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How Regularization Procedures Reshape Labor Market Dynamics

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Abstract

The influx of undocumented workers in developed countries has sparked concerns about the potential impact of regularization programs on incumbent workers' labor market outcomes. To investigate this, we analyze two distinct Italian regularization programs: the 2002 Bossi-Fini amnesty and the 2007 EU enlargement. Our findings reveal that the Bossi-Fini, which required employers to initiate regularization, led to a decrease in formal employment among incumbent workers. Conversely, the EU enlargement, which automatically granted legal status to new EU citizens, resulted in an increase in formal employment. The contrasting outcomes can be attributed to the differing administrative procedures. Employer-initiated regularization strengthened firms' bargaining positions, potentially harming incumbent workers. In contrast, automatic legal status granted to new EU citizens may have provided workers with greater bargaining power, leading to improved labor market outcomes.

JEL Classification codes: F22, J23, J42, J46, J61

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1 Introduction

Undocumented migration is at the core of the public debate in Western countries since more than 1.3 and 14 million of people do not hold a residence permit in the European Union and in the U.S., respectively (Eurostat, 2024; Pew Research Center, 2025). Regularization programs are a common tool used by Western countries to lower the number of undocumented migrants. However, while a large strand of literature shows that regularization programs may have long-run positive effects on regularized workers, less attention has been paid to study the side effects of regularization programs on the overall labor market outcomes. In particular, side effects of regularization programs may vary across undocumented workers' characteristics and regularization procedures. This paper evaluates how labor market outcomes vary according to different regularization procedures.

The presence of undocumented workers in the labor market may lead to two types of frictions: demand-side and supply-side frictions. From a demand-side perspective, employers have to pay larger labor costs due to the shortage of documented labor supply leading to lower employment levels and a negative difference between competitive and actual wage rate. From the supply-side, undocumented migration may increase the monopsony power of employers in the market due to an excess of labor supply leading to lower employment levels and a positive difference between competitive and actual wage rate. To address either frictions, governments may implement programs to regularize undocumented workers tailored to the type of market friction. For instance, programs requiring firms' submission for regularization could further increase the monopsony power if the frictions stems from an excess of labor supply in the market, while it could address demand-side frictions. To provide an empirical evidence of the effects of different regularization programs applied to similar undocumented migration phenomenon, this paper evaluates two regularization policies for an homogeneous group of undocumented

workers in a relatively short time span.

We rely on two 2002 and 2007 regularization programs in Italy to test whether the two policies have heterogeneous effects on overall labor market outcomes. The 2002 provides a residence permit to undocumented workers if the employers decide to deliver the regularization form to the the Ministry of Interior, while the 2007 program is an unexpected change in the transitory phase of the 2007 EU enlargement which lifted labor market restrictions to new EU citizens. Both programs have been implemented suddenly and their aim is to provide to undocumented workers a formal status in Italy. However, while undocumented workers exit from informality if the employer delivers the application for the residence permit in 2002, undocumented workers may apply for the residence permit by their own in 2007 (Adamopoulou and Kaya (2020); Mastrobuoni and Pinotti (2015)). Therefore, although both policies target the same group and have the same goal, formalizing the position of undocumented workers, the different regularization procedures could lead to heterogeneous effects in the labor market.

The 2002 regularization program and 2007 EU-Enlargement increased the number of documented foreigners by more than 700,000 and 300,000, respectively.¹ The 2002 regularization formalized more than 300,000 individuals in the business sector. In particular, construction was the leading industry in the regularization in relative terms. The 2007 Eu-Enlargement provided a residence permit to all new EU citizens who could prove of being economically independent. As a result, between 2007 and 2008 more than 300,000 individuals appeared in official population statistics. Although the policy target was different in the two events as the 2002 program was opened to all undocumented workers irrespective of their nationality and the 2007 target only Bulgarians and Romanians, the bulk of individuals popped up following the program consisted of Romanians. Indeed, following those two events Romanians became the first

¹While for 2002 regularization we can retrieve precise information on the number of regularized workers, for 2007 Eu-Enlargement we can only calculate the foreigners who registered at the municipal offices in 2007.

nationality among immigrants in Italy. Therefore, we narrow the empirical analysis to study the labor market effects of regularizing undocumented Romanians .

We use data on the full population of matched employer-employees data from Italian Social Security archives. Data have a comprehensive information on the starting and the ending date of each employment relationship and tracks also the first employee contract signed by each worker. Furthermore, we have the monthly observations whether the employer has paid payroll taxes for their employees. Therefore, we can reconstruct with a great degree of certainty when Romanians hold a formal contract following the two regularization programs. Data include also information on employment spells, wages and type of contract (open-ended, fixed-term, full-time, part-time). We build monthly data to track when individuals are employed formally in the Italian labor market. We narrow the sample to male individuals working in the business sector since Romanians cannot work in the public sector, their presence is negligible in the non-profit sector and women work mainly in the care-giving sector which is not included in our data. Finally, we use data from 2001 to 2002 and 2006 and 2007 to perform the empirical analysis on the short-run effects on labor market outcomes, while we cover a larger time span to measure whether the regularization of Romanians has a long-run effects on worker bargaining power in the affected labor markets.

We follow two empirical strategies to perform the analysis on labor market outcomes and worker bargaining power. First, we apply an event study design to estimate the effect of regularizing undocumented workers on labor market outcomes of native workers since we are interested to study overall labor market effects. We define labor markets using three characteristics: firm size, industry and province. While the last two characteristics are common in the literature, we include also the firm-size dimension to capture another segment of the market since small firms are unlikely to compete with medium and migrants are more likely to sort with

less skilled workers. We, then, use the share of regularized workers as a proxy of the change in decisions of hiring undocumented workers with a formal contract. Adding a huge set of interacted fixed effects between labor market, month and year, our measure is as good as random in identifying the effect of regularization on the labor market outcomes. We use a labor market measure of new regular Romanians rather than firm level measure to address the bias arising from using firm fixed effects in presence of small firms.² Finally, we use individual fixed effects to overcome the bias of repeated cross-sections to check whether our estimates arise from compositional effects as shown in Borjas and Edo (2025) and Dustmann et al. (2025).

Second, we use a difference-in-differences strategy to evaluate the effect of regularizing undocumented workers on worker bargaining power. We use the wage premiums of native workers from 3 years before and after of the regularization program to capture whether the regularization has had any effect on the growth of wage premiums.

We find heterogeneous effects on the labor market outcomes between the two policies. The formal employment of native workers decreases over the three months following the 2002 Bossi-Fini regularization program, while we do not find any effect on the employment following the 2007 EU Enlargement. The results on employment are robust to the inclusion of individual fixed effects and to different specifications. We display a decrease in the intensive margins of employment following both policies. However, the effects disappears when we include individual fixed effects in 2002 policy and they do not in the 2007. Finally, we observe a change in the composition of the average wages in each labor market in 2002, while we observe a decrease in the intensive margins of employment after the EU enlargement. Adding individual fixed effects, the results on 2002 disappear while in 2007 persist. As a result of the analysis

²Firm fixed effect estimator needs to have a high degree of heterogeneity within firms to work. Since Romanians are more likely to work for small firms, we could underestimate the effect of both events on the labor market outcomes of native workers. Bonhomme et al. (2023) shows that firm fixed estimates are not reliable for small firms. Therefore, using a different level of aggregation of firms may provide reliable estimates without dropping useful information.

of wages, we observe a crowding-out effect of the policy on the less skilled workers in 2002, while in 2007 we do not find such effect but workers are employed less without observing any negative effect on wages.

This paper contributes to three strands of literature. First, the literature on the micro effects of regularization programs on labor market outcomes of natives is quite scant and is growing over some recent years. While Kossoudji and Cobb-Clark (2002), Elias et al. (2024) and Borjas and Edo (2023) focused on the shock of new formal workers in the labor market, this paper pays more attention on how regularization procedures affect labor market outcomes of natives.³ This paper shows that labor-designed regularization policies, like 2002 Bossi-Fini policy, which allow only to employers to apply for the resident permit of their employees may not solve the labor market frictions presented in Borjas and Edo (2023) but at least in the short run may increase them affecting also group of workers who were previously unaffected. Citizenship-designed regularization policy who provide to undocumented migrant to pop up from the shadow without any intermediary are more likely to solve market frictions or, at least, not increasing them. Therefore, this paper complements previous analyses by showing that regularization procedures may affect labor market outcomes in a non-trivial way.⁴

Second, we contribute to the literature on distributional effects of migration shocks. While migration has positive effects on the overall economy, it may have some distributional effects on different segments of the labor market. Amior and Stuhler (2024) show that migration has heterogeneous effects on employment and wages of natives along the wage distribution in the post-1990 Germany. In particular, they do find that migration has a negative effect on labor market outcomes on the bottom part of the wage distribution. While they focus on the labor

³Carrozzo (2022) is the only paper to evaluate the effect of regularization policy in terms of regularization procedure but it does not focus on a specific group of homogeneous regularized workers on two different policies.

⁴A closely related literature studies the effect of narrowing the job options of migrants on both foreigners and natives (Townsend and Allan, 2025)

supply shock that could have both competitive and bargaining power effects, this paper shows that even institutional decisions on how implementing the entrance of undocumented migrants in the formal market may have distributional consequences for natives. Raising the point that market frictions do not depend only on labor supply excess in a some specific segment of the market but it depends also on the type of residential permit that migrants do have. In particular, the need of an employment relationship to keep on residing in the destination country may increase the bargaining power of employers in those segments.

Finally, we provide a comparative analysis of two public policies. While Orrenius and Zavadny (2012) have presented a survey of all possible regularization policies for migrants listing also the possible effects, the literature showing the effects of two policies for the same group of workers are quite scant. Albert (2022) studies the effect of IRCA in the US and performs some simulation of the possible effects of providing different types of regularization procedures on labor market outcomes of natives. Chassamboulli and Peri (2015) perform the same simulation analysis but without allowing for non-random hiring. Our paper is the first in the literature that does not use simulation exercises but actual policies to study whether two regularization procedures have heterogeneous effects on the labor market outcomes of natives even the pool of undocumented workers is very similar in both periods.

2 Institutional Background

Italy has always been an emigration country up to the early '80s. The decision of the French and German governments to reduce the number of foreign entrants in their countries led many migrants to choose Italy as a destination country. As a result, Italy, for the first time in its history, approved the first immigration law in 1986 (Law 943/1986) to regulate the inflows of foreigners in the country. However, the law did not succeed in regulating the inflows and the number

of undocumented foreigner workers had been increased massively over time. Therefore, Italy has implemented several regularization policies to provide a regular visa to undocumented foreigners.

Regularization programs have changed across years targeting different groups of migrants. The first regularization programs had been implemented in 1987 and 1990 covering the entire spectrum of undocumented foreigners in Italy regardless the existence of an active employment relationship. From 1995, Italian governments decided to change the regularization programs attaching the possibility of receiving a regular visa to the willingness of employers to declare the informal occupational status of their undocumented employees. As a result, foreigner workers without a regular work visa were unable to get a residence visa unless their employers or ex-employers decided to declare the current or past informal occupational status. The same regularization pattern was followed by the government in 1998, although the government changed several times the requirements and the available slots for receiving a legal residence permit to undocumented workers during the regularization process. Furthermore, in 1998, a new migration law, (Law 40/1998), introduced several norms to deter people from migrating without a visa and to rule all the channels of entry for migrants in Italy.⁵ In particular, the government allowed foreign workers to entry legally in the country only through the job-in-hand or the sponsorship channel. However, even in this case, the number of illegal residents has been kept on growing over years.

The main issue of regularization programs implemented up to 1998 was the lack of actually regularizing undocumented employees since, in most cases, employers who declared the employment status of their employees were not the actual ones. Therefore, once expired the duration of the temporary work visa granted with the regularization, foreign workers went back in the shadow. To address this problem, the 2002 ruling center-right coalition decided to pass

⁵To deter migrants to entry illegally, the government allowed to build repatriation centers as a deterrence tool.

a new migration law, (Law 189/2002), that increased the punishment for hiring undocumented employees and erased the sponsorship entry channel aimed at narrowing the entry of migrants without a work permit and the informality. Although the initial refusal of the right wing parties of the coalition to grant a regularization program in the corporate sector, the government granted an amnesty for undocumented employees following the pressure of construction and manufacturing firms. As for the 1995 and 1998, only employers could submit the application for regularizing undocumented employees leading also in this case to a huge number of applications from the private sector. However, more than 300,000 applications were submitted from employers of the corporate sector who were feared by the new norm that included a fast-track trial for hiring undocumented employees.

Although the 2002 regularization program reached the goal of providing an actual picture of the informal work across industries, the policy did not address the uncertainty of foreign workers about future and deter migrants to enter illegally. Indeed, the reluctance of employers to hire employees directly from abroad led foreign workers to enter illegally in Italy and convince their employers to formalize their position as if they had been recruited from abroad (Cutitta (2008) and Pinotti (2017)).⁶ As a consequence, the 2002 migration law could not regulate the illegal inflows to Italy and amnestied foreign workers were still living with the uncertainty about the future.

In 2007, a new regularization program was implemented thanks the EU enlargement. The entrance of Bulgaria and Romania in EU allowed the citizens of those two countries to travel in EU countries but not to participate in labor markets without going through the quota system. Italian government was the only EU country to skip the transitory phase that did not grant the possibility of supplying labor in the European countries. Although EU enlargement was not a

⁶The authors argue that the binding quota system, the strict requirements for getting a work visa and the job-in-hand policy created a large number of undocumented immigrants in Italy.

pure regularization program, the unexpected decision of the government to lift the labor-market ban for the new EU citizens acted as it was since the largest of undocumented migrants were Romanians (Adamopoulou and Kaya, 2020).

Although regularization programs helped many undocumented workers to exit from the shadow, at least in the short run, we analyze only the 2002 and 2007 policies for two reasons: the 2002 and 2007 are the only two close policies that have granted a legal resident visa to an homogeneous group of workers: Romanians; even if close, the labor market effects of the two programs may be heterogeneous since the access to a legal status and the labor cost of informality vary across the two policies.

In the next subsections, we present the 2002 and 2007 programs in detail and compare the features of the two programs to delineate our research design.

2.1 The 2002 Regularization

The 2002 regularization program was debated by the government since the initial agreement among parties in the ruling coalition was to grant an amnesty only to care-givers and domestic workers (Law 189/02). However, firms of the business sector requested an enlargement of regularization program also for undocumented employees in their enterprises.⁷ The terms of the regularization were agreed only few days before the enactment of the regularization decree. The 2002 regularization program was implement in September 2002 and eneded in November 2002.

As for other regularization programs, undocumented workers were not free to apply for the

⁷Casadio (2001) writes that employers were ready to apply for the regularization by cheating on the actual occupation for two reasons: the immigration quota did not match the labor demand and the new migration law increased the penalties for hiring undocumented workers. In particular, the new punishments introduced by the 2002 Bossi-Fini Law increased the administrative penalty for hiring undocumented migrants, from a 3,000 euro for all the undocumented employees to a 5,000 euro per each worker, and employing undocumented migrants became a criminal offense punishable by imprisonment from three to twelve months.

amnesty. Employers must submit a form with the proof of having been employed the eligible workers for at least the last three months and a labor contract lasting at least one year. Therefore, the possibility of getting a residence visa for an undocumented employee depended on whether employers were better off in regularizing the occupational status.

Following the expiration of the terms to deliver the regularization form, the Ministry of the Interior received more than 700,000 applications. More than half of the regularization demands were from the business sector. Around 70% of more than 300,000 submissions delivered by firms in the private sector are males employed mainly in the construction and manufacturing industries (Zucchetti, 2004). Romanians was the largest group of foreign workers to get the residence visa with more than the 20% of the overall submissions.

2.2 The 2007 European Union Enlargement

The 2007 European Union Enlargement opened the doors to Bulgaria and Romanian as members of the European Union. As a member of the European Union, all the countries have free access to all the markets, capital or labor. However, over the previous years, the new members and incumbent ones agreed upon a transitory phase that did not allow Romanians to participate in the labor market of incumbent EU members. In other words, Bulgarians and Romanian workers had to use the quota system to work in other EU member states. The transitory phase lasted 5 years on average for almost all European countries.

Italy skipped the transitory phase and provided labor market access to Bulgarians and Romanians. On the last days of December 2006, the Italian running center-left coalition decided to skip the transitory phase that would had started on the 1st January 2007. However, the repeal of transitory phase was only for a list of occupations in some industries, like care givers, construction workers, manufacturing workers and seasonal workers. Since these occupations

are in industries that host the bulk of Romanian undocumented workers in Italy, the partially implementation of the the transitory phase acted as a regularization program. Thousands of Romanians could exit from the shadow and look for formal job positions in the aftermath of the EU enlargement. The share of employed Romanians popped up in the official statistics in the very few months following the 2007 EU enlargement.

The repeal of the transitory phase has had two effects on the labor supply and on the cost of informality. First, Romanians do not have to sign any agreement with employer before moving from their own country to Italy and can experience unemployment spells greater than six months without being expelled from the country. Second, the labor cost for employing informally Romanians lowered since the punishments for hiring informally EU citizens are equal to ones for hiring informally native workers.

2.3 A Comparison between 2002 and 2007

The 2002 and 2007 event have both provided the opportunity for a large share of undocumented Romanian workers to exit from the shadow. Yet, we identify three key differences between the two programs that could lead to heterogeneous effects on the labor market outcomes of incumbent formal workers.

First, pure regularization programs, like the 2002 regularization, require a proof of employment for being eligible to get a regular visa, which entails employers must deliver the submission procedure to authorities, while providing citizenship does not have this requirement. Second, the 2002 regularization program gives the option of regularizing the job position of amnestied workers by a temporary employment contract, which does not solve definitively the uncertainty of going back to the shadow, while the 2007 policy allows undocumented workers from Bulgaria and Romania to obtain a permanent right of living in Italy. Finally, the 2002

program was combined with harsher punishments and more severe penalties for hiring undocumented workers creating an incentive for employers to regularize their undocumented employees, while skipping the transitory phase for the new EU citizens lowers the cost of employing them without a formal contract (Sorgato, 2007). Therefore, the labor market effects on native workers may change across two dimensions: bargaining power and group-specific marginal cost.

In the following sections, we present the data, the research design and the results of the two policies to check whether they have had an effect on labor market outcomes of former formal native employees and, if any, whether the effect goes through bargaining power or marginal costs.

3 Data

This section presents the data of our analysis. Section 3.1 introduces the social security data. Section 3.2 display the summary statics summary statistics. Appendix A provides further details.

3.1 Matched Employer-Employee Data

The matched employer-employee data used for the analysis is derived from official social security records stored by the Italian Social Security Institute (Istituto Nazionale Previdenza Sociale, INPS). This dataset includes the complete monthly employment history for two periods 2001-2002 and 2005-2007 of natives and Romanians corporate-sector workers excluding self-employed ones.⁸ We run the main analysis only on natives since we cannot exactly distinguish between regularized and non-regularized immigrants in 2002. An inclusion of regularized im-

⁸We use 2000 and 2004 data to test the validity of our estimates in the robustness check section.

migrants could bias estimates towards zero since employers labor demand is very likely to be homogeneous among regularized workers in the short run. To make the analysis in 2002 and 2007 comparable, we perform the analysis only on natives in both periods.

We restrict the analysis to industries where the probability of a foreign worker to supply labor is large enough.⁹ Finally, we exclude women from the analysis since the majority of Romanians females work as self-employed in the care-giving sector.¹⁰ The final samples include 56,322,032 and 40,794,930 observations in the 2002 and 2007 study, respectively.

INPS data provides information on the beginning of the contribution payments and, only from 2005, the date of the beginning of the employment contract. Since information on which immigrants have been regularized is not available, we predict the regularization from the day of the contribution. Finally, we collapse data at the worker-month level and assign job-related characteristics based on the job in which the worker has spent more work days in a given month.

3.2 National Trends of Formal Romanian Workers

Romanians are the first group of migrants in Italy. From 1998, the number of formal and informal Romanian workers has increase steadily over years. The 2002 regularization plan has displayed a huge number of informal workers from this country. Indeed, in 2003 Romania became the first country of birth among immigrants who reside in Italy.

Figure 1 shows the trend of new formal Romanian workers in our sample. The x-axis shows the year of the first record in the social security dataset, while the left and right y-axes show the total number and the share of Romanians recorded for the each first-record year. The share is measured as the number of Romanians over the total number of foreign formal workers who have been hired for the fist time. **Figure 1** displays a discrete jump for both measures in 2002

⁹We use the following sector: construction, hotel and restaurant, manufacturing, transport.

¹⁰The private sector has several differences with respect to the corporate sector: a different contribution system, wage floors and higher rates of hours worked out of the formal employment agreement.

and 2007. Since in 2002 Romanians were not the only group of regularized migrants, the jump in the share is smaller than the discrete jump, while in 2007 Romanians were the only group of migrants who have the chance to be formally employed the jump in the share is higher. Although the differences in the share is significant, both discrete jumps show that Romanians represent around 20% and 50% of new migrants in 2002 and 2007, respectively.

To provide a descriptive evidence of the change in the native-Romanians employment and wage effects following both shocks, we plot the employment and wage gap in [Figure 2](#). The x-axis displays the period, month-year, while the left and right y-axes display the employment and the wage gap. Both employment and wage gaps are measured as the yearly difference between the logarithm of the number of employed natives and Romanians and the log of the average wage of the two groups, respectively. In a setting of downward sloping labor demand, a greater increase in the workforce should lead to greater effects on wages and a constant, if any negative, impact on employment. However, [Figure 2](#) shows that the wage gap is smaller in 2007, while the employment gap is greater following the 2002 amnesty. Therefore, the empirical analysis will shed lights on understanding this counter-intuitive effect described in [Figure 2](#). In particular, we study whether drops and jumps depend on the decrease of the native formal employment and on the increase in their wage, other than the increase in the formal Romanian employees and the decrease in their average wage.

3.3 Summary Statistics

[Table 1](#) displays the summary statistics of native, incumbent and regularized Romanian workers in 2002 and 2007. Regularized Romanians workers are on average younger than the two groups and are more likely to hold a temporary contract. Wage differences between amnestied and incumbent Romanian employees are greater in 2002 than in 2007. The percentage of regularized

Romanians workers in the construction industry is larger in 2002. This might highlight the decrease in the punishment for hiring undocumented employees following the entrance of Romania in the European Union. Construction firm are not more subject to the fast-track trial for employing undocumented migrants since Romanians are EU citizens in 2007. Another proof of the fact that firms are changing their behavior is the size of the firms since regularizing firms were smaller in 2002 than in 2007. Finally, the geographical distribution of amnestied migrants is more skewed towards the northern regions in 2007 than in 2002.

Descriptive statistics show that, although individual characteristics of amnestied Romanians do not significantly differ between the two regularization programs, the firm level characteristics differ across several dimensions showing heterogeneous incentives for firms to declare their undocumented employees in 2002 and 2007. However, short-run incentives depicting the decision of firms to allocate their employees in the formal or informal occupations in the very short run might have broad effects on the bargaining power of workers in the long run. The Figure * shows that likelihood of observing an update in the collective bargaining agreements and the likelihood of signing a open-ended full time contract in the aftermath of the two programs for native workers in the most-exposed markets. The just-mentioned outcomes show a meaningful drop following the 2002 regularization program, while in the aftermath of the EU enlargement the likelihood of holding a permanent full-time contract increases. In the next sections, we test whether the heterogeneous findings showed in Figure * stems from the characteristics of the two regularization programs or is a spurious relationship.

4 Research Design

The research design leverages on two sources of variability: the timing of the policy intervention and the exposure to the treatment. First, as anticipated in the Section 2, the two policies

have the key characteristics of being unexpected at moment of their enactment. The 2002 regularization was enacted just a week before the opening of amnesty window on the 9th September 2002. The amnesty was discussed at the parliament from July 2002, yet the characteristics of the regularization procedures were published only at the beginning of the September. The same timing occurred also for the 2007 government decision of skipping the transitory phase for integrating the Bulgarians and Romanians in the EU labor market. The Italian government opened the Italian labor market to the next EU-citizens only few days before the official entrance of Bulgaria and Romania in the European Union, 1st January 2007. The timing feature of both policies narrows anticipatory behaviors of employers that could invalidate the empirical analysis.

Second, the exposure to the treatment depends on the characteristics of the market where workers are supplying labor. The degree of market informality depends on geographical, industrial and dimension factors. First, informality is much more common in poorer geographical areas. Second, dynamic vs static method of production affects the level of informality since the mobility of workers across space lowers the likelihood of being caught working in an informal occupation. For instance, employees in the construction industry performing a manual task are very likely to move across building sites, while employees in the manufacturing industry are more likely to work in the same establishment. Finally, the average size of firms within a specific market set the competition level and the production capacity. Markets with small firms, on average, are more likely to produce low value-added goods and to increase their returns by lowering the labor cost as much as they can. Therefore, using these three characteristics we can set up different labor market where workers are exposed to heterogeneous treatment effects.¹¹

To measure the degree of exposure, we follow Carrozzo (2022) using the share of regular-

¹¹Table * and * in Appendix * display the share of regularized workers for five classes of firm size across macro areas and industry for 2002 and 2007, respectively.

ized workers within each, just defined, market which proxies both the eligibility to the treatment - a large enough variation in the share of Romanian workers means that the policy has created incentives for firms to change the occupation status of their employees - and the intensity of the treatment. As a consequence, labor market outcomes of incumbent regular workers will vary along the distribution of firms' incentives proxied by the share of regularized workers. Figure * in Appendix * shows the share of caught informal workers along the three dimensions used to define local labor markets: industry, province and size. The absolute number (**share?**) of informal workers is large in the provinces of the southern Italy where small firms in the low-value-added industries. Excluding one of this dimension may lead to an incorrect classification of workers within labor markets that could affect estimates. For instance, considering only industry and province to set a local labor market would include in the same market big and small firms that could produce in the different market segments and experience heterogeneous incentives to formalize the occupational status of their employees. Figure * shows that the overall informality lowers when considering an industry-province cell rather than a dimension-industry-province cell. Since capturing informality tendency is key for identifying the effect, we rely on three-dimension labor market.

Another concern for the identification strategy stems from the job mobility of workers since a negative or a positive effect of the regularization programs may push out or pull workers in the exposed markets, respectively. To overcome this issue, we narrow the analysis to months around policy implementation. Our assumption is that workers do not change markets where to supply labor in the very short run. Therefore, any effect of regularization programs is not biased by the decision of workers to move in or out from a specific labor market. In the main analysis, we exclude workers who change labor markets over the considered period. In the Robustness Check section, we include employees who change labor markets within a month-year by using

the share of months worked in a specific labor market as weights.

5 Aggregate Analysis

5.1 Method

Regularization programs may have unintended consequences on the labor market outcomes of former formal workers. The variation in the labor cost of hiring informally foreign workers has theoretical specular effects on employment and wages in the formal occupation. The 2002 regularization may push firms to substitute former legal native workers with amnestied workers and decrease the overall bargaining power in formal occupations, given the inelastic demand of becoming regular from foreign workers without a regular visa, while the 2007 EU enlargement may push firms to substitute natives with new EU-citizens in informal occupations and increase the overall bargaining power of workers. To test theoretical predictions and which of them is more realistic, we set up the following event-study framework:

$$y_{i(c)\tau} = \sum_{k=-3, \neq -1}^2 \beta_k \left(\frac{Reg_{c\bar{y}}}{Emp_{c\bar{y}}} \right) \cdot D_k + \gamma_{cm} + \gamma_{cy} + \gamma_{my} + trend_m * \gamma_{cy} + \varepsilon_{i(c)\tau} \quad (1)$$

where $y_{i(c)\tau}$ is an outcome — employment dummy or log wage — for the individual i supplying labor in the cell c , defined by firm dimension, industry and province at time τ , month-year. The vector of controls includes the cell-month (γ_{cm}), cell-year (γ_{cy}) and month-year (γ_{my}) fixed effects. Furthermore, we include the interaction between a linear monthly trend and the cell-year fixed effects. We cluster standard errors at cell level.

The event study variables are: $\left(\frac{Reg_{c\bar{y}}}{Emp_{c\bar{y}}} \right)$ and D_k s. The first variable is the cell-specific share of regularized workers, our intensity of treatment measure, capturing the heterogeneous incentives of firms to regularize undocumented workers. The second variables are our event study

indicators that are between $a=-3$ and $b = 2$, and we always normalize β_{-1} to 0, where a and b are the months leading and following the policy implementation, respectively. The benchmark year and month are the year and the month before policy implementation, respectively. The coefficients β_k when $k \geq 0$ capture the marginal regularization effect on outcome $y_{i(c)\tau}$ k months after the policy implementation relative to both month and year before implementation, while when k is $<$ than 0, we evaluate whether the parallel trend assumption holds in the years leading up to the policy implementation. We use monthly-cell and yearly-cell dummies separately to get rid of potential monthly-cell and yearly-cell confounding effects, and, then, we differentiate over the entire distribution of incentives to get rid of macroeconomic yearly-monthly confounding effects.

5.2 Wage and Employment Effects

5.2.1 Employment Effects

Table 2 and Table 3 show the effect of the regularization on the formal employment of native workers in extensive and intensive margins after three months from the 2002 and 2007 policies, respectively. Table 2 displays an overall negative effect on employment in October and in November. On intensive margin, the share of part-time workers does not meaningfully change, while the number of days and weeks worked increases for the employed individuals. While the decrease in the employment could not be compositional since we fix the individuals over time, the effects on extensive margins may stem from the crowding-out effect of the regularization policy. The exit of the less skilled workers may have increased the mean of days and weeks worked. To address this question, we include individuals fixed effects in Section 6. Finally, we do not observe any effect on the occupational status since the share of white collars does not change.

Table 3 displays a positive employment effect in the two months following the 2007 EU Enlargement. On intensive margins, we do not find any meaningful effect. Results show that regularizing undocumented Romanians does not lead to any negative effect for native workers in the very short run. However, we cannot disentangle the non-negative employment effect from the potential increase in the bargaining power of Romanians and the decrease in the penalties for hiring the new EU citizens. Therefore, we provide some evidence on which channel is affecting the estimates in the next sections.

5.2.2 Wage Effects

Table 4 and Table 5 show the effect of the regularization on the wages of native workers in extensive and intensive margins after three months from the 2002 and 2007 policies, respectively. Table 4 displays an overall positive effect on wages in October and in November. On intensive margin, we do not find any effect. The only increases in the wage seems to go towards the direction of a compositional effect since the weekly and daily wages do not increase over the policy implementation.

Table 5 displays a null effect on yearly wages in the post-policy period, while on intensive margins, monthly and weekly wages, we do find a negative effect even if negligible. Results show that 2007 regularization does not lead to a wide wage dumping following its implementation.

6 Individual Level Analysis

The last section shows the effect of the regularization programs on employment and wages of workers supplying labor in a specific labor market. However, the sample selection following the amnesty may lead to a sample selection of individuals who are not affected by the policy.

While employment results are less likely to suffer from the selection, wage estimates could be upward biased since we observe only wages of those who remain in the market. To fully control for individual abilities that could bias estimates and lead to a positive compositional effect, we narrow the study to only individuals who appear in the dataset for the whole period and add individual fixed effects. Although the overall sample decreases, this exercise is helpful to validate previous findings and check whether some effects depend on individual ability.

6.1 Method

The effects considering individuals' ability are estimated substituting individual fixed effects to cell fixed effects in the specification (1):

$$y_{i(c)}\tau = \sum_{k=a}^b \beta_k \frac{Reg_{c\bar{y}}}{Emp_{c\bar{y}}} + \gamma_{im} + \gamma_{iy} + \gamma_{my} + trend_m * \gamma_{iy} + \varepsilon_{i(c)}\tau \quad (2)$$

γ_{im} , γ_{iy} and $trend_m * \gamma_{iy}$ are individual-month fixed effects, individual-year fixed effects and the interaction between individual-year fixed effects and a monthly time trend, respectively. Those controls allow us to check whether regularization effects depend on a change in the sample of legal employees observed before and after the amnesties. The inclusion of individual fixed effects capture in particular whether wage effects depend on a positive sample selection, high-skilled or more productive workers are more likely to remain in the sample after the policy implementation. Therefore, using individual fixed effects we are able to capture the unobservable of ability of those who remain employed for the whole period and check whether any wage effect is compositional or actually affects earnings distribution.

6.2 Wage and Employment Effects

6.2.1 Employment Effects

Table 6 shows the effect of the 2002 regularization when we add individual fixed effects to control for the unobservable ability of employees. Estimates show that the negative effect on employment persists, while we do not find any negative effect on other intensive outcomes highlighting that regularization has crowded-out the less skilled workers in the formal employment.

Table 7 displays the effects of the 2007 EU enlargement. Estimates show pre-trends for the employment since the November estimate is negative and the magnitude is similar in the next months. This result shows that the regularization does not have, at least, a negative effect on employment. However, native employees display a fewer days and weeks worked. The negative effects on intensive margins may depend on either a decrease in supply of hours or a decrease in demand of hours. In perfect competitive markets, regularization programs should correct market imperfections due to quota programs, like in Italy, that set the optimal amount of hours to a lower level with higher wages. An increase in the hours supplied by regularized migrants may substitute the demand of hours for native workers if migrants and natives are substitute. In the next section, we check whether the demand of hours worked for native workers decline following the regularization.

6.2.2 Wage Effects

Table 8 and Table 9 displays the effect of regularizing undocumented migrants on wages in 2002 and 2007, respectively. Table 8 shows that the effect on extensive and intensive measure of wages is null. Therefore, regularization decreases the demand of native workers leaving unaffected the wages of workers that remain in the formal sector.

Table 9 shows that 2007 regularization has a negative effect on yearly wages and a positive effect on intensive measures of wages, daily, weekly and monthly. The decrease in yearly wages stems from a decrease in the hours worked in a year of native workers as shown in the previous section. Such effect mirrors the greater supply of hours from foreign workers following the regularization program that affect the demand of hours for native workers. However, the positive effect on intensive measures of earnings shows that the change in the demanded hours is lower than the change in wage per hour. Such effect may depend on either the small slope of the natives' demand for hours or a change in the supply of hours. The small slope in the demand may depend on the labor market regularization in the Italian market that does not allow employers to pay less workers per hours supplied, while the change in the labor supply may depend on a greater bargaining power of migrant workers following the regularization that affects also the labor supply of natives. In particular, employers cannot fully discriminate between migrants and natives and pay equal wage premiums to both. Section 8 evaluates whether firms discriminate between regularized and other group of workers and whether the regularization affects the wage premium following the regularization.

7 Heterogeneity and Robustness

7.1 Heterogeneity

7.1.1 Age Groups

Migrant workforce have different degree of substitutability across age cohorts of natives. Since migrants usually start to accumulate the local human capital when they arrive in the destination country, there is an age-gap in the probability of being formally employed and on wages between same-age individuals with different age-at-arrival. Therefore, we study the effect of

a mass regularization of a quite age-homogeneous group of workers on the labor market outcomes of different age groups.

Table A.1, A.2 and A.3 in the Appendix A1 show the effect of 2002 regularization on employment on extensive and intensive margins for young (18-25), middle-age (26-55) and old (above 55), respectively. The extensive employment effect is negative for all three age groups even though is significant only for middle-aged and old workers. This results is different from Carrozzo (2022) that shows significant negative results for young and old workers. However, we focus only on the regularization of Romanians, while Carrozzo (2022) presents the results using the share of regularized migrants irrespective of their nationality. Therefore, the results in this paper may capture a higher substitutability of Romanians to middle-aged Italian workers. On intensive margins, estimates show a positive effect days and weeks worked. However, the positive effect as usually may depend on the change in the composition of people in formal occupation. Indeed when we include individual fixed effects in Table A.4, A.5 and A.6, the positive effect on intensive margins fades away.

Table A.7, A.8 and A.9 in Appendix A1 show the effect of 2007 EU enlargement on employment on extensive and intensive margins for young (18-25), middle-age (26-55) and old (above 55), respectively. The effect is positive for all three age groups on both extensive and intensive margins. However, the positive effect may reflect a general trend in some specific industries or firms since the pre-policy estimates show a negative effect. We cannot assess how large is the effect of pre-trends but the effect of the bias should at least double to have a non-positive effect. Therefore, we claim that following the 2007 EU enlargement the effect on extensive and intensive margins is non-negative for all age groups. Adding individual fixed effects in Table A.10, A.11, A.12, we observe a non-negative employment effect for the age groups and a negative effect on the days and weeks worked consistent with the overall analysis.

Table A.13, A.14 and A.15 in the Appendix A1 display the 2002 wage effects for young (18-25), middle-age (26-55) and old (above 55), respectively. The regularization program affects mainly the middle-aged and old workers since the composition of yearly wages changes only for them. As for the main wage results, adding the individual fixed effects in Table A.16, A.17 and A.18, we do not find any effect on extensive or intensive measures of wages.

Table A.19, A.20 and A.21 in the Appendix A1 display the 2007 wage effects for young (18-25), middle-age (26-55) and old (above 55), respectively. The regularization due to the EU enlargement seems to affect equally the wages of the age groups both on extensive and intensive margins. However, when we do add individual fixed effects in Table A.22, A.23 and A.24, the yearly wage drops, while daily and weekly wages increase. Such effect mirrors the findings in employment tables as yearly wages are very likely to decrease because of the reduction in hours worked, while the daily and weekly wage increases because of the wage floor in the market.

7.1.2 Regional Differences

Foreigner workers are more likely to select closest to the most wealthy places to increase their probability to find a job with a good salary. Indeed, the share of foreign workers is larger in Northern Italy since the average salaries is greater than the ones paid in Southern Italy. However, the size of the firm and the industrial composition varies a lot between the two areas and, as a consequence, also the probability of hiring undocumented workers. In particular, firms are bigger and specialized in the secondary sector in the North and in the Center, while firms are small and specialized in the primary or tertiary sector in the South. Therefore, the effects of two regularization programs is ambiguous depending on the trade-off between the size of migrants and the quality of the jobs.

Table B.1 and B.2 in the Appendix B show the effect of the 2002 regularization on the

extensive and intensive margin of employment in the Northern and Center Italy and in Southern Italy, respectively. The employment effect is negative and significant for the North and Center area, while for the Southern there is no clear a pattern on employment of the regularization even though estimates are negative following the policy implementation. The same happens for the intensive measures of employment since the crowding-out effect of the less skilled natives is evident in the North and in the Center. Table B.3 and Table B.4 show estimates adding individual fixed effects in the Northern and Center Italy and in Southern Italy, respectively. Estimates are negative and significant for the North and Center, while estimates for the South are negative but not significant. The effect on intensive margins disappears in both models as predicted in the main results.

Table B.5 and B.6 in the Appendix B show the effect of the 2007 regularization on the extensive and intensive margin of employment in the Northern and Center Italy and in Southern Italy, respectively. The employment effect on both extensive and intensive margins is non-negative for both specifications and is larger for the Souther of Italy. Table B.7 and B.8 shows the estimates by adding individual fixed effects for the North and Center and for the South, respectively. Estimates still show a non-negative effect on in extensive margins, while on intensive margins estimates turn negative. The change in the sign is likely due to a decrease in the hours demanded to incumbents following the policy implementation. Firms may decide to lower the labor cost by diminishing the demanded hours to retain workers who were previously competing with undocumented workers.

Table B.9 and B.10 in the Appendix B show the effect of the 2002 regularization on the extensive and intensive margin of wages in the Northern and Center Italy and in Southern Italy, respectively. The wage effect on extensive margins is positive and significant for the North and Center, while estimates are positive but non-significant for the South. On intensive mar-

gins, we do not find any effect. Table B.11 and B.12 shows the estimates by adding individual fixed effects for the North and Center and for the South, respectively. As shown in the main results, controlling for the ability of workers captures the crowding-out effect of the policy and estimates are not more large in magnitude and significant.

Table B.13 and B.14 in the Appendix B show the effect of the 2007 regularization on the extensive and intensive margin of wages in the Northern and Center Italy and in Southern Italy, respectively. The wage effect on extensive margins is positive and significant for both areas showing a greater effect in the North. On intensive margins, we do find a positive effect on daily wages that is larger for the South. Table B.15 and B.16 shows the estimates by adding individual fixed effects for the North and Center and for the South, respectively. Yearly wages decrease mirrors the negative effect on days worked, while daily wages increase. However, we cannot observe whether the increase in the daily wages stems from an increase in the bargaining power or an occupation wage floor.

7.2 Robustness

7.2.1 Weighted Estimates

We generate employment variable by assigning employment spells to markets, firm size-industry-province, where they actually work and by assigning unemployment spells in the same year to the same markets where they have been employed before or after the unemployment period. Doing this, we have a measure of employment rates given a fixed labor supply. However, some individuals may work for different markets within a year providing not a precise information on which market they are looking for an occupation. Therefore, in the main analysis, we have decided to drop individuals who moved across markets. To show whether our estimates are robust to this selection, we run another analysis where we include all individuals and assign a

weight equal to the share of the months spent in a specific within a year to take into account the doubling of the observations. Therefore, we add a number of rows for the same individual as the number of markets where he or she have been worked. Each new unemployment row includes a weight variable equals to share of months spent as a workers in a market, while employment rows have a weight equal to one.

Table 10 and Table 11 show that employment estimates when adding unemployment weights to the specification. Column (1) and (2) show the estimates without and with individual fixed effects, respectively. For both regularizations, the estimates do not vary from the main specification. The 2002 regularization effect is negative, while in 2007 the effects is non-negative irrespective to adding individual fixed effects.

7.2.2 Falsification Tests

A main concern in our empirical analysis is that the share of regularized workers is correlated to some specific market-month-year characteristics that we cannot observe. A correlation between time variant market shocks and the share of regularized workers would invalidate the analysis. To address this concern, we run a falsification test by running the same analysis as in the main specification but lagged of one year. In other words, we test whether the share of regularized workers in 2002 and 2007 has an effect on labor market outcomes in 2001 and 2006, respectively. Such test allows us to check whether the share of regularized workers is correlated with time varying demand shocks. The main assumption for this test to hold is that the demand shocks in the previous years are good proxies for the demand shock in the treatment year.

Table 12 and Table 13 show the fake employment effects in 2001 and 2006, respectively. Estimates are not different from zero in extensive margins and do not show any clear pattern. On intensive margins, we observe a positive effect in 2001. However, if any, our estimates on

intensive margin in the main specification are a lower bound.

Table 14 and Table 15 show the fake wage effects in 2001 and 2006, respectively. Also in this table, yearly wage is unaffected by the treatment, while intensive margin measures of wages seem to increase. As for the employment effect, if any, our wage effects represent a lower bound of potential negative effect.

8 Mechanisms: Bargaining Power and Deterrence

Previous sections show that the two regularization programs have heterogeneous effects on the labor market outcomes of natives. Firms decide to substitute natives with amnestied workers in 2002, while in 2007 firms do not change hiring decisions on extensive margins but demand less working hours to natives. While the marginal product of labor is unlikely to change following the policy implementation, labor cost shifts due to regularization requirements and different punishment incentives are likely to affect the labor demand of formal foreign and native workers. Indeed, we identify two types of labor cost shifter in the case of the two regularization programs: the bargaining power and the deterrence.

First, bargaining power plays a role in the labor demand of formal native employment when the employers do not discriminate between foreigners and natives paying them the same wage premium. In such specific setting, employers may gain some bargaining power from only one of two groups, foreigner and natives, and exert it on both. Our empirical predictions may mirror the lack of discrimination between foreigners and natives as the 2002 employer-requirement could affect the bargaining process between undocumented workers and employers. Assuming that undocumented workers are inelastic to obtain a regular visa, the employers may hire them in a formal occupation with worst conditions than as usual. The lack of discrimination may increase the bargaining power of employers towards natives by forcing them to accept worst

labor conditions. In particular, employers may push them to accept informal occupations to get the pre-regularization wage rate. Conversely to 2002 program, the 2007 amnesty allowed to Romanians to regularize without the asking to their employers to submit the regularization application leading, if any, to an increase in the bargaining power of the two groups.

Second, the deterrence measured as a punishment from the central government to firms in hiring undocumented could change the labor cost of undocumented workers leading employers to reshape the labor demand of Romanians and natives to minimize the loss given the same level of production. Assuming that firms cannot change the employment structure of their firms in the short run, an increase in the relative cost of hiring informal Romanians may lead employers to regularize undocumented workers and move natives to informal occupations without affecting the net wage rate. Since in 2002 the Italian government has increased the punishment to hire undocumented extra-EU workers, firms may have decided to continue the production with the same labor asset moving natives and Romanians between formal and informal occupation leading to negative effect on the formal employment of natives. Conversely, the entrance of the Romania in EU has decreased the cost of hiring informally the Romanians leading employers to move Romanians in informal occupation. The 2007 effect on natives is ambiguous since, in absence of an increase in the bargaining power, natives may stuck in informal occupation explaining our non-negative effect on employment.

In the next sections, we explore both dynamics by studying the policy effect on the dynamics of bargaining power some years after the policy implementation. Our interest is to test whether short-run heterogeneous effects stemming from different regularization programs may have lasting effects on the bargaining power.

8.1 Bargaining Power

The employer-tailored regularization programs have the characteristics of providing to employers an increase in the bargaining power when an inelastic demand of regularization from undocumented foreigners allow employers to agree with irregular immigrants on very bad employment contracts that could spill over the entire labor market. Whereas, free regularization programs may increase the bargaining power when the self-regularized workers are more likely to reject bad job offers improving the overall bargaining power. To test these theoretical predictions, we first test the wage discrimination between foreigners and natives with the same ability within the same labor market as defined in the Research Design section. Then, we test whether the two programs have changed the worker bargaining power.

Following Amior and Stuhler (2025), I evaluate whether firms discriminate between native and Romanian workers using estimated wage premiums within the same firm. An estimate close to one means that firms do not discriminate between foreign and native workers with the same ability. To perform this analysis, I use the split-sample IV estimator to attenuate the "limited-mobility" bias when estimating firm and worker fixed effects. The limited-mobility bias highlighted by Abowd et al. (2004) and Andrews et al. (2008, 2012) could be substantial if the worker mobility is low. This problem could be quite problematic in our sample since labor markets with big firms experience large turn-overs, while some others made by small firms experience lower turn-overs.¹²

Table 16 and Table 17 show the estimates of wage discrimination using the split-sample IV method. The dependent variables are the wage premiums of pre-policy formal Romanians and regularized Romanians, while the independent variable to instrument is the wage premium of

¹²Recent papers by Bonhomme et al. (2023) and Klein et al. (2020) suggest that the correlation between worker and firm fixed effects is quite substantial. Therefore, the presence of "limited mobility bias" must be addressed to estimate unbiased firm wage premium in small firms. In our setting, we define labor markets to address this problem.

native workers. We restrict the sample to only labor markets with both Romanians and natives to compare the wage premium. As for the AKM model, to predict wage premiums we include individual and labor market fixed effects. Furthermore, to control for time-varying experience and time trends, we include the interaction between occupational dummies, age dummies and year fixed effects. Once derived the wage premium of all individuals in our sample, we apply the split-sample IV method. For estimating the wage premium following the 2002 regularization, we use a sample from 2002 to 2006, while for 2007 regularization we use a sample from 2007 to 2010.¹³

First and second columns of Table 16 and Table 17 show the estimates of the correlation between native and former Romanians and between natives and regularized workers, respectively. Estimates show that firms do not severely discriminate between natives and Romanians in the 2002-2006 period. However, the wage premium correlation is weaker for regularized workers even though it is still quite high. For the period 2007-2010, the correlation between wage premia is equal for pre-policy and post-policy Romanians highlighting the lack of wage discrimination.

Once tested the high correlation between wage premiums of native and migrants, we move to test the change in the bargaining power. We rely on the wage premium paid to natives and former migrants before and after the two regularization policies. We compute the average wage premium of all the groups starting from four years before and after the policy implementation. Wage premiums may both converge and diverge across years depending on the bargaining power of each group. Since both policies have two opposite effects in terms of employers' bargaining power, testing whether the affected labor market experience a change in wage premium following the policy implementation provides some insights on changes in the bargaining

¹³We decide to use the 2002-2006 time span for 2002 amnesty to avoid the overlapping with the 2007 regularization, while we use 2007-2010 time span for the 2007 regularization to exclude the arrival of migrants following the beginning of the Arab Spring in 2011.

power.

To estimate the effect, I perform the following procedure: i) I estimate firms' wage premiums over the four years before the policy implementation separately for Romanians and natives; ii) I estimate the firms' wage premiums over the four years after the policy implementation separately for Romanians and natives; iii) I append both wage premiums getting a panel dataset containing the wage premiums for the same labor market in two different periods for two different groups, Romanians and natives; iv) I estimate the effect of regularizing undocumented workers on the wage premium by interacting the share of regularized workers in either 2002 or 2007 and a post-policy dummy. We control for market and year fixed effects to capture any residual correlation between the share of regularized Romanians and the cross-sectional and time variations that affect also the wage premiums.

Table 18 and Table 19 show the estimates on the change in the wage premia paid to former formal Romanians and natives following the 2002 and 2007 regularization program. Table 18 shows that the regularization of undocumented workers increase the wage premia paid to former formal Romanians, while the wage premia paid to natives decrease following the 2002 regularization. The positive effects mirror the effect of increasing the formal labor supply of Romanians on the future earnings since firms, in the medium run, will compete to hire regular migrants given the increase in the punishment to hire undocumented workers. Conversely, the negative effect on the wage premia paid to natives shows that natives loose bargaining power probably because of the increase in the competition for formal occupations among native workers following the policy implementation.

Table 19 displays that the 2007 regularization has a positive impact on the wage premia of former migrants, while it does not affect the wage premia of natives. The estimate of the effect on former formal Romanians is smaller in magnitude with respect to 2002 effect probably

because the 2007 EU-enlargement does not curb the migration flows in Italy leading to a lower competition between firms to hire Romanians. Estimates on natives differ quite substantially since the null effect implies that the lack of employer requirement to send the regularization application does not lead lower wage premia.

Although part of the effect may have been driven by the change in the level of deterrence to hire undocumented workers, the comparison between Table 18 and Table 19 provides an initial evidence that regularization may have heterogeneous effects in both short and medium run depending on the requirements and the state deterrence policy to hire undocumented workers.

9 Conclusions

We argue that regularization programs have heterogeneous effects on incumbent formal workers depending on application requirements and penalties for hiring undocumented workers. We test our arguments by using two regularization programs implemented in 2002 and 2007 in Italy. The 2002 regularization requires firms to apply for the regularization program, while in 2007 undocumented employees are free to apply for their own residence permit. The different amnesty procedures have opposite effects on the bargaining power of the two agents, employers and employees. Firm requirements may increase the bargaining power of employers on formal workers, while the lack of such requirement may increase the bargaining power of employees since after the regularization they can look for better occupations.

We show that labor market outcomes of former formal workers are affected heterogeneously after the two amnesty events. In 2002, employment decreases and wages remain unaffected, while, in 2007, the employment does not decrease and wages slightly increase. Results are in line with a monopsony labor market where firms to cut the labor cost reduce the employment of more expensive workers, while immigrants who do not depend more on the employers for

the residence increase their reservation wages not affecting former incumbent workers but if any increase employment.

Finally, we show that the regularization of migrants with low reservation wage decreases the wage firm premia increasing the labor wedge. We show that firms do not discriminate between undocumented and documented workers, natives or migrants. Therefore, firms pay the same wage premium to both foreigners and natives. Our estimates show that if the amnesty rules move the composition of workers in the short run, the effect on wage premium is persistent over time.

Since regularization programs' side effects depend on political decisions, our findings may help to explain the heterogeneous results shown in literature. An important policy implication of this paper is that amnesty programs per se do not have a negative impact on other workers but it could worsen labor market outcomes if it changes the bargaining power in the market.

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10 Figures and Tables

Table 1: Summary Statistics

	Individual Characteristics				Industry Characteristics			
	Real Monthly Wage	Real Weekly Wage	Age	Part-Time	N	Firm Size	Construction	Northern Italy
Panel A: Regularized Workers								
2002	1,032.526 (1,613.289)	337.615 (573.631)	30.009 (7.220)	0.248 (.432)	49,920	29.752 (924.312)	0.543 (0.498)	0.555 (0.497)
2007	1,036.320 (11,757.527)	322.369 (152.726)	32.552 (8.084)	0.242 (.428)	46,504	52.671 (1,328.674)	.668 (.471)	.525 (.499)
Test	0.630	<0.001	<0.001	0.020		0.019	<0.001	<0.001
Panel B: Non-Regularized Workers								
2002	1,162.885 (2,173.584)	381.749 (644.321)	34.186 (8.175)	0.086 (0.281)	45,034	70.383 (1,002.548)	0.353 (0.478)	0.625 (0.484)
2007	1,348.197 (583.085)	382.880 (152.222)	35.620 (8.470)	0.126 (0.332)	112,317	39.037 (356.539)	0.423 (0.494)	0.589 (0.492)
Test	<0.001	0.587	<0.001	<0.001		<0.001	<0.001	<0.001
Panel C: Natives								
2002	1,571.610 (1,283.874)	493.145 (452.402)	37.007 (10.477)	0.051 (0.220)	6,440,556	13.691 (209.151)	0.228 (0.419)	0.481 (0.500))
2007	1,710.253 (962.723)	480.827 (261.374)	38.431 (10.591)	0.083 (0.275)	7,077,367	14.093 (242.317)	0.240 (0.427)	0.465 (0.499)
Test	<0.001	<0.001	<0.001	<0.001		0.249	<0.001	<0.001

Notes: Zimbabwe is the base country. * p<0.10, ** p<0.05, *** p<0.01

Figure 1: Level and Share of New Romanians Among Foreign Employees from 1999 to 2009



Figure 2: Employment and Wage Gap Between Natives and Romanians from 2000 to 2010



Table 2: Employment Effects of the 2002 Bossi-Fini Regularization

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	-0.001 (0.010)	0.006** (0.003)	0.432 (0.301)	2.907* (1.675)	-0.002 (0.003)
D(2002)xD(Sep)xreg	-0.006 (0.012)	-0.003 (0.004)	0.136 (0.526)	1.143 (3.138)	0.003 (0.004)
D(2002)xD(Oct)xreg	-0.050*** (0.018)	-0.014* (0.007)	1.992** (0.784)	11.628** (4.622)	0.002 (0.006)
D(2002)xD(Nov)xreg	-0.078*** (0.028)	-0.021** (0.009)	3.093** (1.213)	17.761** (7.035)	0.003 (0.008)
N	56322032	49345879	49345879	49345879	49345879

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Employment Effects of the 2007 EU-Enlargement Regularization

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.004 (0.005)	-0.003 (0.002)	-0.028*** (0.011)	-0.029*** (0.011)	-0.000 (0.001)
D(2007)xD(Jan)xreg	0.558*** (0.055)	0.019*** (0.002)	-0.052 (0.047)	-0.076 (0.053)	-0.004 (0.002)
D(2007)xD(Feb)xreg	0.118** (0.059)	0.008 (0.005)	-0.051 (0.053)	-0.075 (0.059)	-0.004 (0.003)
D(2007)xD(Mar)xreg	0.091* (0.050)	0.002 (0.009)	-0.030 (0.050)	-0.051 (0.054)	-0.003 (0.003)
N	40794930	37005350	37005350	37005350	37005350

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Wage Effects of the 2002 Bossi-Fini Regularization

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.012 (0.012)	-0.007** (0.003)	-0.002 (0.004)	-0.001 (0.005)
D(2002)xD(Sep)xreg	0.013 (0.026)	-0.003 (0.005)	0.002 (0.006)	-0.004 (0.010)
D(2002)xD(Oct)xreg	0.118*** (0.036)	0.002 (0.008)	0.008 (0.008)	0.014 (0.013)
D(2002)xD(Nov)xreg	0.213*** (0.059)	0.008 (0.012)	0.017 (0.011)	0.027 (0.019)
N	49345879	49345879	49345879	49345879

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 5: Wage Effects of the 2007 EU-Enlargement Regularization

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.026*** (0.008)	0.003 (0.003)	0.003 (0.003)	-0.001 (0.001)
D(2007)xD(Jan)xreg	-0.075 (0.050)	0.002 (0.007)	-0.023*** (0.004)	-0.028*** (0.004)
D(2007)xD(Feb)xreg	-0.069 (0.052)	0.006 (0.009)	-0.017*** (0.003)	-0.019*** (0.004)
D(2007)xD(Mar)xreg	-0.044 (0.045)	0.007 (0.011)	-0.015** (0.007)	-0.013* (0.008)
N	37005350	37005350	37005350	37005350

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 6: 2002 Employment Effects Adding Worker Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.002 (0.010)	-0.000 (0.000)	0.078 (0.063)	0.500 (0.405)	0.000 (0.000)
D(2002)xD(Sep)xreg	-0.016 (0.020)	0.000 (0.001)	0.078 (0.075)	0.493 (0.469)	0.000 (0.001)
D(2002)xD(Oct)xreg	-0.088*** (0.028)	0.001 (0.001)	0.310 (0.225)	1.943 (1.381)	0.001 (0.001)
D(2002)xD(Nov)xreg	-0.130*** (0.033)	0.001 (0.002)	0.509 (0.311)	3.165* (1.919)	0.001 (0.001)
N	44636404	39702531	39702531	39702531	39702531

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. * p<0.10, ** p<0.05, *** p<0.01

Table 7: 2007 Employment Effects Adding Worker Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.015** (0.006)	-0.000 (0.000)	-0.002 (0.003)	-0.003 (0.003)	0.000 (0.000)
D(2007)xD(Jan)xreg	0.055*** (0.012)	0.002 (0.004)	-0.703*** (0.080)	-0.790*** (0.087)	0.006 (0.005)
D(2007)xD(Feb)xreg	0.039** (0.017)	0.002 (0.004)	-0.713*** (0.081)	-0.801*** (0.088)	0.006 (0.005)
D(2007)xD(Mar)xreg	0.004 (0.021)	0.003 (0.005)	-0.714*** (0.081)	-0.802*** (0.088)	0.006 (0.005)
N	33916620	32843952	32843952	32843952	32843952

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. * p<0.10, ** p<0.05, *** p<0.01

Table 8: 2002 Wage Effects Adding Worker Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.002 (0.002)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Sep)xreg	0.002 (0.003)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Oct)xreg	0.010 (0.008)	-0.004 (0.003)	-0.004* (0.002)	-0.004 (0.003)
D(2002)xD(Nov)xreg	0.015 (0.011)	-0.007* (0.004)	-0.007** (0.003)	-0.007* (0.004)
N	36929820	36929820	36929820	36929820

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. * p<0.10, ** p<0.05, *** p<0.01

Table 9: 2007 Wage Effects Adding Worker Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.003 (0.003)	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)
D(2007)xD(Jan)xreg	-0.427*** (0.100)	0.364*** (0.043)	0.277*** (0.047)	0.283*** (0.052)
D(2007)xD(Feb)xreg	-0.435*** (0.101)	0.366*** (0.043)	0.278*** (0.048)	0.285*** (0.053)
D(2007)xD(Mar)xreg	-0.438*** (0.101)	0.364*** (0.044)	0.276*** (0.048)	0.284*** (0.052)
N	32,843,952	32,843,952	32,843,952	32,843,952

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. * p<0.10, ** p<0.05, *** p<0.01

Table 10: Weighted Estimates of the Employment Effect of the 2002 Regularization

	(1)	(2)
D(2002)xD(Jul)xreg	-0.003 (0.012)	0.013 (0.009)
D(2002)xD(Sep)xreg	-0.012 (0.013)	0.000 (0.024)
D(2002)xD(Oct)xreg	-0.059*** (0.023)	-0.062** (0.030)
D(2002)xD(Nov)xreg	-0.092*** (0.030)	-0.071* (0.043)
N	52,647,333	41,782,327

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. Column (2) includes also individual fixed effects. The reported standard errors are clustered by market. The explanatory variable is the share of regularized migrants in each market. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Weighted Estimates of the Employment Effect of the 2007 EU Enlargement

	(1)	(2)
D(2006)xD(Nov)xreg	0.006 (0.006)	-0.018*** (0.006)
D(2007)xD(Jan)xreg	0.091*** (0.021)	0.059*** (0.013)
D(2007)xD(Feb)xreg	0.050** (0.022)	0.046** (0.018)
D(2007)xD(Mar)xreg	-0.031 (0.025)	0.012 (0.023)
N	48,006,760	33,709,472

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. Column (2) includes also individual fixed effects. The reported standard errors are clustered by market. The explanatory variable is the share of regularized migrants in each market. × $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Placebo Test On Employment Using 2001 as a Treatment Year

	Emp	Part-time	worked weeks	days worked	White Collar
D(2001)xD(Jul)xreg	0.007 (0.011)	0.002 (0.004)	0.202 (0.388)	1.516 (2.435)	-0.005 (0.008)
D(2001)xD(Sep)xreg	0.000 (0.033)	-0.009 (0.013)	2.348*** (0.892)	13.057** (6.434)	-0.023 (0.027)
D(2001)xD(Oct)xreg	-0.008 (0.050)	-0.013 (0.020)	3.595*** (1.302)	19.129** (9.111)	-0.036 (0.037)
D(2001)xD(Nov)xreg	-0.019 (0.061)	-0.025 (0.025)	4.858*** (1.662)	25.983** (11.637)	-0.052 (0.047)
N	19503281	16464062	16464062	16464062	16464062

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. * p<0.10, ** p<0.05, *** p<0.01

Table 13: Placebo Test On Employment Using 2006 as a Treatment Year

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	1.341* (0.768)	-0.127 (0.111)	0.196 (0.686)	0.077 (0.737)	-0.048 (0.118)
D(2007)xD(Jan)xreg	5.916* (3.060)	-0.642 (0.481)	1.277 (2.043)	3.702 (2.396)	-0.567 (0.480)
D(2007)xD(Feb)xreg	6.400 (4.003)	-0.841 (0.647)	2.696 (2.614)	4.953* (3.001)	-0.497 (0.623)
D(2007)xD(Mar)xreg	7.217 (4.977)	-1.206 (0.815)	4.017 (3.175)	6.067* (3.570)	-0.707 (0.780)
N	22406680	19829136	19829136	19829136	19829136

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table 14: Placebo Test On Wages Using 2001 as a Treatment Year

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	-0.020 (0.019)	-0.017** (0.008)	-0.016* (0.009)	-0.020* (0.010)
D(2002)xD(Sep)xreg	0.048 (0.048)	-0.048* (0.028)	-0.044 (0.030)	-0.040 (0.033)
D(2002)xD(Oct)xreg	0.090 (0.070)	-0.064* (0.039)	-0.062 (0.041)	-0.047 (0.045)
D(2002)xD(Nov)xreg	0.152* (0.089)	-0.074 (0.049)	-0.070 (0.052)	-0.057 (0.058)
N	16464062	16464062	16464062	16464062

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 15: Placebo Test On Wages Using 2006 as a Treatment Year

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	0.145 (0.751)	0.068 (0.132)	-0.052 (0.155)	-0.101 (0.196)
D(2007)xD(Jan)xreg	3.877 (2.509)	0.174 (0.589)	2.600*** (0.870)	1.728* (0.913)
D(2007)xD(Feb)xreg	5.256* (3.145)	0.303 (0.734)	2.560** (0.995)	1.964* (1.145)
D(2007)xD(Mar)xreg	6.416* (3.738)	0.349 (0.875)	2.399** (1.100)	1.957 (1.349)
N	19829136	19829136	19829136	19829081

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 16: 2002 Wage Discrimination between Natvise and Foreigners

	Previous migrant premium	New Migrants premium
Natives Firm Premium	0.986*** (0.036)	0.701*** (0.040)
N	26486	19570

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 17: 2002 Wage Discrimination between Natvise and Foreigners

	Previous migrant premium	New migrant premium
Natives Firm Premium	0.929*** (0.020)	0.958*** (0.036)
N	46033	19811

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 18: Effects of 2002 Regularization on Native Wage Premiums

	Previous Migrants	Natives
<i>Postxreg</i>	1.003*** (0.091)	-0.406*** (0.028)
N	224273	4500367

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table 19: Effects of 2007 Regularization on Native Wage Premiums

	Previous Migrants	Natives
<i>Postxreg</i>	0.234*** (0.056)	-0.010 (0.025)
N	488844	5072382

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Online Appendix

A First Appendix

Table A.1: Migration labor supply shock on Young native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.023 (0.021)	-0.006 (0.009)	-0.265 (0.812)	-0.972 (4.750)	-0.003 (0.008)
D(2002)xD(Sep)xreg	0.032 (0.041)	0.007 (0.015)	-1.553 (1.725)	-9.803 (9.646)	-0.014 (0.014)
D(2002)xD(Oct)xreg	-0.032 (0.064)	-0.043 (0.028)	0.881 (2.631)	3.647 (14.682)	-0.013 (0.022)
D(2002)xD(Nov)xreg	-0.060 (0.088)	-0.037 (0.031)	2.079 (3.523)	9.405 (20.007)	-0.026 (0.030)
N	6,981,067	4,979,166	4,979,166	4,979,166	4,979,166

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.2: Migration labor supply shock on Middle-Aged native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	-0.007 (0.012)	0.008** (0.003)	0.607 (0.402)	3.951* (2.154)	-0.001 (0.003)
D(2002)xD(Sep)xreg	-0.001 (0.014)	-0.004 (0.004)	0.032 (0.473)	0.561 (2.865)	0.004 (0.004)
D(2002)xD(Oct)xreg	-0.043** (0.022)	-0.010 (0.007)	1.716** (0.839)	10.147** (5.085)	0.004 (0.006)
D(2002)xD(Nov)xreg	-0.072** (0.028)	-0.019** (0.009)	2.778** (1.133)	16.061** (6.714)	0.006 (0.008)
N	46,662,374	42,214,020	42,214,020	42,214,020	42,214,020

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.3: Migration labor supply shock on Old native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.023 (0.030)	0.005 (0.010)	-0.026 (1.026)	-0.098 (5.771)	-0.008 (0.006)
D(2002)xD(Jul)xreg	-0.116*** (0.036)	-0.020 (0.020)	3.326** (1.486)	21.319*** (8.031)	0.014 (0.009)
D(2002)xD(Jul)xreg	-0.096 (0.060)	-0.033 (0.032)	4.751** (2.145)	29.030** (11.962)	-0.001 (0.018)
D(2002)xD(Jul)xreg	-0.095 (0.085)	-0.043 (0.035)	5.326 (3.342)	33.319* (18.717)	0.018 (0.024)
N	2,651,788	2,121,951	2,121,951	2,121,951	2,121,951

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.4: Migration labor supply shock on Young native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.029 (0.035)	-0.002 (0.002)	0.016 (0.105)	0.124 (0.649)	0.000 (0.001)
D(2002)xD(Sep)xreg	-0.042 (0.051)	0.003 (0.004)	-0.064 (0.239)	-0.176 (1.450)	-0.000 (0.002)
D(2002)xD(Oct)xreg	-0.132 (0.082)	0.005 (0.006)	-0.486 (0.500)	-2.315 (2.958)	0.001 (0.002)
D(2002)xD(Nov)xreg	-0.178 (0.114)	0.005 (0.008)	-0.694 (0.813)	-3.100 (4.698)	0.000 (0.003)
N	3,699,183	2,600,751	2,600,751	2,600,751	2,600,751

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.5: Migration labor supply shock Middle-Aged on native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	-0.001 (0.011)	-0.000 (0.000)	0.079 (0.070)	0.517 (0.453)	0.000 (0.000)
D(2002)xD(Sep)xreg	-0.003 (0.023)	0.000 (0.001)	0.079 (0.080)	0.505 (0.502)	0.000 (0.001)
D(2002)xD(Oct)xreg	-0.073** (0.029)	0.000 (0.001)	0.359 (0.235)	2.234 (1.453)	0.001 (0.001)
D(2002)xD(Nov)xreg	-0.115*** (0.032)	0.000 (0.002)	0.597* (0.318)	3.694* (1.989)	0.001 (0.001)
N	37,808,168	34,539,710	34,539,710	34,539,710	34,539,710

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.6: Migration labor supply shock on Old native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.021 (0.046)	0.001 (0.001)	0.094 (0.084)	0.499 (0.458)	0.000 (0.000)
D(2002)xD(Sep)xreg	-0.154*** (0.055)	-0.000 (0.001)	0.237** (0.109)	1.242** (0.626)	0.001 (0.001)
D(2002)xD(Oct)xreg	-0.153 (0.097)	-0.001 (0.003)	0.505 (0.357)	2.680 (2.022)	0.002 (0.001)
D(2002)xD(Nov)xreg	-0.180 (0.127)	-0.002 (0.004)	0.743 (0.524)	3.714 (2.885)	0.002 (0.002)
N	1,803,077	1,462,836	1,462,836	1,462,836	1,462,836

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.7: Migration labor supply shock on Young native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.008 (0.022)	0.006 (0.007)	0.032 (0.611)	-0.126 (3.507)	0.009 (0.007)
D(2007)xD(Nov)xreg	0.822*** (0.108)	-0.045 (0.040)	8.088* (4.244)	34.834 (24.868)	-0.017 (0.038)
D(2007)xD(Nov)xreg	0.752*** (0.116)	-0.039 (0.043)	8.170* (4.486)	35.532 (26.439)	-0.021 (0.043)
D(2007)xD(Nov)xreg	0.665*** (0.120)	-0.045 (0.048)	9.472* (4.853)	43.996 (28.413)	-0.017 (0.048)
N	4,604,354	3,301,629	3,301,629	3,301,629	3,301,629

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.8: Migration labor supply shock on Middle-Aged native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.002 (0.005)	0.006** (0.002)	-0.429** (0.192)	-2.267** (1.101)	-0.001 (0.002)
D(2007)xD(Jan)xreg	0.511*** (0.058)	-0.017 (0.011)	6.648*** (1.434)	25.856*** (8.388)	-0.006 (0.013)
D(2007)xD(Feb)xreg	0.487*** (0.057)	-0.023* (0.013)	7.960*** (1.533)	33.698*** (8.900)	0.000 (0.014)
D(2007)xD(Mar)xreg	0.434*** (0.057)	-0.029* (0.015)	9.069*** (1.675)	40.474*** (9.605)	0.001 (0.015)
N	43,595,398	40,895,174	40,895,174	40,895,174	40,895,174

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.9: Migration labor supply shock on Old native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.022 (0.016)	0.018* (0.009)	-1.076** (0.456)	-5.774** (2.623)	-0.003 (0.004)
D(2007)xD(Jan)xreg	0.402*** (0.081)	-0.007 (0.060)	11.029*** (3.154)	39.050** (19.240)	0.018 (0.035)
D(2007)xD(Feb)xreg	0.359*** (0.087)	-0.025 (0.059)	10.971*** (3.388)	39.184* (20.142)	0.024 (0.036)
D(2007)xD(Mar)xreg	0.239** (0.104)	-0.044 (0.067)	12.848*** (3.692)	49.817** (21.955)	0.035 (0.041)
N	3,143,650	2,723,957	2,723,957	2,723,957	2,723,957

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.10: Migration labor supply shock on Young Native Employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.006 (0.029)	0.001 (0.001)	0.281 (0.386)	1.497 (2.086)	-0.000 (0.001)
D(2007)xD(Jan)xreg	0.019 (0.074)	-0.008 (0.026)	-34.647*** (9.271)	-212.636*** (55.159)	-0.004 (0.010)
D(2007)xD(Feb)xreg	-0.122 (0.124)	-0.009 (0.027)	-35.082*** (9.192)	-214.855*** (54.697)	-0.004 (0.010)
D(2007)xD(Mar)xreg	-0.231 (0.164)	-0.008 (0.027)	-36.765*** (9.162)	-224.780*** (54.337)	-0.007 (0.011)
N	1,232,202	1,155,713	1,155,713	1,155,713	1,155,713

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.11: Migration labor supply shock on Middle-Aged native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.016*** (0.006)	-0.000 (0.001)	-0.398*** (0.096)	-2.139*** (0.527)	0.000 (0.000)
D(2007)xD(Jan)xreg	0.050*** (0.014)	0.002 (0.004)	-23.345*** (3.002)	-139.510*** (17.723)	0.007 (0.005)
D(2007)xD(Feb)xreg	0.040** (0.016)	0.003 (0.004)	-23.253*** (2.993)	-139.210*** (17.690)	0.007 (0.005)
D(2007)xD(Mar)xreg	0.010 (0.021)	0.004 (0.005)	-23.988*** (3.008)	-143.387*** (17.737)	0.007 (0.005)
N	30,174,280	29,730,078	29,730,078	29,730,078	29,730,078

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.12: Regularization on Old native employment

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.003 (0.024)	-0.000 (0.003)	-0.208 (0.201)	-0.967 (1.137)	0.000 (0.000)
D(2007)xD(Jan)xreg	0.057 (0.063)	-0.001 (0.017)	-5.533 (5.587)	-34.312 (33.143)	0.002 (0.007)
D(2007)xD(Feb)xreg	0.036 (0.084)	-0.001 (0.020)	-5.526 (5.656)	-34.545 (33.480)	0.002 (0.007)
D(2007)xD(Mar)xreg	-0.007 (0.097)	0.002 (0.027)	-6.012 (5.848)	-36.977 (34.566)	0.002 (0.007)
N	1,465,945	1,406,918	1,406,918	1,406,918	1,406,918

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.13: Migration labor supply shock on young natives' wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	-0.009 (0.049)	0.015 (0.009)	0.020 (0.012)	0.019 (0.019)
D(2002)xD(Sep)xreg	-0.103 (0.087)	-0.027* (0.014)	-0.023 (0.017)	-0.031 (0.030)
D(2002)xD(Oct)xreg	0.063 (0.131)	-0.008 (0.023)	0.018 (0.026)	0.048 (0.047)
D(2002)xD(Nov)xreg	0.177 (0.186)	-0.036 (0.030)	-0.001 (0.034)	0.069 (0.057)
N	4,979,166	4,979,166	4,979,166	4,979,166

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.14: Migration labor supply shock on middle-aged natives' wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.018 (0.016)	-0.009*** (0.003)	-0.003 (0.003)	-0.002 (0.004)
D(2002)xD(Sep)xreg	0.017 (0.021)	0.001 (0.005)	0.005 (0.005)	-0.000 (0.008)
D(2002)xD(Oct)xreg	0.111*** (0.037)	0.005 (0.008)	0.007 (0.008)	0.013 (0.012)
D(2002)xD(Nov)xreg	0.203*** (0.049)	0.016 (0.011)	0.020* (0.010)	0.026 (0.016)
N	42,214,020	42,214,020	42,214,020	42,214,020

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.15: Migration labor supply shock on old natives' wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.004 (0.049)	-0.004 (0.011)	-0.005 (0.012)	-0.010 (0.021)
D(2002)xD(Sep)xreg	0.143** (0.069)	0.007 (0.020)	0.026 (0.020)	0.027 (0.033)
D(2002)xD(Oct)xreg	0.222** (0.103)	-0.003 (0.035)	0.014 (0.037)	0.010 (0.052)
D(2002)xD(Nov)xreg	0.264 (0.160)	-0.000 (0.047)	0.018 (0.048)	0.013 (0.064)
N	2,121,951	2,121,951	2,121,951	2,121,951

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.16: Regularization on young native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	-0.004 (0.006)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)
D(2002)xD(Sep)xreg	-0.000 (0.011)	-0.004 (0.004)	-0.003 (0.004)	-0.003 (0.005)
D(2002)xD(Oct)xreg	-0.009 (0.019)	-0.004 (0.008)	-0.001 (0.008)	-0.002 (0.008)
D(2002)xD(Nov)xreg	-0.019 (0.034)	-0.010 (0.009)	-0.004 (0.010)	-0.006 (0.010)
N	2,081,323	2,081,323	2,081,323	2,081,323

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.17: Regularization on middle-aged native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.002 (0.002)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Sep)xreg	0.003 (0.003)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Sep)xreg	0.011 (0.008)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)
D(2002)xD(Sep)xreg	0.018* (0.011)	-0.007* (0.004)	-0.007* (0.003)	-0.007* (0.004)
N	32,575,187	32,575,187	32,575,187	32,575,187

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.18: Regularization on Old native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.004 (0.003)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
D(2002)xD(Sep)xreg	0.003 (0.004)	-0.002 (0.001)	-0.004 (0.003)	-0.004 (0.003)
D(2002)xD(Oct)xreg	0.015 (0.015)	-0.005 (0.003)	-0.008** (0.004)	-0.007 (0.004)
D(2002)xD(Nov)xreg	0.024 (0.022)	-0.004 (0.005)	-0.009* (0.005)	-0.006 (0.005)
N	1,265,789	1,265,789	1,265,789	1,265,789

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.19: Migration labor supply shock on Young native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.001 (0.036)	0.001 (0.007)	-0.005 (0.007)	0.005 (0.012)
D(2007)xD(Jan)xreg	0.471** (0.212)	0.287*** (0.053)	0.183*** (0.054)	0.226*** (0.075)
D(2007)xD(Feb)xreg	0.517** (0.229)	0.283*** (0.054)	0.192*** (0.055)	0.240*** (0.081)
D(2007)xD(Mar)xreg	0.584** (0.252)	0.317*** (0.056)	0.215*** (0.055)	0.289*** (0.084)
N	3,301,629	3,301,629	3,301,629	3,301,629

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.20: Migration labor supply shock on Middle-Aged native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.024** (0.011)	-0.004* (0.002)	-0.002 (0.002)	-0.004 (0.003)
D(2007)xD(Jan)xreg	0.443*** (0.068)	0.299*** (0.027)	0.202*** (0.029)	0.247*** (0.031)
D(2007)xD(Feb)xreg	0.514*** (0.075)	0.300*** (0.028)	0.207*** (0.030)	0.254*** (0.032)
D(2007)xD(Mar)xreg	0.559*** (0.083)	0.299*** (0.030)	0.209*** (0.031)	0.263*** (0.033)
N	40,895,174	40,895,174	40,895,174	40,895,174

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table A.21: Migration labor supply shock on Old native wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.077*** (0.025)	-0.018*** (0.007)	-0.017** (0.007)	-0.022** (0.010)
D(2007)xD(Jan)xreg	0.546*** (0.157)	0.210*** (0.042)	0.096* (0.053)	0.150** (0.064)
D(2007)xD(feb)xreg	0.532*** (0.161)	0.213*** (0.044)	0.095* (0.053)	0.139** (0.063)
D(2007)xD(Mar)xreg	0.626*** (0.174)	0.215*** (0.049)	0.100* (0.060)	0.166** (0.069)
N	2,723,957	2,723,957	2,723,957	2,723,957

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.22: Regularization on Young native Wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.010 (0.016)	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.003)
D(2007)xD(Jan)xreg	-1.036*** (0.318)	0.472*** (0.081)	0.324*** (0.102)	0.327*** (0.121)
D(2007)xD(Feb)xreg	-1.027*** (0.321)	0.469*** (0.081)	0.322*** (0.102)	0.327*** (0.121)
D(2007)xD(Mar)xreg	-1.021*** (0.326)	0.467*** (0.082)	0.319*** (0.102)	0.326*** (0.122)
N	1,101,421	1,101,421	1,101,421	1,101,421

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.23: Regularization on Middle-Aged native Wage

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.003 (0.004)	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)
D(2007)xD(Jan)xreg	-0.249** (0.107)	0.362*** (0.043)	0.289*** (0.049)	0.299*** (0.055)
D(2007)xD(Feb)xreg	-0.256** (0.109)	0.365*** (0.044)	0.291*** (0.049)	0.302*** (0.055)
D(2007)xD(Mar)xreg	-0.261** (0.108)	0.363*** (0.044)	0.289*** (0.049)	0.300*** (0.055)
N	29,380,177	29,380,177	29,380,177	29,380,177

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table A.24: Regularization on Old native Wages

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	0.002 (0.008)	0.000 (0.001)	-0.000 (0.002)	-0.001 (0.002)
D(2007)xD(Jan)xreg	0.002 (0.190)	0.155** (0.066)	0.012 (0.069)	0.084 (0.082)
D(2007)xD(Feb)xreg	-0.025 (0.193)	0.154** (0.066)	0.009 (0.070)	0.082 (0.083)
D(2007)xD(Mar)xreg	-0.037 (0.198)	0.149** (0.071)	0.003 (0.072)	0.079 (0.084)
N	1,362,501	1,362,501	1,362,501	1,362,501

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

B Second Appendix

Table B.1: 2002 Regularization on native employment in Northern and Center Italy

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	-0.012 (0.009)	0.002 (0.003)	0.559* (0.305)	3.531** (1.710)	-0.002 (0.003)
D(2002)xD(Jul)xreg	0.008 (0.011)	0.003 (0.004)	-0.148 (0.520)	-0.414 (3.108)	0.002 (0.004)
D(2002)xD(Jul)xreg	-0.031* (0.017)	-0.004 (0.007)	1.727** (0.789)	10.212** (4.656)	0.000 (0.006)
D(2002)xD(Jul)xreg	-0.054** (0.027)	-0.007 (0.008)	2.893** (1.231)	16.866** (7.149)	0.001 (0.008)
N	41,166,063	36,688,932	36,688,932	36,688,932	36,688,932

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.2: 2002 Regularization on native employment in Southern Italy

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.141** (0.066)	0.037** (0.015)	-2.125 (1.882)	-12.382 (10.673)	-0.031 (0.021)
D(2002)xD(Sep)xreg	-0.073 (0.103)	-0.039* (0.023)	2.043 (2.862)	14.363 (16.025)	0.003 (0.029)
D(2002)xD(Oct)xreg	-0.301* (0.176)	-0.102** (0.045)	7.719 (5.274)	45.076 (29.263)	0.013 (0.054)
D(2002)xD(Nov)xreg	-0.361 (0.251)	-0.101 (0.069)	10.384 (7.386)	58.835 (41.930)	0.012 (0.074)
N	15,130,594	12,636,590	12,636,590	12,636,590	12,636,590

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.3: 2002 Regularization on native employment in Northern-Center Italy by Adding Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	-0.008 (0.010)	-0.000 (0.000)	0.080 (0.076)	0.489 (0.489)	0.000 (0.000)
D(2002)xD(Jul)xreg	0.003 (0.023)	0.001 (0.001)	0.079 (0.085)	0.482 (0.537)	0.000 (0.001)
D(2002)xD(Jul)xreg	-0.074** (0.029)	0.001 (0.001)	0.317 (0.266)	1.933 (1.635)	0.001 (0.001)
D(2002)xD(Jul)xreg	-0.120*** (0.036)	0.001 (0.002)	0.472 (0.343)	2.884 (2.129)	0.001 (0.001)
N	33,032,265	30,039,978	30,039,978	30,039,978	30,039,978

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.4: 2002 Regularization on native employment in Southern Italy by Adding Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2002)xD(Jul)xreg	0.109* (0.065)	0.001 (0.002)	0.172 (0.188)	1.046 (1.227)	0.002 (0.003)
D(2002)xD(Jul)xreg	-0.137 (0.123)	0.002 (0.005)	0.140 (0.256)	0.941 (1.573)	-0.003 (0.002)
D(2002)xD(Jul)xreg	-0.321 (0.201)	0.001 (0.011)	0.803 (0.615)	5.249 (3.825)	-0.005 (0.005)
D(2002)xD(Jul)xreg	-0.456 (0.280)	0.006 (0.014)	1.514 (1.252)	9.681 (7.727)	-0.008 (0.008)
N	11,320,084	9,494,329	9,494,329	9,494,329	9,494,329

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.5: 2007 EU Enlargement Regularization on native employment in Northern and Center Italy

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.006 (0.005)	0.007*** (0.002)	-0.414** (0.192)	-2.175** (1.089)	-0.000 (0.002)
D(2007)xD(Jan)xreg	0.533*** (0.058)	-0.013 (0.012)	5.956*** (1.407)	20.069** (8.171)	-0.012 (0.014)
D(2007)xD(Feb)xreg	0.509*** (0.057)	-0.016 (0.014)	7.145*** (1.491)	27.341*** (8.616)	-0.005 (0.015)
D(2007)xD(Mar)xreg	0.454*** (0.057)	-0.022 (0.016)	8.031*** (1.588)	32.963*** (9.087)	-0.003 (0.016)
N	37,143,254	34,665,241	34,665,241	34,665,241	34,665,241

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.6: 2007 EU Enlargement Regularization on native employment in Southern Italy

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	0.003 (0.025)	0.010* (0.006)	-1.228* (0.741)	-7.316* (4.139)	-0.007 (0.008)
D(2007)xD(Nov)xreg	0.813*** (0.147)	-0.053 (0.040)	17.269*** (6.554)	54.194 (37.162)	0.063 (0.045)
D(2007)xD(Nov)xreg	0.762*** (0.143)	-0.081** (0.040)	17.689*** (6.796)	54.326 (37.738)	0.067 (0.046)
D(2007)xD(Nov)xreg	0.671*** (0.144)	-0.108** (0.043)	20.692*** (7.251)	69.378* (39.851)	0.083 (0.052)
N	14,214,132	12,275,387	12,275,387	12,275,387	1,2275,387

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.7: 2007 EU Enlargement Regularization on native employment in Northern-Center Italy by Adding Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.015*** (0.005)	-0.000 (0.001)	-0.490*** (0.093)	-2.698*** (0.516)	0.000 (0.000)
D(2007)xD(Nov)xreg	0.059*** (0.011)	0.003 (0.004)	-32.476*** (2.963)	-193.864*** (17.512)	0.004 (0.006)
D(2007)xD(Nov)xreg	0.045*** (0.015)	0.004 (0.005)	-32.279*** (2.956)	-192.899*** (17.482)	0.004 (0.006)
D(2007)xD(Nov)xreg	0.012 (0.020)	0.005 (0.005)	-33.090*** (2.953)	-197.468*** (17.444)	0.004 (0.006)
N	25,772,064	25,555,485	25,555,485	25,555,485	25,555,485

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.8: 2007 EU Enlargement Regularization on native employment in Southern Italy by Adding Fixed Effects

	Emp	Part-time	worked weeks	days worked	White Collar
D(2006)xD(Nov)xreg	-0.076** (0.036)	0.001 (0.001)	-1.119** (0.485)	-4.991** (2.494)	-0.000 (0.001)
D(2007)xD(Nov)xreg	0.207** (0.092)	-0.003 (0.013)	-80.593*** (18.571)	-413.245*** (93.480)	0.021 (0.014)
D(2007)xD(Nov)xreg	0.204* (0.106)	-0.004 (0.017)	-79.493*** (18.312)	-408.320*** (92.267)	0.021 (0.014)
D(2007)xD(Nov)xreg	0.181 (0.125)	-0.005 (0.020)	-80.458*** (18.500)	-413.670*** (93.368)	0.019 (0.014)
N	8,110,253	7,725,166	7,725,166	7,725,166	7,725,166

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007. * p<0.10, ** p<0.05, *** p<0.01

Table B.9: 2002 Regularization on native wage in Norther and Center Italy

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.016 (0.013)	-0.005* (0.003)	-0.001 (0.004)	0.000 (0.005)
D(2002)xD(Sep)xreg	-0.001 (0.025)	-0.006 (0.005)	-0.001 (0.006)	-0.010 (0.010)
D(2002)xD(Oct)xreg	0.105*** (0.036)	-0.004 (0.008)	0.002 (0.008)	0.006 (0.013)
D(2002)xD(Nov)xreg	0.211*** (0.061)	0.003 (0.012)	0.013 (0.011)	0.022 (0.019)
N	36,688,932	36,688,932	36,688,932	36,688,932

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.10: 2002 Regularization on native wage in Southern Italy

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	-0.086 (0.084)	-0.030* (0.015)	-0.025 (0.018)	-0.026 (0.026)
D(2002)xD(Sep)xreg	0.119 (0.126)	0.010 (0.025)	0.042* (0.025)	0.032 (0.037)
D(2002)xD(Oct)xreg	0.424* (0.243)	0.024 (0.043)	0.079* (0.046)	0.096 (0.076)
D(2002)xD(Nov)xreg	0.576* (0.343)	0.018 (0.062)	0.096 (0.068)	0.082 (0.105)
N	12,636,590	12,636,590	12,636,590	12,636,590

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.11: 2002 Regularization on native wage in Norther and Center Italy by Adding Individual Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.002 (0.002)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Sep)xreg	0.003 (0.003)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2002)xD(Oct)xreg	0.010 (0.009)	-0.004 (0.003)	-0.004 (0.003)	-0.005 (0.003)
D(2002)xD(Nov)xreg	0.014 (0.011)	-0.006 (0.004)	-0.006* (0.004)	-0.007* (0.004)
N	28,432,870	28,432,870	28,432,870	28,432,870

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.12: 2002 Regularization on native wage in Southern Italy by Adding Individual Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2002)xD(Jul)xreg	0.006 (0.007)	-0.001 (0.004)	-0.001 (0.003)	-0.001 (0.004)
D(2002)xD(Sep)xreg	0.000 (0.011)	-0.002 (0.004)	-0.000 (0.003)	-0.000 (0.004)
D(2002)xD(Oct)xreg	0.026 (0.025)	-0.007 (0.010)	-0.001 (0.009)	0.001 (0.010)
D(2002)xD(Nov)xreg	0.048 (0.048)	-0.016 (0.016)	-0.007 (0.014)	-0.007 (0.017)
N	8,393,978	8,393,978	8,393,978	8,393,978

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.13: 2007 EU Enlargement Regularization on native wage in Norther and Center Italy

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.027** (0.011)	-0.004* (0.002)	-0.003 (0.002)	-0.005* (0.003)
D(2007)xD(Jan)xreg	0.419*** (0.066)	0.295*** (0.028)	0.191*** (0.028)	0.235*** (0.031)
D(2007)xD(Feb)xreg	0.488*** (0.074)	0.296*** (0.029)	0.199*** (0.030)	0.243*** (0.032)
D(2007)xD(Mar)xreg	0.526*** (0.081)	0.300*** (0.030)	0.204*** (0.030)	0.257*** (0.033)
N	34,665,241	34,665,241	34,665,241	34,665,241

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.14: 2007 EU Enlargement Regularization on native wage in Southern Italy

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.057 (0.039)	-0.007 (0.008)	-0.011 (0.008)	-0.013 (0.012)
D(2007)xD(Jan)xreg	0.773** (0.312)	0.242*** (0.078)	-0.027 (0.078)	0.076 (0.113)
D(2007)xD(Feb)xreg	0.774** (0.327)	0.237*** (0.079)	-0.039 (0.077)	0.065 (0.114)
yD(2007)xD(Mar)xreg	0.894** (0.356)	0.231*** (0.083)	-0.043 (0.081)	0.072 (0.119)
N	12,275,387	12,275,387	12,275,387	12,275,387

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.15: 2007 EU Regularization on native wage in Northern and Center Italy by Adding Individual Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	-0.003 (0.003)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
D(2007)xD(Jan)xreg	-0.534*** (0.104)	0.371*** (0.047)	0.281*** (0.052)	0.270*** (0.056)
D(2007)xD(Feb)xreg	-0.540*** (0.105)	0.373*** (0.047)	0.283*** (0.052)	0.272*** (0.057)
D(2007)xD(Mar)xreg	-0.546*** (0.105)	0.371*** (0.048)	0.280*** (0.053)	0.270*** (0.057)
N	25,333,635	25,333,635	25,333,635	25,333,635

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01

Table B.16: 2007 EU Regularization on native wage in Southern Italy by Adding Individual Fixed Effects

	Yearly wage	Daily wage	Weekly wage	Monthly wage
D(2006)xD(Nov)xreg	0.002 (0.007)	-0.000 (0.002)	0.001 (0.002)	0.002 (0.003)
D(2007)xD(Jan)xreg	-1.843*** (0.451)	0.302*** (0.117)	0.059 (0.123)	0.026 (0.148)
D(2007)xD(Feb)xreg	-1.880*** (0.456)	0.309*** (0.117)	0.059 (0.123)	0.032 (0.147)
D(2007)xD(Mar)xreg	-1.869*** (0.459)	0.309*** (0.115)	0.060 (0.122)	0.034 (0.145)
N	7,478,096	7,478,096	7,478,096	7,478,096

Notes: All regressions include individual fixed effects, market-year, market-month and year-month fixed effects. The reported standard errors are clustered by market. The dependent variable is the log monthly wage; the explanatory variable is the share of regularized migrants in the market. Regularized migrants are migrants who have their first contract in gen, feb, march 2007.* p<0.10, ** p<0.05, *** p<0.01