	0.667***	0.679***	0.681***
Coeff. IV 3 st quint.	0.670***	0.678***	0.681***
Coeff. IV 4 st quint.	0.669***	0.677***	0.679***
Coeff. IV 5 st quint.	0.677***	0.680***	0.688***
F-stat all natives	1469	1738	1819
F-stat unskilled	1126	1324	1386
F-stat skilled	2068	2499	2487
F-stat stayers	1304	1435	1539
F-stat switchers	2035	2591	2119
F-stat 1 st quint.	1248	1186	1209
F-stat 2 st quint.	1115	1557	1508
F-stat 3 st quint.	1638	1700	1875
F-stat 4 st quint.	1552	1945	2096
F-stat 5 st quint.	1554	1989	1843
Reg-Sec + Occ + Age FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on Δ Wage using the instrumented exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t < \bar{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level. *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$

Table 9 – Employment effect at individual worker level. 2SLS estimations.

	<i>Dep var : Probability being employed</i>		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}>\bar{t}+10}$
Natives	-0.030 (0.028)	-0.066 (0.047)	-0.086 (0.063)
Unskilled natives	-0.050 (0.031)	-0.093 (0.055)	-0.105 (0.071)
Skilled natives	0.008 (0.029)	-0.030 (0.034)	-0.065 (0.048)
1 st quint. worker type	-0.046 (0.042)	-0.093* (0.052)	-0.119 (0.076)
2 nd quint. worker type	-0.045 (0.031)	-0.113* (0.054)	-0.130* (0.064)
3 rd quint. worker type	0.005 (0.031)	-0.022 (0.068)	-0.067 (0.078)
4 th quint. worker type	-0.010 (0.021)	-0.035 (0.049)	-0.049 (0.069)
5 th quint. worker type	-0.035 (0.027)	-0.061 (0.039)	-0.073 (0.056)
Coeff. IV all natives	0.676***	0.676***	0.675***
Coeff. IV unskilled	0.677***	0.677***	0.676***
Coeff. IV skilled	0.674***	0.674***	0.674***
Coeff. IV 1 st quint.	0.685***	0.684***	0.683***
Coeff. IV 2 st quint.	0.673***	0.674***	0.673***
Coeff. IV 3 st quint.	0.674***	0.673***	0.670***
Coeff. IV 4 st quint.	0.671***	0.671***	0.671***
Coeff. IV 5 st quint.	0.676***	0.676***	0.675***
F-stat all natives	1438	1445	1430
F-stat unskilled	1085	1082	1064
F-stat skilled	2273	2298	2267
F-stat 1 st quint.	1213	1226	1211
F-stat 2 st quint.	1266	1277	1232
F-stat 3 st quint.	1591	1537	1537
F-stat 4 st quint.	1718	1746	1698
F-stat 5 st quint.	1365	1360	1363
Reg-Sec + Occ + Age FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on worker's employment probability (i.e. dummy equal to one if the worker is employed at $\bar{t} + 5$, $\bar{t} + 10$ and $\bar{t} + 10$) using the instrumented exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t < \bar{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level. *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table 10 – Immigrants regularization and the firm-to-firm switch. 2SLS estimations.

Dep var:	Dep var : $\mathbb{P}$ change employer		
	$\Delta_{\hat{t}, \hat{t}+5}$	$\Delta_{\hat{t}, \hat{t}+10}$	$\Delta_{\hat{t}, \hat{t}>\hat{t}+10}$
Natives	0.075 (0.056)	0.092 (0.064)	0.110* (0.060)
Unskilled natives	0.028 (0.022)	0.023 (0.028)	0.078* (0.039)
Skilled Natives	0.110 (0.105)	0.149 (0.120)	0.118 (0.084)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.676***	0.676***	0.676***
Coeff. IV unskilled	0.677***	0.677***	0.677***
Coeff. IV skilled	0.674***	0.674***	0.674***
F-stat all natives	1443	1443	1443
F-stat unskilled	1096	1096	1096
F-stat skilled	2274	2274	2274
Occupation FE	Yes	Yes	Yes
Age Bin FE	Yes	Yes	Yes
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on firm-to-firm switching probability (i.e. dummy equal to one if the worker changes employers at $\hat{t} + 5$, $\hat{t} + 10$ and $\hat{t} + 10$) using the instrumented exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t < \hat{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

6.4. Worker-firm sorting and wage inequality in the long run

A key feature of the INPS longitudinal employer-employee data is the information on the type of the firm a worker is matched with (in terms of its productivity). So, we can analyze more closely the firm-to-firm moves of native workers affected by the Bossi-Fini amnesty. Namely, we test whether the higher probability of firm-to-firm moves caused by the amnesty, as shown in Table 10, had also wage effects on movers. In Table 11 we restrict the sample to movers (i.e. workers that changed employer in the post-2002 period) and estimate the wage effect of the exposure to the amnesty (i.e. $Mig_{f,t<\bar{t}}$) for movers towards more productive firms (i.e. with higher value added per workers) with respect to other movers. Interestingly, we find that native workers that move toward a more productive employer experience a statistically significant wage gain in the short- to long-run. Conversely, other movers experiences a negative wage effect.

Table 11 – Wage growth by type of firm-to-firm switch. 2SLS estimations.

Dep var:	Dep var : Δ Wage		
	$\Delta_{\hat{t},\hat{t}+5}$	$\Delta_{\hat{t},\hat{t}+10}$	$\Delta_{\hat{t},\hat{t} > \hat{t}+10}$
$Mig\ sh_{f,t<\bar{t}}$	-0.342*** (0.058)	-0.673*** (0.078)	-0.832*** (0.081)
$Mig\ sh_{f,t<\bar{t}} \times 1\ (VA_{f,t>\bar{t}} > VA_{f,t<\bar{t}})$	0.614*** (0.061)	1.082*** (0.106)	1.277*** (0.128)
Obs	484,380	460,130	459,941
Estimator	2SLS	2SLS	2SLS
Coeff. IV	0.690***	0.685***	0.695***
Coeff. IV $\times 1\ (VA_{f,t>\bar{t}} > VA_{f,t<\bar{t}})$	0.780***	0.787***	0.791***
F-stat	982.8	1304	1047
Occupation FE	Yes	Yes	Yes
Age Bin FE	Yes	Yes	Yes
Region-Sector FE	Yes	Yes	Yes

Notes: Worker-level estimations based on the sub-sample of workers that changed employer between the pre- and the post Bossi Fini law. The main regressors are the instrumented exposure to Bossi-Fini law (i.e. $Mig\ sh_{f,t<\bar{t}}$) and its interaction with a dummy variable equal to one if the new employer has higher value added per worker 1 ($VA_{f,t>\bar{t}} > VA_{f,t<\bar{t}}$). Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Such re-allocation of native workers was likely to increase wage inequality in Italian local labor markets. Higher productivity workers who managed to transition toward more productive firms experience a wage gain. Less productive workers, more likely to move towards less productive firms, experienced a wage loss.

These dynamics likely increased the wage gap in each Italian province - here approximated by the average skilled-unskilled wage gap in each province. The increased wage inequality effect is shown in Table 12. In the long run, provinces relatively more exposed to the amnesty experienced a widening of the wage gap between skilled and unskilled native workers.²⁹

²⁹Results are robust to OLS estimations in Appendix Table B13.

Table 12 – Re-allocation of workers and wage inequality across local labor markets. 2SLS estimations.

Dep var:	Change in wage gap (skilled-unskilled)		
	$\Delta_{\hat{t}, \hat{t}+5}$	$\Delta_{\hat{t}, \hat{t}+10}$	$\Delta_{\hat{t}, \hat{t} > \hat{t}+10}$
Mig sh _{$p, t < \bar{t}$}	0.032 (0.195)	0.512** (0.185)	0.442* (0.222)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.726***	0.726***	0.724***
F-stat all natives	312	323	306
Region-Sector FE	Yes	Yes	Yes

Notes: Province-level estimations on the average skilled-unskilled wage gap. The main regressor is the instrumented exposure to Bossi-Fini law at province level (i.e. Mig sh _{$p, t < \bar{t}$}). Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

6.5. Robustness check using alternative exposure to the amnesty

In this section we present some robustness checks of our baseline results. We use the (observed) share of non-EU immigrant workers hired in the province/firms in the period June-December 2002 as an alternative measure of the exposure to the Bossi-Fini law. This is the exact time-window in which Italian firms were likely to apply for the amnesty. Regularized non-EU workers appeared in the INPS social security system three months before the entry into force of the law because to benefit from the amnesty, irregular workers had to be employed in the firms for at least three months before the application. The suitability of this proxy for approximating the effective number of non-EU immigrant workers regularized by the firm within the context of the Bossi-Fini law is further supported by Figure B2, showing the peak in the number of non-EU workers hiring in the period June-December 2002 relative to the same semester in other years.

The results of this robustness check are reported in Table 13. Each entry of the table reports the coefficient of the (instrumented) share of newly hired non-EU immigrant workers in June-December 2002 at province (columns 1-3), and firm level (columns 2-9) on the different outcomes (rows). The instrumental variable is the same as in our baseline regressions. The alternative measure of exposure to Bossi-Fini law confirms our baseline results. Namely, the absence of any downward pressure of native workers' average wage at both province and firm level (irrespective of their skill) – see columns (1)-(6). However, as in our baseline estimation, the amnesty had a medium-long run negative wage effect on unskilled workers at the individual level – see columns (7)-(9) of Table 13. The positive estimates on employment growth at both province and firm level in particular for unskilled workers are also confirmed- see columns (1)-(6) in Table 13.

Table 13 – Robustness check using the share of non-EU newly hired workers in June-December 2002. 2SLS estimations.

	<i>Province level</i>			<i>Firm level</i>			<i>Worker level</i>		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Δ Wage	-0.102 (0.084)	0.034 (0.133)	-0.030 (0.135)	-0.030 (0.035)	0.060 (0.059)	0.029 (0.068)	-0.024 (0.029)	-0.060** (0.027)	-0.127** (0.049)
Δ Unskilled	-0.118 (0.089)	-0.106 (0.118)	-0.121 (0.130)	-0.067*** (0.021)	-0.007 (0.027)	-0.039 (0.046)	-0.059** (0.027)	-0.098*** (0.024)	-0.162*** (0.037)
Δ Skilled	-0.118 (0.111)	0.070 (0.121)	-0.090 (0.135)	0.047 (0.046)	0.126 (0.074)	0.113*** (0.034)	0.042 (0.060)	0.014 (0.075)	-0.053 (0.110)
Employment	0.228 (0.209)	1.005** (0.440)	0.690** (0.256)	0.146 (0.090)	0.351*** (0.104)	0.571*** (0.127)	-0.047 (0.039)	-0.105 (0.073)	-0.138 (0.102)
Employment Unskilled	0.293 (0.305)	1.079** (0.465)	0.643* (0.313)	0.189* (0.102)	0.452*** (0.128)	0.612*** (0.204)	-0.071* (0.039)	-0.133* (0.076)	-0.150 (0.103)
Employment Skilled	0.362 (0.260)	1.040* (0.566)	0.946** (0.409)	-0.052 (0.040)	0.029 (0.053)	0.085 (0.065)	0.017 (0.064)	-0.065 (0.074)	-0.143 (0.105)
Estimator	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Coeff. IV all natives	1.246**	1.246**	1.246**	0.594***	0.594***	0.594***	0.415***	0.424***	0.424***
Coeff. IV unskilled	1.253**	1.258**	1.257**	0.537***	0.558***	0.546***	0.460***	0.475***	0.475***
Coeff. IV skilled	1.285**	1.320***	1.268**	0.717***	0.710***	0.699***	0.305***	0.316***	0.320***
F-stat all natives	8.05	8.05	8.05	75.55	75.55	75.55	29.08	33.73	29.70
F-stat unskilled	8.08	8.17	8.15	82.07	82.57	77.27	26.41	31.56	26.44
F-stat skilled	8.38	10.14	8.34	77.23	89.47	70.25	51.91	52.24	47.96
Region-Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Each row shows a different outcome variable. Each entry of the table corresponds to a specific estimation of the (instrumented) share of newly hired non-EU immigrant workers in June-December 2002 at province (column 1) and firm level (columns 2 and 3). First stage coefficient and F-stat reported at the bottom of the table refer to wage regressions only. Cluster standard error at region and sector level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

7. Conclusion

In this paper we study the short- and long-run effect of the regularization of undocumented immigrant workers on the labor market outcomes of Italian workers, analyzing their aggregate outcomes at the province and firm level as well as individual outcomes. We use the largest amnesty implemented in Italy in the recent decades, namely the Bossi-Fini law (d.l. 189/2002). Three main results emerge from our estimations. First, average wages at local labor market level (i.e. *province*) were not affected by the amnesty. Second a positive employment effect at both province and firm level is found, especially in the long run, suggesting complementary and expansionary role from regular immigrants. Third, the Bossi-Fini law induced a significant increase in mobility across firms and sectors of native workers. Such re-allocation of native workers implied winners and losers in terms of wages: higher (lower) wages for workers transitioning toward more (less) productive firms.

These results show that it is important to analyze individual outcomes, as the aggregate average hides some heterogeneous effects, with higher quality workers transitioning to better quality firms and worse quality ones losing in terms of wages.

The results that amnestied immigrant workers stimulated the local economy and employment with no negative effects on average natives' wages is an important finding. It confirms what was found by [Elias et al. \(2024\)](#) and suggests that the positive complementarity, bargaining power and firm attraction effect of regular immigrants was larger than the competition and displacement effects. However, inequality may have increased as well, implying the presence of losers among native workers.

Bibliography

- Ambrosetti, E. and A. Paparusso (2018). Migrants or Refugees? The Evolving Governance of Migration Flows in Italy during the "Refugee Crisis". *Revue Européenne des migrations internationales* 34(1), 151–171.
- Amuedo-Dorantes, C., C. Bansak, and S. Raphael (2007). Gender differences in the labor market: Impact of irca's amnesty provisions. *The American Economic Review* 97(2), 412–416.
- Bahar, D., I. Di Tella, and A. Gulek (2025). Formal Effects of Informal Labor and Work Permits: Evidence from Venezuelan Refugees in Colombia. Technical report, mimeo.
- Bahar, D., A. M. Ibáñez, and S. V. Rozo (2021). Give me your tired and your poor: Impact of a large-scale amnesty program for undocumented refugees. *Journal of Development Economics* 151, 102652.
- Beerli, A., J. Ruffner, M. Siegenthaler, and G. Peri (2021, March). The abolition of immigration restrictions and the performance of firms and workers: Evidence from Switzerland. *American Economic Review* 111(3), 976–1012.
- Borjas, G. J. (2003). The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market. *The Quarterly Journal of Economics* 118(4), 1335–1374.
- Card, D. (2001, January). Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration. *Journal of Labor Economics* 19(1), 22–64.
- Carrozzo, S. (2022, December). The Labor Market Effects of an Unexpected Amnesty for Undocumented Workers. Technical report, SSRN.
- Casarico, A., G. Facchini, and T. Frattini (2018). What drives the legalization of immigrants? evidence from irca. *Regional Science and Urban Economics* 70, 258–273.
- Chassamboulli, A. and G. Peri (2015). The labor market effects of reducing the number of illegal immigrants. *Review of Economic Dynamics* 18(4), 792–821.
- Colombo, A., G. Sciortino, and E. Craveri (2002). The bossi-fini law: Explicit fanaticism, implicit moderation, and poisoned fruits. *Italian Politics* 18, 162–179.
- Devillanova, C., F. Fasani, and T. Frattini (2018). Employment of undocumented immigrants and the prospect of legal status: Evidence from an amnesty program. *ILR Review* 71(4), 853–881.
- Di Porto, E., E. M. Martino, P. Naticchioni, and S. Vannutelli (2023). Back to Black? The Impact of Regularizing Migrant Workers. Technical report, mimeo.
- Dostie, B., J. Li, D. Card, and D. Parent (2023). Employer policies and the immigrant–native earnings gap. *Journal of Econometrics* 233(2), 544–567.
- Dustmann, C., T. Frattini, and I. P. Preston (2013). The Effect of Immigration along the Distribution of Wages. *Review of Economic Studies* 80(1), 145–173.
- Edo, A. (2019, 12). The Impact of Immigration on Wage Dynamics: Evidence from the Algerian Independence War. *Journal of the European Economic Association* 18(6), 3210–3260.
- Elias, F., J. Monras, and J. Vazquez-Grenno (2024). Understanding the effects of granting work permits to undocumented immigrants. *Journal of Labor Economics* forthcoming.

- Foged, M. and G. Peri (2016, April). Immigrants' effect on native workers: New analysis on longitudinal data. *American Economic Journal: Applied Economics* 8(2), 1–34.
- Kaushal, N. (2006). Amnesty programs and the labor market outcomes of undocumented workers. *The Journal of Human Resources* 41(3), 631–647.
- Kossoudji, S. A. and D. A. Cobb-Clark (2002). Coming out of the shadows: Learning about legal status and wages from the legalized population. *Journal of Labor Economics* 20(3), 598–628.
- Mitaritonna, C., G. Orefice, and G. Peri (2017). Immigrants and firms? outcomes: Evidence from France. *European Economic Review* 96(C), 62–82.
- Orefice, G. and G. Peri (2024). Immigration and Worker-Firm Matching. *Review of Economics and Statistics* forthcoming.
- Ottaviano, G. I. P. and G. Peri (2012, February). Rethinking The Effect Of Immigration On Wages. *Journal of the European Economic Association* 10(1), 152–197.
- Paparusso, A., T. Fokkema, and E. Ambrosetti (2017). Immigration policies in Italy: their impact on the lives of first-generation Moroccan and Egyptian migrants. *Journal of International Migration and Integration* 18, 499–546.
- Peri, G. and C. Sparber (2009, July). Task Specialization, Immigration, and Wages. *American Economic Journal: Applied Economics* 1(3), 135–169.
- Zincone, G. and T. Caponio (2006). Immigrant and Immigration policy-making: The case of Italy. Technical report, INISCOE working paper: Country report.

1. Data Appendix

1.1. Main sources and data format

We combine administrative employer-employee records from INPS with firm balance-sheet data from Cerved. The main source is the annual INPS archive of labor relationships, which contains the universe of employment relationships (employer-employee match) in private-sector for non-agricultural firms. These data can be linked, through anonymised worker and firm identifiers, to the worker registry (ANAGRAFICA LAVORATORI) and the firm registry (ANAGRAFICA IMPRESE). The annual files provide information on earnings, weeks and days worked, occupation, contract type, province of work, and other contractual characteristics. The worker registry provides demographic information, including gender, year of birth, birthplace-based nationality, and pensioning date, while the firm registry provides location and sector identifiers, firm structure, and dates of incorporation.

The annual INPS files are organized around three identifiers: the worker identifier, the firm fiscal identifier, and the contributory plant identifier. This distinction is important for the empirical construction. The firm identifier (ID_IMPRESA) corresponds to the underlying firm, whereas the plant or contributory identifier (ID_AZIENDA) may vary within a firm because of different contributory positions, sectors, or provinces. We therefore start from the worker-plant-year level and then aggregate to the firm-year and province-year levels used in the analysis – see dedicated section below.

In the analysis we use annual data from 1998 to 2018. This is the largest possible time span covering the Bossi-Fini law and allowing comparable data across years. In particular, the variable used to determine contract duration is available only since 1998. To construct the shift-share instrument, we also use historical annual INPS files from 1983, 1988, and 1998 to recover pre-existing origin-specific immigrant distributions across firms and local labor markets.

Balance sheet information on Italian firms are from Cerved. We merge balance sheet data with INPS employer-employee data using firm identifier ID_IMPRESA. We keep matched firm-year observations from 1998 onward. The Cerved data provide information on operating value added, total production, tangible fixed assets, and labor costs. We use these variables to construct value added per worker, revenues per worker, and capital per worker. In the baseline analysis, value added per worker is the main firm-level variable used in the empirical analysis. Observations with non-positive values in the balance-sheet variables are treated as missing.

1.2. Data cleaning and aggregations

The raw annual labour-relationship files from INPS are cleaned consistently across years. Since a worker may appear in more than one employment relationship within a year (i.e. multi-job, or change of employer within a year), we retain for each worker-year, the spell with the largest number of paid weeks (SETTIMANE_RETRIBUITE). Hence, we select the main annual job. We then merge worker-year observations with the worker registry (ANAGRAFICA LAVORATORI) and keep only matched records. Age is computed as the difference between the reference year and year of birth, and the sample is restricted to workers aged 15–64, grouped into ages 15–24, 25–54, and 55–64.

We drop observations with missing province of work, missing or misspelled occupational codes,

and missing or misspelled contract-duration information. We also exclude occupational categories outside the target labour market, namely pilots and flight personnel (QUALIFICA codes E, F, G, H, L, M, and N) and journalists (code P). Workers whose occupational code cannot be mapped into one of the three main groups used in the paper (i.e. blue collar, white collar and managers) are excluded. Namely, we collapse the INPS occupational classification into three broad groups. Blue-collar workers are those with QUALIFICA=1 (*operai*); white-collar workers are those with QUALIFICA=2 (*impiegati*); managers include QUALIFICA=3 (*dirigenti*), QUALIFICA=9 (industrial managers enrolled in the general private-sector pension scheme after 2003), and QUALIFICA=Q (*quadri*). Other categories, including apprentices and special contribution categories, are excluded from this three-way classification.

The duration of a contract is harmonised using TIPO_RAPPORTO. Permanent contracts correspond to code I. Fixed-term contracts correspond to codes A and D, where A identifies substitution contracts and D other fixed-term contracts. Seasonal contracts correspond to codes T, G, and S. We exclude code E, which refers to workers receiving figurative contributions linked to the extraordinary income-support allowance of the Trentino solidarity fund, as well as missing or unmapped contract-duration codes. Wages are measured as annual taxable earnings (IMPONIBILE) divided by paid days (GIORNI_RETRIBUITI), yielding a daily wage measure comparable across workers with different annual work intensity. Observations with missing daily wages are dropped, while negative earnings or wage values are set to missing and hence not considered.

A key information for our analysis is the worker's country of birth. We determine workers' birthplace codes from the worker registry. We convert foreign birthplace codes to ISO 3-digit country codes using the available codebook. Workers born in Italy are coded as natives, while foreign-born workers are assigned to their country of birth. Next, we create indicators for EU membership and year of EU entry. This information is central to the analysis because treatment is defined by pre-policy exposure to non-EU workers affected by the 2002 regularization.

Aggregation to plant, firm, and province level. A peculiarity of our study is combining the worker-level analysis with province- and firm-level analysis. We therefore had to aggregate worker-level data at both firm and province level. In moving from worker- to firm- and province-level aggregation, we simply computed the count of workers and average daily wages by nationality group and occupation for each firm and province separately. Employment is measured as the number of workers in the country of birth-occupation cell. The average wage is computed as employment-weighted averages of daily wages in a given cell. We construct separate employment and wage variables for natives, immigrants, non-EU immigrants, as well as for blue-collar, white-collar, manager, and total employment. These measures are then aggregated at firm and province level.

To assign a unique sector and location to a firm-year when a firm has multiple plants in different sectors-provinces, we retain the plant with the largest employment within the firm-year and, if necessary, break ties using the largest payroll. This procedure assigns each firm-year to a unique province, region, and sector. Sector is based on ATECO 2007. We use two-digit ATECO sectors for manufacturing and aggregate some service sectors into broader groups, namely utilities, construction, commerce, transport, accommodation and food services, communication, finance, real estate, business services, and rental services. Public-sector activities

are not considered in our analysis as not concerned by Bossi-Fini law, and hence excluded.

1.3. Variable definitions

Treatment exposure. Treatment intensity is defined using pre-2002 exposure to workers from origins covered by the Bossi-Fini regularization, i.e. non-EU immigrants. At firm and province level respectively, we compute the share of non-EU workers in total employment during the pre-policy period (i.e. 1998-2002). The baseline measure is the *average* pre-policy share of immigrant workers from origins affected by the 2002 regularization. We also construct alternative treatment measures that exclude Romanian workers and that separate workers from countries involved in 2004 and 2007 EU enlargements.

We instrument treatment exposure using shift-share measures based on historical origin-specific immigrant distributions observed in 1983, 1988, and 1998. As discussed in section 4, The firm-level instrument combines historical firm-origin immigrant shares with subsequent province-origin immigrant inflows, while the province-level instrument combines historical province-origin shares with aggregate origin-specific immigrant inflows.

Residual wage and worker type. To characterize pre-policy worker type, we estimate annual residual wage measures using the log of daily wage as dependent variable and controlling for age, age squared, gender, gender-specific age profiles, occupation, province-sector cells, and firm-size class. Firm size is defined within sector using quintiles of total payroll. The residual wage therefore captures the component of individual wages not explained by observable worker, firm-size, and local-sector characteristics. Residual wages are converted into within-year percentiles. For each worker, we average the pre-2002 residual-wage percentile over the available pre-policy years. This average pre-policy percentile is used as a proxy for worker type.

Outcome variables. At firm and province levels, we compute *changes* in native employment and native average wages between the pre-policy period and three post-policy horizons: (i) five years after the policy, (ii) ten years after the policy, and (iii) the up-to-2018 period. We also construct firm survival probability and province-level count of firms using the same three time horizons. In the firm-level analysis, we exclude very small firms, defined as firms with average employment below five workers, and firms created after the 2002 shock.

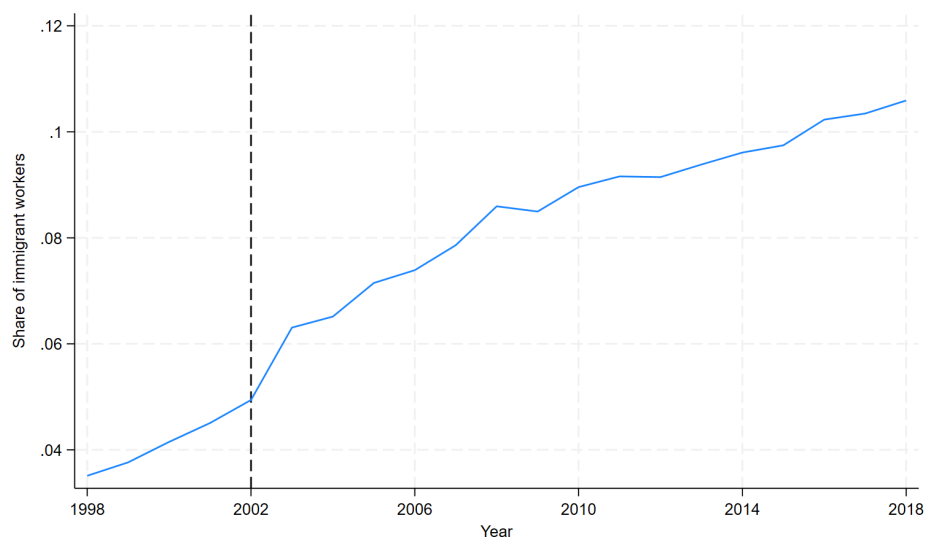
At the worker level, we follow native workers observed in 2004 and construct employment, wage-growth, and mobility outcomes using the three time horizons (i)-(iii). Employment outcomes indicate whether the worker is employed in each of the three time horizons. Wage-growth outcomes compare post-policy daily wages with the 2004 daily wage. Mobility outcomes indicate whether the worker changes employer, province, or sector between 2004 and each of the three post-policy horizons. For workers who change employer, we further distinguish moves towards more productive firms, defined using value added per worker from the Cerved merge, from other moves. Importantly, survival outcomes are adjusted using pensioning information from the worker registry so that workers who retire before the relevant horizon are not mechanically treated as labor-market exits.

For the firm event-study analysis, we impose additional restrictions to reduce the influence

of anomalous observations. We exclude firms with treatment intensity equal to one, firms with no native workers, and observations outside the first and ninety-ninth percentiles of the native-wage distribution. We also require firms to be observed for a sufficiently long period around the policy.

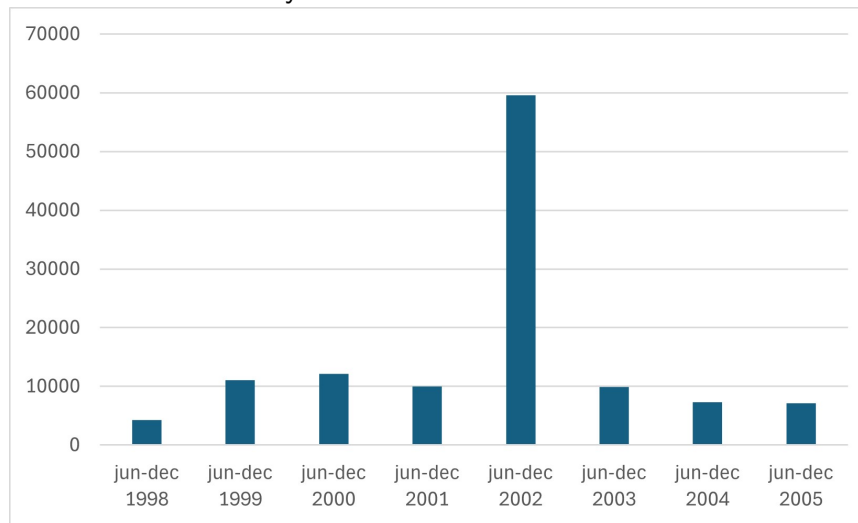
2. Additional Tables and Figures

Figure B1 – Share of immigrant workers in Italy in the period 1998-2018.



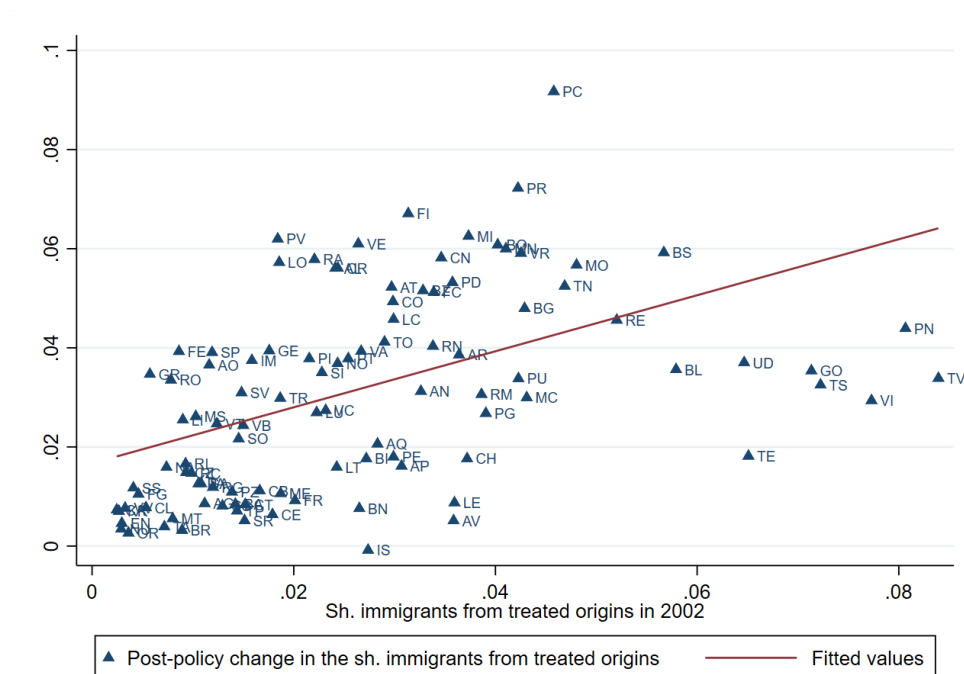
Note: The figure plots the share of immigrants in Italy in the period 1998-2018.

Figure B2 – Number of newly hired non-EU immigrant workers in June-December in the years around Bossi-Fini law.



Note: The figure plots the number of newly hired non-EU workers in INPS data in the semester June-December of each year.

Figure B3 – Initial endowment and change in the share of immigrants from treated origins



Note: The vertical axes reports the post-policy change (i.e. 2003-2018) in the share of non-EU immigrant in each province. The horizontal axes reports the share of non-EU immigrant in 2002 in each province .

Table B1 – Correlation between the share of non-EU immigrants in 1998 and the pre-2002 change in province and firm-level outcomes

	Sh. non-EU immigrants in 1998
	Panel a : province level variables
Δ Average wage all workers _{1998–2002}	0.020 (0.040)
Δ Average wage blue collar workers _{1998–2002}	0.001 (0.001)
Δ Average wage white collar workers _{1998–2002}	0.017 (0.054)
	Panel b : firm level variables
Δ Average wage all workers _{1998–2002}	0.004 (0.003)
Δ Average wage blue collar workers _{1998–2002}	0.005 (0.005)
Δ Average wage white collar workers _{1998–2002}	0.003 (0.004)
Δ Value added per worker _{1998–2002}	-0.017 (0.012)
Δ Employment _{1998–2002}	-0.013 (0.008)

Notes: Each entry of the table shows the results of province-level (panel a) and firm-level (panel b) regressions using the share of non-EU workers in 1998 (share component of the Instrumental Variable) as main regressor, and different labor market and firm outcomes changes in the pre-2002 period as outcomes. Cluster standard error at region and sector level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table B2 – Balancing test.

	Treated firms		Untreated firms	
	Mean	Std Dev	Mean	Std Dev
Wage natives	81.6	65.0	79.8	186.0
Wage unskilled natives	61.28	55.3	53.4	33.6
Wage skilled natives	73.8	66.0	65.1	72.7
Native workers	48.6	403.1	13.2	243.0
Unskilled native workers	22.8	142.0	6.8	17.3
Skilled native workers	21.3	265.3	5.7	215.2
Obs.	1034735		2041118	

Notes: The table reports the mean and standard deviation of different labor market outcomes for the sub-set of treated (i.e. firms having $\text{Mig sh}_{f,t < \bar{t}} > 0$) and untreated firms (i.e. firms having $\text{Mig sh}_{f,t < \bar{t}} = 0$).

Table B3 – Labor market effect at province level. OLS estimations

<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.041 (0.118)	0.091 (0.163)	0.098 (0.168)
Unskilled natives	-0.106 (0.212)	-0.084 (0.190)	0.007 (0.158)
Skilled natives	0.001 (0.150)	0.241 (0.184)	0.047 (0.282)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.746* (0.379)	2.116*** (0.533)	2.507*** (0.584)
Unskilled natives	0.543 (0.527)	1.850*** (0.624)	2.418*** (0.628)
Skilled natives	0.551** (0.216)	1.867*** (0.588)	2.104** (0.778)
<i>Panel (c) : Active firms</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Δ Active firms	-0.329 (0.249)	-0.017 (0.218)	0.110 (0.314)
Estimator	OLS	OLS	OLS
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at province level using the observed exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{p,t < \bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the change in the number of active firms (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at province level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table B4 – Labor market effect at province level. 2SLS estimations.
Robustness check excluding immigrants from Romania.

<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.023 (0.179)	0.089 (0.308)	0.102 (0.296)
Unskilled natives	0.048 (0.184)	-0.095 (0.272)	-0.053 (0.281)
Skilled natives	-0.136 (0.172)	0.275 (0.261)	0.205 (0.314)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.578 (0.812)	2.900*** (0.680)	2.836*** (0.799)
Unskilled natives	0.972 (0.886)	2.438*** (0.794)	2.377** (0.930)
Skilled natives	0.027 (0.343)	2.317*** (0.790)	2.461*** (0.749)
<i>Panel (c) : Active firms</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Δ Active firms	-0.314 (0.322)	-0.138 (0.274)	-0.128 (0.458)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.679***	0.679***	0.679***
Coeff. IV unskilled	0.696***	0.696***	0.696***
Coeff. IV skilled	0.707***	0.707***	0.708***
F-stat all natives	128	128	128
F-stat unskilled	144	144	143
F-stat skilled	218	214	221
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at province level using the instrumented exposure to Bossi-Fini law (i.e. $Migsh_{p,t < \bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the change in the number of active firms (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at province level. *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table B5 – Labor market effect at firm level. OLS estimations.

<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}>\bar{t}+10}$
Natives	0.014 (0.015)	0.031** (0.011)	0.025* (0.013)
Unskilled natives	0.005 (0.011)	0.021 (0.013)	0.002 (0.011)
Skilled natives	0.040** (0.017)	0.062*** (0.013)	0.076*** (0.021)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}>\bar{t}+10}$
Natives	0.068* (0.033)	0.226*** (0.041)	0.307*** (0.058)
Unskilled natives	0.030 (0.039)	0.189*** (0.028)	0.260*** (0.058)
Skilled natives	0.075*** (0.026)	0.168*** (0.038)	0.227*** (0.041)
<i>Panel (c) : Firms survival</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}>\bar{t}+10}$
ℙ firm survival	-0.032 (0.028)	0.019 (0.041)	0.059 (0.046)
Estimator	OLS	OLS	OLS
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at firm level using the observed exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t<\bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the firm's survival probability (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at region and sector level. *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table B6 – Labor market effect at firm level. 2SLS estimations.
Robustness check excluding immigrants from Romania

<i>Panel (a) : Wage regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.005 (0.014)	0.018 (0.015)	0.025 (0.020)
Unskilled natives	-0.010 (0.018)	0.004 (0.013)	-0.018 (0.017)
Skilled natives	0.006 (0.019)	0.034 (0.032)	0.053* (0.028)
<i>Panel (b) : Employment regressions</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	0.035 (0.045)	0.128** (0.053)	0.170** (0.061)
Unskilled natives	-0.035 (0.050)	0.090** (0.035)	0.155** (0.069)
Skilled natives	0.025 (0.048)	0.056 (0.068)	0.074 (0.059)
<i>Panel (c) : Firms survival</i>			
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
$\mathbb{P}$ firm survival	-0.017 (0.033)	0.022 (0.047)	0.072 (0.057)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.670***	0.670***	0.670***
Coeff. IV unskilled	0.664***	0.662***	0.664***
Coeff. IV skilled	0.674***	0.674***	0.674***
F-stat all natives	3209	3209	3209
F-stat unskilled	2813	2623	2705
F-stat skilled	2464	2405	2656
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a regression at firm level using the instrumented exposure to Bossi-Fini law (i.e. $Mig\ sh_{f,t < \bar{t}}$) as main regressor and respectively Δ Wage (panel a), Δ Employment (panel b) and the firm's survival probability (panel c) as outcomes. Each regression in panel (a) and (b) is replicated for all natives, skilled and unskilled native workers. Cluster standard error at region and sector level.
*** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table B7 – Wage effect at individual worker level. OLS estimations.

	<i>Dep var : Δ Wage</i>		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t}>\bar{t}+10}$
Natives	-0.016 (0.014)	-0.038* (0.019)	-0.090*** (0.026)
Unskilled natives	-0.031 (0.018)	-0.052** (0.023)	-0.094*** (0.021)
Skilled natives	0.011 (0.012)	-0.012 (0.024)	-0.076* (0.037)
Stayers natives	-0.003 (0.023)	0.007 (0.027)	-0.018 (0.025)
Switchers natives	-0.050*** (0.014)	-0.118*** (0.026)	-0.177*** (0.041)
1 st quint. worker type	0.038 (0.025)	0.049 (0.038)	-0.036 (0.046)
2 nd quint. worker type	-0.030*** (0.009)	-0.069*** (0.024)	-0.105*** (0.033)
3 rd quint. worker type	-0.042*** (0.013)	-0.052** (0.018)	-0.089*** (0.030)
4 th quint. worker type	-0.041** (0.014)	-0.057*** (0.015)	-0.105*** (0.026)
5 th quint. worker type	-0.019 (0.017)	-0.050** (0.019)	-0.100*** (0.024)
Estimator	OLS	OLS	OLS
Reg-Sec + Occ + Age FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on Δ Wage using the observed exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t<\bar{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table B8 – Employment effect at individual worker level. OLS estimations.

	<i>Dep var : Probability of being employed</i>		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.072** (0.029)	-0.104** (0.046)	-0.123* (0.061)
Unskilled natives	-0.082** (0.033)	-0.119** (0.054)	-0.134* (0.068)
Skilled natives	-0.053** (0.024)	-0.089** (0.036)	-0.118** (0.052)
1 st quint. worker type	-0.106*** (0.030)	-0.135*** (0.047)	-0.149** (0.065)
2 nd quint. worker type	-0.057** (0.023)	-0.101** (0.043)	-0.122* (0.060)
3 rd quint. worker type	-0.022 (0.028)	-0.042 (0.050)	-0.081 (0.062)
4 th quint. worker type	-0.032 (0.025)	-0.045 (0.044)	-0.061 (0.051)
5 th quint. worker type	-0.097*** (0.032)	-0.136** (0.049)	-0.150** (0.066)
Estimator	OLS	OLS	OLS
Reg-Sec + OCC + Age FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on firm-to-firm switching probability (i.e. dummy equal to one if the worker changes employers at $\bar{t} + 5$, $\bar{t} + 10$ and $\bar{t} + 10$) using the observed exposure to Bossi-Fini law (i.e. $Migsh_{f,t < \bar{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table B9 – Wage effect at individual worker level. 2SLS estimations. Robustness check excluding immigrants from Romania

	Dep var : Δ Wage		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.015 (0.016)	-0.037* (0.018)	-0.081** (0.032)
Unskilled natives	-0.040*** (0.014)	-0.067*** (0.016)	-0.113*** (0.027)
Skilled natives	0.019 (0.025)	0.007 (0.032)	-0.025 (0.050)
Stayers native	-0.019 (0.018)	-0.021 (0.017)	-0.039 (0.029)
Switchers natives	-0.023 (0.028)	-0.085* (0.041)	-0.158*** (0.053)
1 st quint. worker type	0.025 (0.030)	0.028 (0.049)	-0.052 (0.064)
2 nd quint. worker type	-0.041** (0.015)	-0.072*** (0.023)	-0.110*** (0.036)
3 rd quint. worker type	-0.041** (0.017)	-0.049*** (0.014)	-0.092*** (0.028)
4 th quint. worker type	-0.019 (0.021)	-0.043** (0.017)	-0.089*** (0.019)
5 th quint. worker type	-0.014 (0.021)	-0.039** (0.017)	-0.069* (0.038)
Coeff. IV all natives	0.678***	0.684***	0.690***
Coeff. IV unskilled	0.677***	0.685***	0.692***
Coeff. IV skilled	0.679***	0.683***	0.686***
Coeff. IV stayers	0.675***	0.682***	0.685***
Coeff. IV switchers	0.686***	0.688***	0.696***
Coeff. IV 1 st quint.	0.684***	0.689***	0.694***
Coeff. IV 2 st quint.	0.669***	0.682***	0.685***
Coeff. IV 3 st quint.	0.673***	0.680***	0.684***
Coeff. IV 4 st quint.	0.674***	0.681***	0.685***
Coeff. IV 5 st quint.	0.682***	0.685***	0.694***
F-stat all natives	1549	1889	1970
F-stat unskilled	1201	1474	1560
F-stat skilled	2167	2654	2607
F-stat stayers	1367	1526	1631
F-stat switchers	2257	3043	2441
F-stat 1 st quint.	1354	1307	1347
F-stat 2 st quint.	1195	1748	1661
F-stat 3 st quint.	1743	1838	1908
F-stat 4 st quint.	1596	2070	2267
F-stat 5 st quint.	1630	2047	1986
Reg-Sec + Occ + Age FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on Δ Wage using the instrumented exposure to Bossi-Fini law (i.e. Mig sh_{f,t < $\bar{t}$}) as main regressor. Each regression is replicated for different types of native workers. Cluster

Table B10 – Employment effect at individual worker level. 2SLS estimations.
Robustness check excluding immigrants from Romania

	<i>Dep var : Probability being employed</i>		
	$\Delta_{\bar{t}, \bar{t}+5}$	$\Delta_{\bar{t}, \bar{t}+10}$	$\Delta_{\bar{t}, \bar{t} > \bar{t}+10}$
Natives	-0.028 (0.028)	-0.059 (0.048)	-0.080 (0.063)
Unskilled natives	-0.048 (0.031)	-0.085 (0.054)	-0.098 (0.071)
Skilled natives	0.010 (0.031)	-0.026 (0.037)	-0.062 (0.048)
1 st quint. worker type	-0.042 (0.043)	-0.089 (0.053)	-0.115 (0.076)
2 nd quint. worker type	-0.040 (0.033)	-0.103* (0.057)	-0.121* (0.066)
3 rd quint. worker type	0.007 (0.032)	-0.009 (0.066)	-0.057 (0.076)
4 th quint. worker type	-0.014 (0.019)	-0.036 (0.049)	-0.052 (0.068)
5 th quint. worker type	-0.032 (0.027)	-0.054 (0.041)	-0.065 (0.057)
Coeff. IV all natives	0.680***	0.680***	0.680***
Coeff. IV unskilled	0.680***	0.680***	0.680***
Coeff. IV skilled	0.680***	0.680***	0.679***
Coeff. IV 1 st quint.	0.689***	0.688***	0.687***
Coeff. IV 2 st quint.	0.676***	0.677***	0.677***
Coeff. IV 3 st quint.	0.677***	0.676***	0.674***
Coeff. IV 4 st quint.	0.676***	0.676***	0.676***
Coeff. IV 5 st quint.	0.681***	0.681***	0.681***
F-stat all natives	1532	1532	1520
F-stat unskilled	1168	1164	1150
F-stat skilled	2423	2420	2379
F-stat 1 st quint.	1335	1344	1320
F-stat 2 st quint.	1351	1356	1325
F-stat 3 st quint.	1714	1640	1647
F-stat 4 st quint.	1767	1784	1751
F-stat 5 st quint.	1443	1431	1436
Region-Sector FE	Yes	Yes	Yes

Notes: Each entry of the table shows the results of a worker-level regression on firm-to-firm switching probability (i.e. dummy equal to one if the worker changes employers at $\bar{t}+5$, $\bar{t}+10$ and $\bar{t}+10$) using the instrumented exposure to Bossi-Fini law (i.e. $\text{Mig sh}_{f,t < \bar{t}}$) as main regressor. Each regression is replicated for different types of native workers. Cluster standard error at region and sector level *** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table B11 – Post-amnesty re-allocation of native workers. 2SLS estimations.

	$\mathbb{P}$ change firm	$\mathbb{P}$ change province	$\mathbb{P}$ change sector
Mig sh _{$f,t < \bar{t}$}	0.153** (0.072)	-0.079** (0.029)	0.087* (0.041)
Estimator	2SLS	2SLS	2SLS
Coeff. IV all natives	0.676***	0.676***	0.676***
F-stat all natives	1443	1443	1443
Occupation FE	Yes	Yes	Yes
Age bin FE	Yes	Yes	Yes
Region-Sector FE	Yes	Yes	Yes

Notes: Worker-level 2SLS regression on the probability of changing employer (column 1), province of work (column 2) and sector of employment (column 3). The main regressor is the instrumented exposure to Bossi-Fini law at firm level (i.e. Mig sh _{$p,t < \bar{t}$}). Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table B12 – Post-amnesty re-allocation of native workers. OLS estimations.

	$\mathbb{P}$ change firm	$\mathbb{P}$ change province	$\mathbb{P}$ change sector
Mig sh _{$f,t < \bar{t}$}	0.187*** (0.034)	-0.024 (0.031)	0.146*** (0.026)
Estimator	OLS	OLS	OLS
Occupation FE	Yes	Yes	Yes
Age bin FE	Yes	Yes	Yes
Region-Sector FE	Yes	Yes	Yes

Notes: Worker-level OLS regression on the probability of changing employer (column 1), province of work (column 2) and sector of employment (column 3). The main regressor is the observed exposure to Bossi-Fini law at firm level (i.e. Mig sh _{$p,t < \bar{t}$}). Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.

Table B13 – Re-allocation of workers and wage inequality across local labor markets. OLS estimations.

Dep var:	Change in wage gap (skilled-unskilled)		
	$\Delta_{\hat{t}, \hat{t}+5}$	$\Delta_{\hat{t}, \hat{t}+10}$	$\Delta_{\hat{t}, \hat{t} > \hat{t}+10}$
Mig sh _{$p,t < \bar{t}$}	-0.054 (0.344)	0.390** (0.169)	0.025 (0.355)
Estimator	OLS	OLS	OLS
Region-Sector FE	Yes	Yes	Yes

Notes: Province-level estimations on the average skilled-unskilled wage gap. The main regressor is the observed exposure to Bossi-Fini law at province level (i.e. Mig sh _{$p,t < \bar{t}$}). Cluster standard error at region and sector level *** $p < 0, 01$; ** $p < 0, 05$; * $p < 0, 1$.