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**Working Paper**

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GLO Discussion Paper, No. 1409

**Provided in Cooperation with:**  
Global Labor Organization (GLO)

*Suggested Citation:* Landini, Fabio; Rinaldi, Riccardo (2024) : "Bad Jobs" in "Good Industries": The Precarious Employment of Migrant Workers in the Manufacturing Sector of the Emilia-Romagna Region, GLO Discussion Paper, No. 1409, Global Labor Organization (GLO), Essen

This Version is available at:  
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# **‘Bad Jobs’ in ‘Good Industries’: The Precarious Employment of Migrant Workers in the Manufacturing Sector of the Emilia-Romagna Region**

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February, 2024

## **Abstract**

The article examines the drivers of migrant atypical employment in the manufacturing sector of the Emilia-Romagna region. By drawing on administrative data based on mandatory communications we document that, even in an industry characterized by high quality of productions and occupations, migrants have a disproportionately higher likelihood to be hired through either fixed-term or agency contracts compared to natives. We interpret this evidence through a set of alternative theories, including human capital theory, dual labour market processes, the use of precarious contracts as screening devices and institutional segmentation theories. The empirical analysis reveals that while migrant employment through fixed-term contracts is consistent with screening purposes, the hiring of migrants with agency contracts is driven by processes of institutional segmentation, through which employers shift the costs of flexibility to the most vulnerable and less organized segments within the labour force, such as migrants. Managerial and policy implications are discussed.

**Key words:** job quality; migrant workers; manufacturing; nonstandard employment

**JEL Code:** D22, J28, J41, L23

## 1. Introduction

During the last decades, advanced capitalist economies have experienced a significant increase in precarious forms of employment (Allmendinger et al., 2013; Keune, 2013). While full-time and open-ended contracts remain common, in many contexts a wide variety of precarious arrangements have emerged, going from the temporary employment of internal workers to the hiring of on-demand external employees (Kalleberg, 2011; Koch and Fritz, 2013, ILO, 2015). Among explanations that have been provided for this trend are the shift towards post-Fordist production remiges based on flexible and agile labour inputs (Koch, 2013), the increased deindustrialization of capitalist economies (Eichhorst and Marx, 2015) and attempts to restore profit margins in response to stiff competition (Landini et al., 2020).

Although different social groups have been harshly influenced by the expansion of precarious employment, such as women and, especially, the young, migrant workers appear as one of the most affected categories. This does not seem to be particularly surprising as it is well known that the latter group is over-represented in vulnerable sectors of the economy, such as low-skill services (Bauder, 2006). However, in many countries the incidence of precarious employment among migrants remains high also in what are usually conceived as well-protected segments of the economy, such as manufacturing. In Italy, for instance, data retrieved from the Labour Force Survey reveals that the share of temporary employment among migrant workers active in manufacturing is nearly 1.6 times larger than the same share for natives. In the low-skill service sector, this very same proportion is about 1.3.<sup>1</sup> Similar patterns emerge also within territories that stand out for the quality of manufacturing productions and industrial relations, such as the Emilia-Romagna region, which is indeed the focus of the present study (more details below). What are factors driving this differential in precarious employment between migrant and native workers? Why does this differential persist also in what are usually conceived as ‘good’ segments of the production system?

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<sup>1</sup> To compute this proportion, it is considered the mean share of temporary contract over the period 2009-2015, which is broadly in line with our more detailed empirical analysis that follows in the article.

This article compares the incidence of precarious employment among migrant and native workers considering all contract activations occurred in the manufacturing sector of the Emilia-Romagna region from 2008 to 2017. This administrative data is retrieved from the SILER-ARTER system, the regional archive of mandatory communications that all firms with production units in Emilia-Romagna are required to submit in cases of major employment events (e.g., hiring, firing, contract transformation). On this ground, it aims at identifying the main factors behind the disproportionate probability that migrant workers are offered a precarious employment arrangement, either in the form of temporary contract or agency contract, compared to natives.

By looking at the previous literature, a set of alternative explanations is considered, based on human capital theory (Becker, 1993), dual labour market processes (Piore, 1979), the use of precarious contracts as screening devices (Baranowska et al., 2011; Faccini, 2014; Portugal and Varejão, 2010) and institutional segmentation theories (Rubery and Piasna, 2017). The empirical results provide support for the latter two explanations, but with an important difference depending on the type of contract. While temporary contracts are frequently used to hire foreign workers especially in occupations dealing with non-routine tasks, where screening issues related to the skills and competences of the workers are most relevant, the higher incidence of agency contracts among migrant workers compared to natives holds across all the occupations. Moreover, this differential for agency contract is significantly larger in industries where the rate of unionization is lower. These results are consistent with the idea that, far from being screening devices, agency contracts are drivers of institutional segmentation, through which employers can satisfy their needs for production flexibility while shifting its costs to the most vulnerable and less organized segments within the labour force, such as migrants.

This article contributes to the literature on non-standard employment and migration in two ways. First, it shows that the use of precarious work arrangements is only partially explained by the need to screen workers before admission into permanent employment. Rather, especially agency contracts, are used to leverage on asymmetric bargaining power among workers to create a buffer of employees

most willing to take the burden of job insecurity. In this group of employees, migrant workers turn out to play a particularly relevant role. Second, the article suggests that the precarious employment of migrant workers is not only the result of segmentation processes taking place between primary, usually high skill, and secondary, mostly low skill, segments of the labour market (Piore, 1979). On top of this, the availability of ‘atypical’ work arrangements offers to employers the possibility to segment the workforce independently of the level of skills, while paying attention to other factors, such as the social vulnerability of the workers. On this ground, segments of bad and precarious jobs can emerge also in relatively ‘good’ sectors of the economy, with migrant workers having a disproportionate high chance of joining them.

This article is structured as follows. It first discusses the different theoretical views about the precarious employment of migrant workers. The subsequent section provides an overview of labour flexibility, migrant employment and production specialization in the context of the Emilia-Romagna region. This is followed by a description of the dataset and a discussion of the empirical methodology employed to analyse the data. The penultimate section presents and discusses the empirical findings. Finally, the last section summarises the main results and link them to the broader debate about migration and labour market segmentation.

## **2. The precarious employment of migrant workers: theoretical approaches**

In the literature, there exist competing theoretical approaches that attempt to explain the labour market disadvantage of migrant workers. Some of them place particular attention on supply-side factors, namely the characteristics of individual workers. Others, emphasize instead demand-side components related to the employment strategies pursued by the employers.

Among supply-side approaches one of the most popular is the so-called human capital theory, which links individual performances in the labour market with investments in skills and knowledge (Chiswick, 1978). Being strongly influenced by approaches grounded in neoclassical economics (Becker, 1993), human capital theorists start from the assumption that career patterns reflect the

productivity of individual workers, with the more educated and competent among them being able to intercept better job positions in terms of both earnings and contractual stability. When applied to the specific case of migrant employees, two complimentary arguments hinging upon this theory can be developed to explain the relative precarity of their employment. On the one hand, migrants may have on average lower educational qualifications than the natives (Borjas, 1985). On the other, education is often considered a key factor to explain the sorting of workers between the core, usually permanent, high skill positions within the workforce and peripheral, mainly temporary, low skill occupations (Arrighetti et al., 2021). By combining these two arguments one could easily conclude that migrants, in virtue of their lower educational attainments, have significantly less chances than natives to be offered core permanent positions, contributing to relegate them into peripheral and precarious segments of the labour market.

Although widely influential, especially among policy makers,<sup>2</sup> the human capital theory has been widely criticized by social scientists for its adoption of a purely individualistic approach (Krings, 2021). As argued by Portes (1995), job seekers, especially when migrant, are not simply individuals carrying a certain number of personal skills, but also members of social groups embedded in different social contexts. The way in which these contexts are shaped by institutions and navigated by these different groups matter a great deal in determining individual performances in the labour market, including the chance of finding a permanent occupation.

One contextual factor that may significantly affect the entry of migrant workers into the labour market concerns the perception that the society in general, and more specifically the employers, have of the job seekers' background information. With specific reference to education, for instance, it may well be the case that the skills acquired by migrants through formal schooling are not considered equivalent to those acquired by natives (Chiswick, 1978). This asymmetric treatment can be the

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<sup>2</sup> The human capital theory has been particularly influential in shaping interventions associated with so-called 'active labour market policies', which conceive individual skills as the primary tools to ensure positive outcomes in the labour market. Based on these premises many countries, including Italy, have introduced public programs aimed at supporting training (mainly off-the-job) and job search assistance for the unemployed (Bredgaard, 2015). Overall, the impacts of these interventions has been mixed (for a review see Card et al., 2010).

consequence of either mistrust in the quality of education received by the migrants at their origin or destination country (for instance through migrant overrepresentation in relatively poor educational institutions) or, for similar quality of education, uncertainty related to the availability of country-specific skills that go beyond formal education, such as language skills and cultural knowledge (Brekke and Mastekaasa, 2008). In all these cases, employers can be more willing to recruit migrant workers through temporary and fixed-term contracts compared to natives because these contracts allow them to screen job seekers and reduce the related information asymmetries. As suggested by an extended literature, in fact, in presence of uncertainty concerning the real quality of employees, temporary employment can be used to obtain more complete information about the activity of the workers and eventually discard those that do not meet minimum productivity standards (Baranowska et al., 2011; Faccini, 2014; Portugal and Varejão, 2010).

Whereas the human capital theory and the view of temporary contracts as screening devices are primarily concerned with the individual characteristics of employees and job seekers (eventually emphasizing the perception of these characteristics on the side of the employers), other approaches focus more explicitly on demand-side components, including decisions taken by the employers. A popular example in this sense is the dual labour market theory developed by Michael Piore (1979). While rejecting the neoclassical assumption that labour market divisions are ultimately determined by inadequate levels of human capital or differences in productivity, this theory adopts a stronger sociological approach that gives centrality to the employers as ‘architects of inequality’ (Grimshaw et al., 2017: 12). Its main proposition is that employing organizations are key actors in shaping labour market inequalities through the creation of jobs of different quality. On the one hand, they create a primary sector of ‘good’ jobs that are relatively stable and well-paid. On the other, they offer positions within a secondary segment with ‘bad’ jobs, which are poorly paid and confer little status to workers (Krings, 2021). While natives, thanks to their social and economic resources (including social networks, see Granovetter, 1995), can easily target the former segment, employers must resort to migrants to fill in the latter. This process leads to the emergence of a ‘hierarchy of jobs’ (Piore, 1979:

33), with distinctive job clusters that co-vary on pay, employment stability and incidence of native vs. migrant labour (Bauder, 2006).

Although dual labour market theory is still considered by many authors a useful interpretative framework to study labour market divisions in modern economies (e.g. Felbo-Kolding et al., 2019; McCollum and Findlay, 2015; MacKenzie and Forde, 2009), it has received some critiques. For one thing, its distinction between primary and secondary sectors is considered ‘too simplistic as segmentation lines in ‘postindustrial’ economies are more complex’ (Krings, 2021: 529). For the other, its unique focus on decisions taken by employing organizations is considered a limitation. Indeed, while early dualist theorists (e.g. Doeringer and Piore, 1971) ‘explained segmentation mostly through the technical features of the production process and the strategic importance for the firm of the skills they required’, in modern economies segmentation is often the result of the complex interaction between labour supply and demand (Grimshaw et al., 2017: 13). In particular, the employers’ decisions about the type of jobs they offer are not independent from the characteristics of the labour force they serve (Rubery, 2007). In this sense, a key aim of comprehensive theory of dual labour market is not only to explain how good and bad jobs are filled, but also how, through complex capital-labour interactions, these jobs are created.

On this ground, recently, there has been several attempts to expand the scope of dualization theories in different directions (Marsden 1999; Rubery 1978, 2007; Sengenberger 1981; Wilkinson 1981). This has led to the emergence of an alternative approach usually known as institutional segmentation theory, which diverges from the original perspective along two main lines.

First, it considers more explicitly segmentation processes occurring on both sides of the labour market. Indeed, while employer strategies regarding the selection, reward and retention of workers can certainly play a key role in creating segmented job offers (Osterman, 1994), these strategies are also influenced by the characteristics of the labour supply (Rubery and Piansa, 2017). If the labour force is divided and socially stratified, for instance through divides between natives and migrant workers, employers can be at ease in exploiting specific vulnerable groups (i.e., migrants) as sources



of flexible and low-paid labour, ultimately rising their profits. This opportunity should in turn imply that, for any skill level, precarious contracts are widely used by the employing organizations and also that migrants are the best candidates to signing into them.

Second, alongside divisions in the labour supply, the extent to which jobs are segmented depends also on the institutions regulating the labour market. For instance, in contexts where workers are organized into powerful unions, employers are more likely to offer good jobs (Grimshaw et al., 2017). On the contrary, when similar collective voice channels are absent, employers may decide to offer jobs that are more precarious and of lower pay irrespective of the skills or productivity of the workers (Rubery, 1978). Moreover, these institutional differences intersect with other regulatory dimensions that are likely to affect the quality of jobs available in the market. For example, legislations that expand the range of ‘atypical’ work arrangements available to firms tend to enable ‘exit options’ from standard employment relationship, raising the firms’ reliance on nonstandard forms of employment such as temporary and agency work. Similar processes of work precarization and externalization are easier to be accomplished wherever collective interest organizations are weak, and especially when vulnerable groups that are easy target of these employment strategies are present in the workforce.

To summarize, exist potentially competing explanations for the relatively large incidence of precarious employment among migrant workers. While a human capital gap and the presence of uncertainty in the evaluation of migrants’ background information certainly matter, other factors can play a relevant role as well. Employers can deliberately decide to segment their job offers across primary and secondary sectors of the labour market, which in turn attract native and migrant workers respectively. If that is the case, the chances that a migrant workers find a precarious job should be primarily explained by the skill profile of the occupation in which he/she finds employment. Also, the decisions to segment the labour demand can be influenced by the institutions shaping capital-labour relations. In presence of regulatory frameworks that weaken the bargaining position of vulnerable groups through either the lack of collective representation or the easy access to ‘atypical’ contract solutions, the probability that migrant workers are offered a precarious employment contract

rises, irrespective of the skill level. In other words, bad jobs for migrants can emerge also in relatively good sectors of the economy, contributing to foster their social and economic marginalization.

### 3. The Emilia-Romagna context

Our empirical analysis focuses on the manufacturing sector of one Italian region, Emilia-Romagna. Traditionally, this region has characterized for a strong specialization in manufacturing productions, which account for nearly 60% of regional GDP.<sup>3</sup> In terms of employment, the region ranks second in Italy and fifth in Europe for the number of people employed in this industry.<sup>4</sup> This productive specialization has developed alongside a structured system of industrial relations, which has received strong support by the political parties that have governed the region across nearly all levels of local administration since the end of WWII.<sup>5</sup> This industrial and political legacy has translated into a peculiar socio-economic *milieux* with institutional features that stand out in comparison with many other Italian regions. With specific reference to industrial relations, for instance, workers' enrolment in the most representative trade union confederation, namely CGIL (*Confederazione Generale Italiana del Lavoro*), is in Emilia-Romagna nearly two times the one at the national level.<sup>6</sup> Similar differences exist with respect to other institutions of collective representation, such as the presence of shop floor employee representation and the incidence of firm-level collective bargaining (see

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<sup>3</sup> See the report by Technopolis Group: "Regional Innovation Monitor Plus 2016: Regional Innovation Report: Emilia-Romagna." Available online at [https://ec.europa.eu/growth/tools-databases/regionalinnovation-monitor/sites/default/files/report/2016\\_RIM%20Plus\\_Regional%20Innovation%20Report\\_Emiliana%20Romagna\\_0.pdf](https://ec.europa.eu/growth/tools-databases/regionalinnovation-monitor/sites/default/files/report/2016_RIM%20Plus_Regional%20Innovation%20Report_Emiliana%20Romagna_0.pdf) (last accessed January 15 2024).

<sup>4</sup> Eurostat: data available online at <https://ec.europa.eu/eurostat/data/database> (last accessed January 15 2024).

<sup>5</sup> Since the establishment of the regional administrations in 1970, Emilia-Romagna has always been governed by left-wing parties: the Partito Comunista Italiano (PCI) until 1989, that became Partito Democratico della Sinistra (PDS) until 1998, then Democratici di Sinistra DS until 2007 and then Partito Democratico until today. The administrative level of provinces, reformed in 2014, usually reflected the political orientation of the chief municipality. Bologna, Modena, Reggio Emilia, Parma and Rimini have almost always been governed by PCI (sometimes together with Partito Socialista Italiano, PSI) until 1989 and then by PDS-DS-PD (with very few exceptions); the same was true also for Ferrara until the last election, won by right-winged coalition; Ravenna has been governed by PCI-PSI in alternation with Partito Repubblicano Italiano (PRI) and Democrazia Cristiana (DC) until 1989, then always by left-winged coalition, the same for Forli-Cesena with the exception of the last election (right-winged); Piacenza has always been more challenged between left and center-right winged parties.

<sup>6</sup> See "Bilancio Sociale CGIL Emilia Romagna" available at "[https://bilanciosocialecgil.it/wp-content/uploads/2022/01/CGIL-Bilancio-2020\\_sfogliabile.pdf](https://bilanciosocialecgil.it/wp-content/uploads/2022/01/CGIL-Bilancio-2020_sfogliabile.pdf)" (last accessed January 15 2024)

Figure 1).<sup>7</sup> At the regional level, this structured capital-labour relationship has favoured the promotion of policy initiatives having a specific focus on employment. In 2015, for instance, the regional government has promoted the so-called ‘Labour Pact’ (*Patto per il lavoro*), an initiative involving more than 40 social and institutional partners aimed at sustaining the creation of good jobs through value creation and high-quality productions (Bianchi et al., 2020). This Pact has been renewed in 2020 (*Patto per il lavoro ed il clima*), with an increased emphasis on the synergies between the social and the environmental dimensions of sustainable growth. Seghezzi (2021) suggests that the content of this pact differs significantly from similar agreements approved by other Italian regions in the past, for its broader approach to labour issues, with a focus on the complementarities existing among industrial policies, labour market policies and training policies. According to some authors, it is precisely the peculiar combination of such a cooperative and institutionalized system of labour relations together with a robust base of industrial competences that over time has contributed to sustain the competitiveness of the Emilia-Romagna region within the globalized economy (e.g. Mosconi, 2023).

**[FIGURE 1 about here]**

In recent years, however, this peculiar socio-economic *milieux* has been intersected by two important transformations, which are relevant for the analysis in this article. First, since the mid-1990s, the region has become an important pole of attraction for migrant workers, especially those coming from non-European countries. According to the Regional Observatory on Migration<sup>8</sup>, in 1993 the share of foreign residents in Emilia-Romagna was barely above 1%, while by 2021 it has risen

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<sup>7</sup> In Italy, collective bargaining takes place at two main different levels. The most important one is the national level, that should set the standards in terms of minimum pay rate, benefits, welfare, safety, up to use of temporary workers. The second is industry level, which was considered useful to bargain further improvements for workers with respect to national standards. At the industry level the most common employee representative body that engages in firm-level bargaining is the so-called Rappresentanza Sindacale Unitaria (RSU, unified trade union representation), unions’ representatives voted by all workers. Also, workers have the possibility to elect a Rappresentanza Sindacale Aziendale (RSA, firm trade union representative) which is voted only by the employees that are registered in a trade union.

<sup>8</sup> [https://sociale.regione.emilia-romagna.it/notizie/2022/gennaio/documento\\_statistico\\_2021.pdf](https://sociale.regione.emilia-romagna.it/notizie/2022/gennaio/documento_statistico_2021.pdf)

well above 12%.<sup>9</sup> Many of these foreign residents found occupations in the manufacturing sector, which for the period under investigation is indeed the industry recording the highest incidence of migrant labour (slightly above the low-skill service sector, see Figure 2). If on the one hand this sustained inflow of migrants has contributed to meet the requirements of an ever expanding labour demand,<sup>10</sup> on the other it has fostered the degree of social fragmentation within the workforce. As a result, new challenges have emerged for the local system of employment relations, with unions that have found it increasingly difficult to ensure extensive and inclusive forms of representation for these new workers (Marino, 2012). It is partly in response to these new challenges, that the latest edition of the above-mentioned Labour Pact explicitly cites the inclusion of foreign workers through high quality employment among its priority lines of intervention for the years to come.

**[FIGURE 2 about here]**

The local cohesion among social partners, however, has not been put under pressure by migrations alone, but also by a second important transformation that has occurred almost simultaneously and involved primarily institutions. Indeed, starting from the mid-1990s, Italy, likewise many other industrialized countries, has gone through important processes of institutional reforms, which have profoundly changed the functioning of many parts of the economy, including the labour markets. With respect to the latter, the reforms were guided by attempts to reduce the rigidity that characterized the most commonly used forms of employment, so as to meet the increasing request for flexible and agile production inputs on the side of the firms. This view has translated into a set of interventions that expanded the range of atypical and temporary work arrangements available to firms, including the use of on-demand employment contracts managed by external private agencies.

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<sup>9</sup> The most represented nationalities are Romanian (17.5% of foreign population), Moroccan (11%), Albanian (10.5%), Ukrainian (5.9%), Chinese (5.4%) and Moldavian (4.8%).

<sup>10</sup> In 2021, unemployment rate in Emilia-Romagna was 5.5%, third lowest regional rate.

[https://www.agenzialavoro.emr.it/analisi-mercato-lavoro/approfondimenti/rapporti-sul-mercato-del-lavoro/rapporti-regionali-annuali/allegati/mercato-lavoro-istat\\_emilia-romagna\\_202121-03-2022.pptx](https://www.agenzialavoro.emr.it/analisi-mercato-lavoro/approfondimenti/rapporti-sul-mercato-del-lavoro/rapporti-regionali-annuali/allegati/mercato-lavoro-istat_emilia-romagna_202121-03-2022.pptx)

Although this process of work externalization did not affect all firms and sectors homogeneously, it has played an important role in the manufacturing sector of the Emilia-Romagna region, as shown by the increasing rate of agency contract activations (see Figure 3). In particular, the use of external contracts has risen significantly starting from a national reform approved in 2012, which has removed the firm's obligation to motivate the recourse to this type of atypical arrangement.<sup>11</sup> As a result, agency contracts have increasingly been perceived as close substitute of temporary arrangements by firms looking for sustained sources of production flexibility, with the additional advantage that when hiring external workers these firms could search into a pool of workers who enjoyed relatively weak support from the unions, with important advantages in bargaining power (Benassi and Dorigatti, 2020).

**[FIGURE 3 about here]**

The intersection between these social and institutional transformations has translated into the emergence of precarious patterns of employment that have involved many vulnerable segments of the population, including migrants. According to Labour Force Survey data, for instance, in the period under investigation the Emilia-Romagna region has been characterized by the existence of a significant gap in the rate of temporary employment between native and foreign workers that has persisted in nearly all sectors of the economy (see Figure 4). Moreover, for migrant workers, the incidence of precarious employment has been particularly stark with reference to agency contracts, which have become by far their most common form of contract activations for foreign workers among manufacturing firms (see Figure 5). While in general these socially segmented patterns of precarious employment should not be particularly surprising, the fact that they have emerged within a socio-economic context that is highly concerned with the quality of employment is of certain interest.

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<sup>11</sup> D. Lgs. 2/3/2012, n. 24 available at <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2012-03-02;24!vig=> (last accessed January 15, 2024)

Moreover, the mechanisms that drive this social segmentation remain to be explained, which is indeed the main task we now turn to.

**[FIGURE 4 about here]**

**[FIGURE 5 about here]**

#### **4. Empirical approach**

Our empirical analysis is based on administrative data collected by Italian local public administrations called “Regions” (i.e., first-level constituent entities corresponding to the second NUTS administrative level) through a system called “comunicazioni obbligatorie,” i.e., “mandatory communications.” Regions are responsible for so-called “active labour market policies” and thus required to create a digital platform through which private sector employers must communicate a given set of information concerning the firm, the employees, and the contractual bases every time a given case of contract transformation occurs. The latter include cases of hiring, dismissal, resignation, contract extension and conversion, as well as main changes in contractual bases and characteristics. In the case of Emilia-Romagna this electronic tool is called SILER-ARTER system, that is, “Sistema Informativo Lavoro—Emilia-Romagna.” The resulting dataset thus potentially encompasses all employment relationships associated with events of contract transformation that took place from January 2008 to December 2017, in the private sector of the Emilia-Romagna region, excluding agriculture. For each event, data includes information about the contractual arrangement (type of contract, start and end date, effective days worked during the day), the occupational code of the employee (6-digits ISCO code), some individual information about the worker (sex, nationality, educational attainment) as well as the identifier of the employer.<sup>12</sup>

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<sup>12</sup> For more information about the SILER-ARTER system see Arrighetti et al., (2021).

Given this broad set of contractual events, our analysis focuses on the set of contract activations associated with open-ended, temporary and agency contracts. For each of these activations we complement the available data with firm-level economic and financial information retrieved from the Aida-BVD archive, which collects all balance sheets of the Italian firms recorded within the chambers of commerce registries over the time span 2008-2017.

The unit of observation in our analysis is the activation of a type of contract<sup>13</sup> and the dependent variable is the contract type. The latter can take one of three values: 1 for open ended contract; 2 for temporary contract; and 3 for agency contract. These three types of contracts cover 92.83% of all the activations, the remaining ones being associated with apprenticeship contracts and job placement (3.87%) and parasubordinate work (3.30%). In a robustness check we recoded the remaining types of contracts in a separate fourth category and the main results do not change.

The key independent variable at the individual level is the nationality of the worker. One dichotomous variable is created: ‘migrant’ taking value equal to 1 if the worker has a non-EU nationality, and 0 otherwise. The main reason for adopting this classification is that we want to include among migrants those workers who come from relatively poor countries and can thus be reasonably considered vulnerable actors. Partly in support of this choice we report that in our classification the most common nationalities among migrant workers include Moroccan (15.38%) and Albanian (9.73%).<sup>14</sup> At the same time our choice excludes from the migrant status low skill workers coming to Italy from laggard EU member states, such as for instance Romania (that contribute with a share of 15.13% workers). For this reason, we run several robustness checks to compare alternative ways of classifying migrant workers and the main results do not change.

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<sup>13</sup> We use the definition of “activation of a type of contract” in order to identify the first type of contract of a worker in a firm, so that renewals of fixed-term contracts and, in particular, of working agency contracts of worker in the same firm are not considered, in order to avoid the over-representation of those contract types in the statistics.

<sup>14</sup> Other most represented countries of origin (Pakistan, Ghana, India) differ from the overall regional immigrant population due to different possibilities that national groups have respect to enter into the labor market in different sectors other than manufacturing, and as employees with respect other contractual forms (self-employment or similar) not registered in the SILER dataset.

A wide range of individual, occupational, sectoral and firm-level controls are included in the baseline model. At the individual level, we control for education using a dichotomous variable coded 1 if the worker has tertiary education and 0 otherwise. Next, we control for gender (female coded 0, male 1) and age (in years). At the occupational level, we control for time-invariant and occupation-specific attributes of jobs (e.g., the required skill profile) through a set of occupation fixed effects, considering the highest possible degree of disaggregation consistent with the numerosity of our data, namely 3 digits (ISCO code). At the sectoral level, we control for industry heterogeneity through a set of sector fixed effects (2 digits, ATECO). Finally, in the most complete specification, we add a range of firm-level variables that control for size (logarithm of total sales), age (logarithm of the years since the firm's foundation), labour productivity (valued added over total number of employees) and profitability (return on investment index, ROI). Descriptive statistics are reported in Table (1).

**[TABLE 1 about here]**

The analysis relies on a series of multinomial logistic regressions. This method allows for estimating the marginal effects of the covariates for each potential outcome of the dependent variable. In the first step, we consider a parsimonious specification of the model with very few controls. Then, we add more controls sequentially to see the robustness of the results. In particular, we are interested to see if and how the coefficient of migrant worker changes when additional controls that relate to the theoretical approaches outlined above are included in the analysis. This is true especially for variables that can be directly linked with the human capital theory and the dualization theory, such as the education of the workers and the skill profile of the occupation. Finally, we explore the heterogeneity of the effect of migrant status across different types of occupations as well as varying degrees of industry-level unionization to disentangle the effect associated with the screening and institutional dualization hypotheses.



## 5. Results

### 5.1 Baseline

Table (2) displays the outcomes of our baseline model, presenting the probability of engaging in either a fixed-term or agency contract in comparison to the open-ended contract, which is the baseline category. In column (1), we present the main independent variable, workers' nationality, without any additional controls. Being a migrant worker is positively correlated with the probability of entering either fixed-term or working agency contracts. This aligns with expectations, though it does not decisively support either hypothesis: employers may prefer to hire migrant workers with an atypical contract due to their lower educational attainment, the perceived "uncertainty" in their skills, requiring more scrutiny before regular hiring, or because of their lower bargaining power and thus the possibility to reduce wages. To start discerning among these alternative explanations, in column (2) we introduce among regressors the education level, categorized as a binary variable equal to 1 for workers with a university degree or higher education title, and 0 for the others. The impact of being a migrant worker remains highly significant, although for both fixed-term and agency contract it slightly reduces in magnitude. This result suggests that differences in education attainment between migrant and native workers are relevant but do not entirely explain the variance in the probability that these distinct classes of workers are offered an atypical contract.

**[TABLE 2 about here]**

The coefficient for migrant worker remains positive and significant also in the next specification, reported in column (3), where we introduce additional controls, including dummy variables for ISCO occupation at 3-digits, ATECO industry at 2-digits (equivalent to NACE), years, and the nine provinces of the Emilia-Romagna region. In columns (4) and (5), we further refine the analysis by incorporating additional sets of control variables. In column (4), we include other individual worker characteristics: the binary gender variable (0 for female, 1 for male) and the age of the worker at the

time of contract activation. Finally, in column (5), we include firm-specific variables to account for firm characteristics, including the logarithm of total sales, the return on investments the logarithm of labour productivity (calculated as the ratio between added value and the number of employees in the last available year in the AIDA dataset), and the logarithm of the age of the firm. Due to missing information for some of these variables the total number of observations reduces. However, the magnitude and significance level of all the coefficients remain the same as in previous specifications.

Overall, the baseline regressions consistently point out that migrant workers have a higher probability of being involved in precarious employment through either fixed-term or agency contract compared to natives. The pattern is similar also for female and young workers, confirming previous findings on the vulnerable employment of these social groups (Paraskevopoulou, 2020; Stuth and Jahn, 2020). Interestingly, the positive association between migrant worker and the use of atypical contracts holds true also once we control for the education level of the worker and detailed industry and occupation dummies. This result suggests that human capital endowment and segmentation across specific occupations are important but explain only part of the relatively high exposition of migrant workers to precarious employment. Indeed, if such exposition were entirely explained by these factors, we should observe that the coefficient of migrant worker loses explanatory power as more variables are included in the analysis. Instead, this occurs only marginally, as the coefficient reduces in magnitude but not in significance level.

As argued above, human capital and occupational segmentation are only two of the potential explanations behind the engagement of migrant workers with atypical contract. Theoretically, it is possible that employers resort to fixed-term or agency contracts for migrant workers either because they find it challenging to evaluate their skill level (i.e. screening hypothesis) or because they aim to reduce labour costs by exploiting the lower bargaining power of this labour segment (i.e. institutional segmentation). To further explore these alternative explanations, in the following section we carry out some additional tests to explore the heterogeneity of our main effect across distinct occupation-specific factors and institutional dimensions.

## 5.2 Heterogeneity of the main effect

To gather more evidence regarding the motivation behind the use of various types of precarious contracts, we conduct two additional empirical exercises where we check how the association between the status as migrant worker and the engagement with fixed-term and agency contract varies depending on a) the task profile of the occupation and b) the degree of industry-level unionization.

Information concerning the task profile is taken from the ICP dataset (*Indagine Campionaria sulle Professioni*, Sample Survey on Professions), a survey conducted by INAPP (*Istituto Nazionale per l'Analisi delle Politiche Pubbliche*, National Institute for Public Policy and Analysis) in collaboration with ISTAT (*Istituto Nazionale di Statistica*, Italian National Statistical Institute) reporting detailed information on the tasks, skills, work contexts, and organizational characteristics of Italian professions. In particular, we exploit a specific question contained in the 2012 wave asking workers whether in their jobs they perform repetitive tasks. To maintain enough observations within each occupation cell, we aggregate responses at the 3-digits ISCO occupational code. With reference instead to the degree of unionization, we gather information from the 2015 wave of RIL survey (*Rilevazione Imprese e Lavoro*, Business and Labor Survey), which was carried out by INAPP on a representative sample of non-agricultural firms in Italy. Among many other types of information, the survey reports the firm-level share of workers enrolled in a trade union. By using sample weights to preserve population representativity, we compute the incidence of unionization at the ATECO-2-digits level considering all sampled firms operating in Emilia-Romagna.

On this ground, we run a set of multinomial logistic regressions where we interact these variables with the dichotomous variable selecting the status of migrant worker. We expect that potential changes in the effect of being a migrant worker on the probability of precarious employment for different levels of occupation-specific task repetitiveness and industry-specific unionization can help disentangling the importance of our alternative theoretical hypotheses. In particular, this is true for the screening and institutional segmentation hypotheses, which hinge upon task characteristics (the

former) and worker bargaining power (the latter) as factors driving the likelihood that an atypical contract is indeed used for the hiring.

We start by considering the screening hypothesis. According to this theory, atypical contracts are used to screen the skills of the workers before moving into permanent employment. It follows that temporary positions (through either fixed-term or agency contracts) should be particularly common in occupations where such skills are difficult to assess, such as jobs with high incidence of non-routine tasks. At the same time, while keeping other individual and firm-level characteristics constant, temporary contracts should become less frequent in occupations where tasks are more repetitive, because in those cases the skills required to perform the job can be more easily evaluated. Moreover, if uncertainty surrounding the skills of migrant workers holds true, we should also expect that the differential in the probability of being hired through a fixed-term or an agency contract tends to reduce as the skills of the workers become more easily assessable, i.e., when moving from non-routine to routine occupations.

Figure (6) explores this possibility by reporting the estimated margins for the interaction term between migrant worker and different levels of task repetitiveness within occupations. The first panel reports the estimated effects on the probability to be hired with an open-ended contract, while the second and third panels focus on temporary contracts and agency contracts respectively. In general, confirming our baseline results, migrant workers have a higher (lower) probability than natives of obtaining an atypical (permanent) contract. However, there exist an important difference between the two types of atypical employment. While for fixed-term contracts, partially in line with the screening hypothesis, the gap between migrant and native workers is large in non-routine occupations and it tends to reduce (eventually becoming even negative) with the incidence of repetitive tasks, for agency contracts the gap remains positive and constant independently of the tasks profile of the occupations. Moreover, for both migrant and native workers, the use of agency contract tends to increase with the degree of task repetitiveness, openly contradicting the theoretical predictions based the screening hypothesis. Thus, although these results partially confirm that fixed-term contracts can indeed be used

as screening devices for migrant workers, the logics behind the use of agency contracts seems inconsistent with screening processes. Rather, their use seems to be driven by other factors, among which the bargaining power of the workers can be particularly relevant.

**[FIGURE 6 about here]**

To check whether this is indeed the case, in our second empirical exercise we shift our focus on the role of industry-level unionization. According to the institutional segmentation hypothesis, one of the reasons why migrant workers are more likely to be engaged in atypical employment is that, compared to natives, they have low bargaining power. Especially in sectors in which the unionization rate is small, this condition exposes them to the strategies of work precarization and externalization pursued by the employers, which tends to target the most vulnerable segments within the workforce, including migrants. If that is the case, the prediction originating from this theory is rather straightforward: we should observe the gap in the probability of atypical employment between migrant and native workers to reduce as the degree of unionization raises.

**[FIGURE 7 about here]**

Figure (7) verifies this hypothesis by reporting the estimated effect of migrant workers for different degrees of industry-level unionization. For native workers, the incidence of organized labour plays some role in determining their probability of employment with different types of contracts.

Specifically, it increases the likelihood of having an open-ended contract compared to a fixed-term contract. For migrants, this effect seems even more pronounced and related especially to the use of agency contract. In particular, while in highly unionized sectors the probability that a migrant worker is hired with an agency contract is not significantly different from that of natives and this is mirrored by an easier access to open-ended contracts, in low unionized sectors the probability of

migrant employment with an agency contract significantly rises. These trends suggest that as the degree of unionization reduces, employers tend to switch from employing migrant workers with an open-ended contract to employing them through external agencies (no relevant difference emerges instead with respect to fixed-term contracts). Such process of targeted externalization is indeed consistent with the predictions based on institutional segmentation theory, with employers trying to exploit the lack of collective voice to shift the burden of precarity on the weakest social segments, such as migrants.

## **6. Conclusion**

The atypical employment of migrant workers is a widely investigated topic that has attracted the attention of scholars and policy makers alike. While previous studies focused on the concentration of migrants into sectors that are usually characterized by poor and precarious working conditions (e.g., low-skill services) this article investigated migrant atypical employment in the manufacturing industry, which is usually considered a source of good job opportunities. Moreover, the article focused on an Italian region, i.e., Emilia-Romagna, that has historically developed a specialization in high quality productions, supported by a structured system of industrial relations. The fact that even in a similar productive context migrant workers face a disproportionately higher likelihood than natives to be hired with an atypical contract (either fixed-term or agency contract) needs an explanation, which we provided in this article.

By looking at the previous literature we compared four theoretical approaches that account for the high incidence of precarious employment among migrants: a) the human capital theory (Becker, 1993), dual labour market processes (Piore, 1979), the screening hypotheses (Baranowska et al., 2011; Faccini, 2014; Portugal and Varejão, 2010) and institutional segmentation theories (Rubery and Piasna, 2017). We tested these theories on a rich set of administrative data with information at both the individual and firm level. In terms of empirical model, we employed a multinomial logistic

regression that was integrated with an analysis of heterogeneity aimed at investigating changes in the main effect of interest across types of industries and occupations.

Overall, the results of our empirical analysis provide a composite mix of evidence. While the baseline estimates provide weak support for the human capital and the occupational segmentation hypotheses, the analysis of heterogeneity reveals that both the screening hypothesis and the institutional segmentation theory can play a role. There is, however, an important difference: screening mechanisms seem to drive the atypical employment of migrant workers especially through fixed-term contracts; on the contrary, the hiring of migrants through agency contract seems to be driven primarily by processes of institutional segmentation. Through the latter employers can exploit divisions and social stratifications that are present within the workforce to obtain flexible and relatively low-paid labour, ultimately rising their profits.

The existence of this difference in the use of temporary and agency contracts has important implications for the design of labour market policy and institutions. Indeed, provided that in general any type of atypical employment has been shown to have high social costs (Bryson and Harvey, 2000; Clarke et al., 2007; Lewchuk, 2017; Moscone et al., 2016; Kalleberg, 2018; Aleksynska, 2018), our findings suggest that each of these contracts is likely to generate private benefits that are very different in nature. While fixed-term contracts can help reducing the uncertainty surrounding the skills and competences of migrant workers, agency contracts are used to exploit the weak bargaining power of migrants to increase profits. In this sense, agency contracts seem to be characterized by a more marked class-based and conflictual underpinning than fixed-term contracts, with all the social inefficiencies that this may imply (for instance agency contract can be overused since their social costs are not fully internalized by the employing firms).

When dealing with the design of labour market policy and institutions, the difference between these two types of contracts needs to be adequately considered. Since the mechanism behind the decision to hire a migrant worker with a fixed-term contract is primarily linked with a problem of information asymmetry, any intervention that help curbing such asymmetry can contribute to re-align

migrant and native exposition to temporary employment. These interventions may range from the introduction of quality standards to ascertain the formal qualifications of migrant workers to broader interventions targeting social norms that, independently from formal qualifications, may undermine the evaluation of foreign job seekers (e.g., anti-racist campaigns). With respect to agency contracts, instead, to restore their use at a socially efficient level policy makers need to directly tackle the unbalanced bargaining power of migrants *vis-à-vis* their employers. In particular, such objective can be achieved in two ways: either by introducing (or in the Italian case, re-introducing) further constraints on the use of agency contracts (for instance, by requiring justifications for their adoption in the place of standard fixed-term or open-ended contracts), or by strengthening the overall penetration of trade unions within industries, having a specific target on the collective representation of migrant workers.



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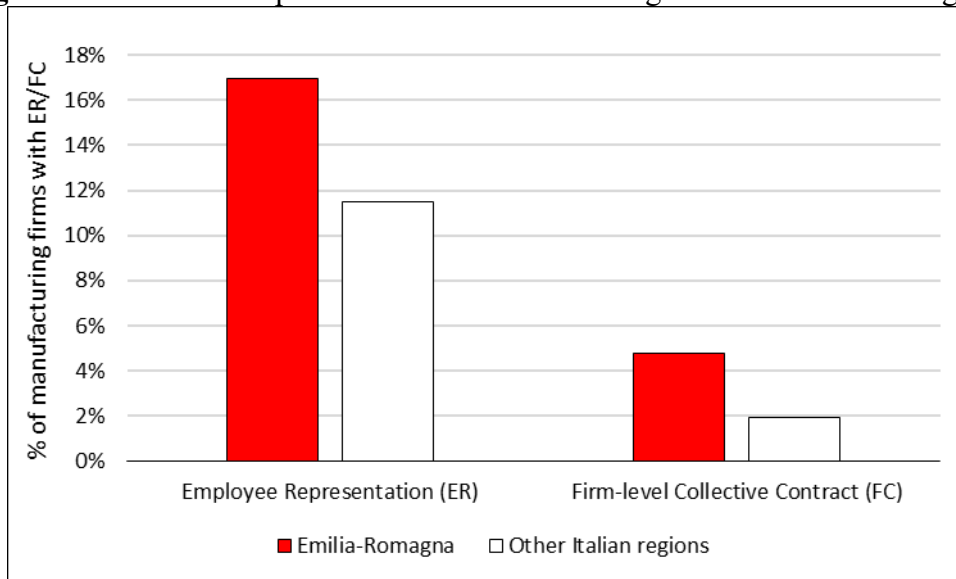
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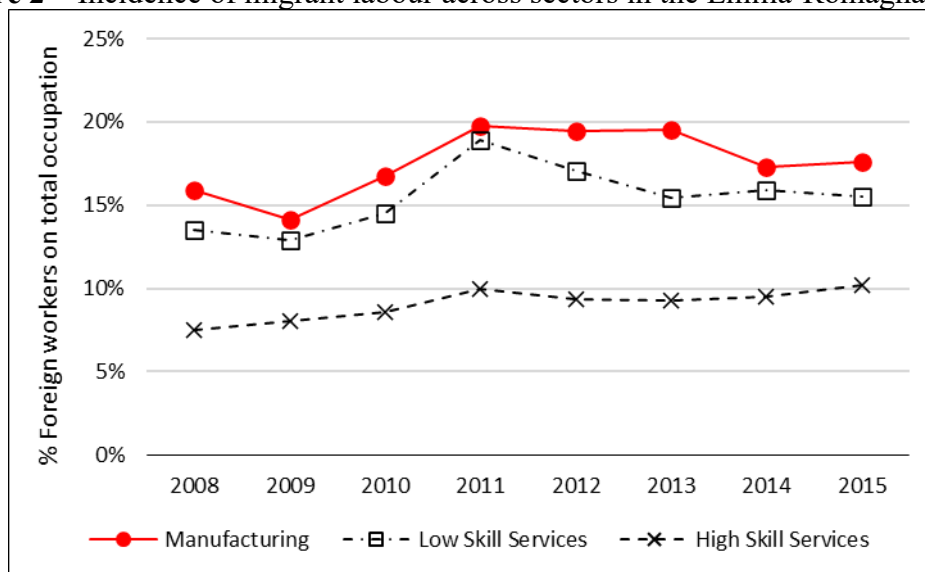
## Figures and Tables

**Figure 1** – Collective representation in Emilia-Romagna and other Italian regions



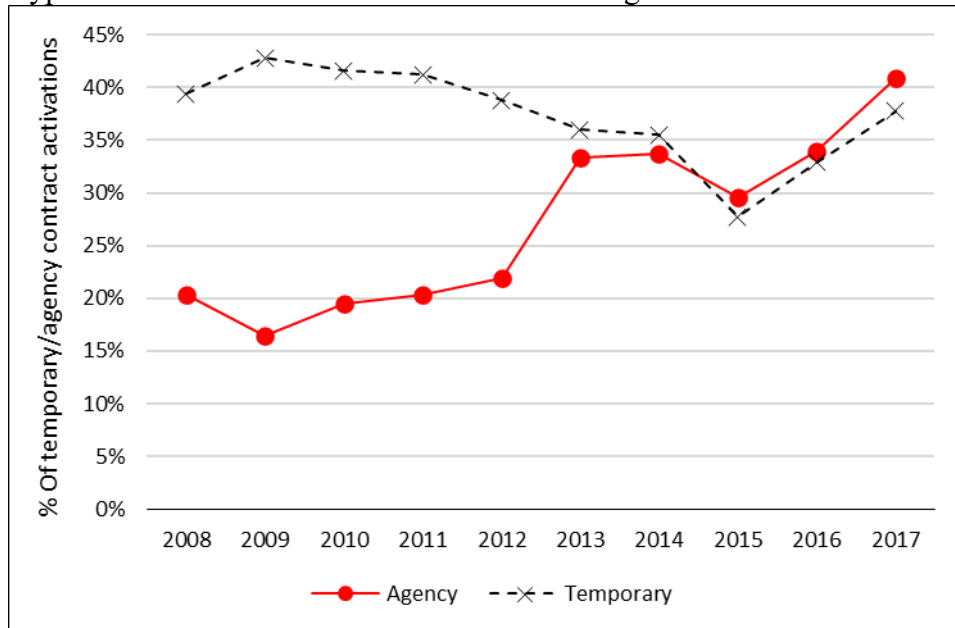
Notes: Own elaborations on Inapp-RIL 2015 data. ER refers to the presence of bodies of shop-floor employee representation at the firm level. In Italy such bodies can be formed under the request of the employees and their members are democratically elected by either all the workers (*Rappresentanza Sindacale Unitaria*) or by union members only (*Rappresentanza Sindacale Aziendale*). FC refers to presence of a firm-level collective contracts that is usually integrating industry-level collective agreement on a range of dimensions, including work organization, work organisation, working hours, work roles, workloads, vocational training, and performance-related pay. Sample weights are used.

**Figure 2 – Incidence of migrant labour across sectors in the Emilia-Romagna region**



Notes: Own elaborations on Labour Force Survey data. Low skill services include: Wholesale and retail trade, repair; Transportation and storage; Accommodation and food service activities; Information and communication. High skill services include: Financial and insurance activities; Real estate activities; Professional, scientific and technical activities; Administrative and support services; Public administration and defence; Education; Human health and social work activities.

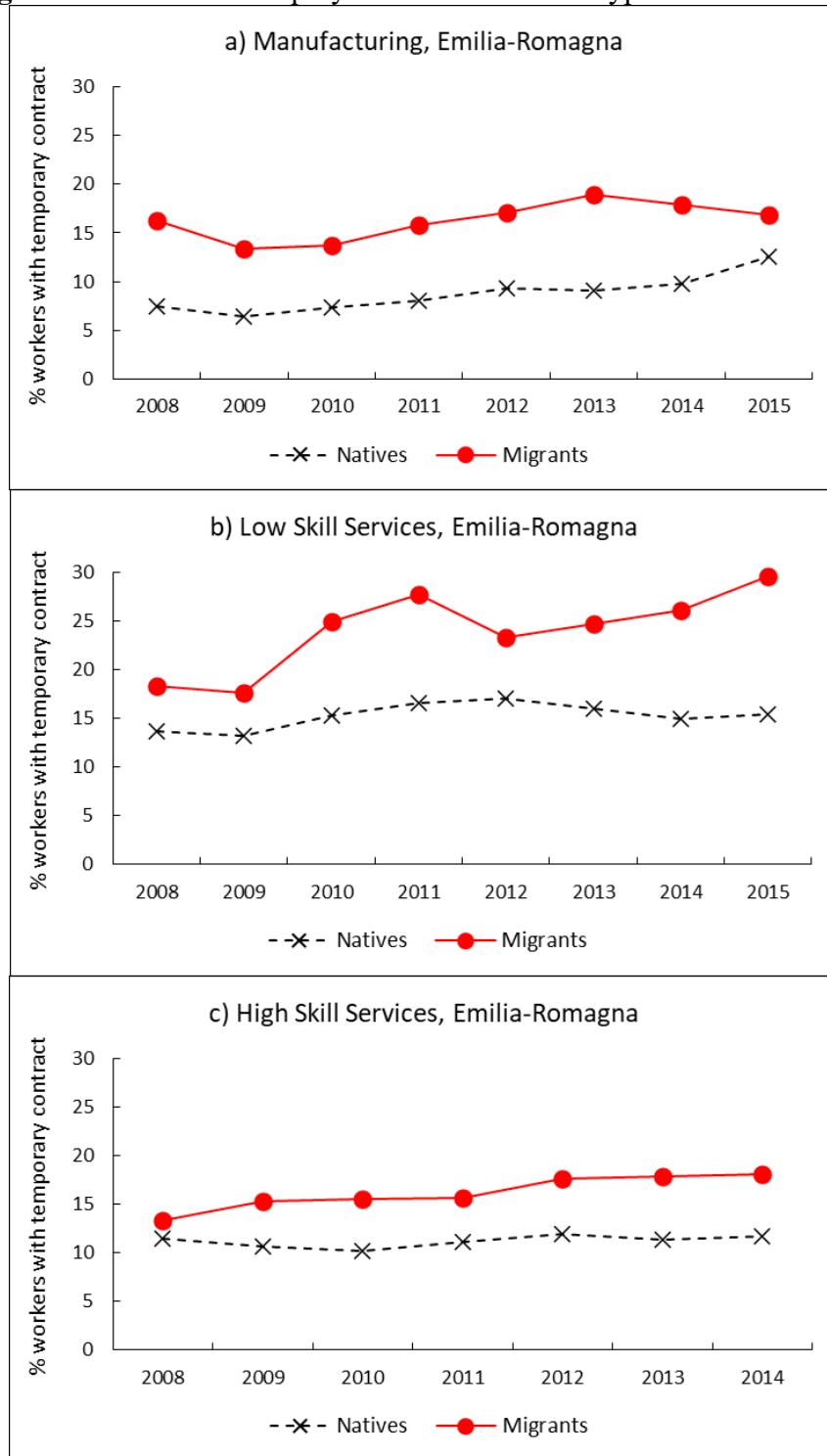
**Figure 3** – Atypical contract activations in the manufacturing sector of the Emilia-Romagna region



Notes: Own elaborations on SILER-ARTER data. Temporary refers to employment contracts with a fixed-term duration. Agency refers to contracts in which the workers is employed through an external agency.

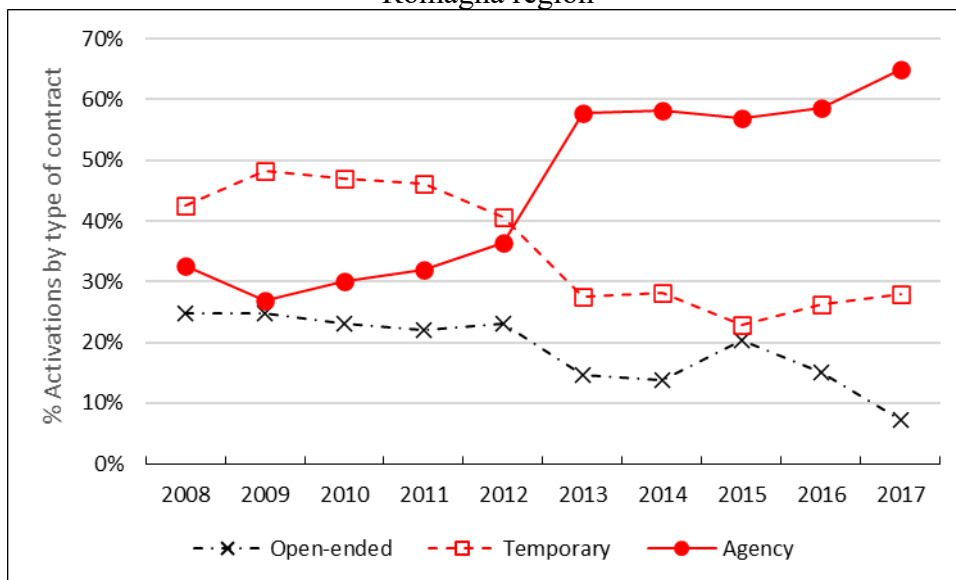


**Figure 4 – Precarious employment across worker types and sector of activity**



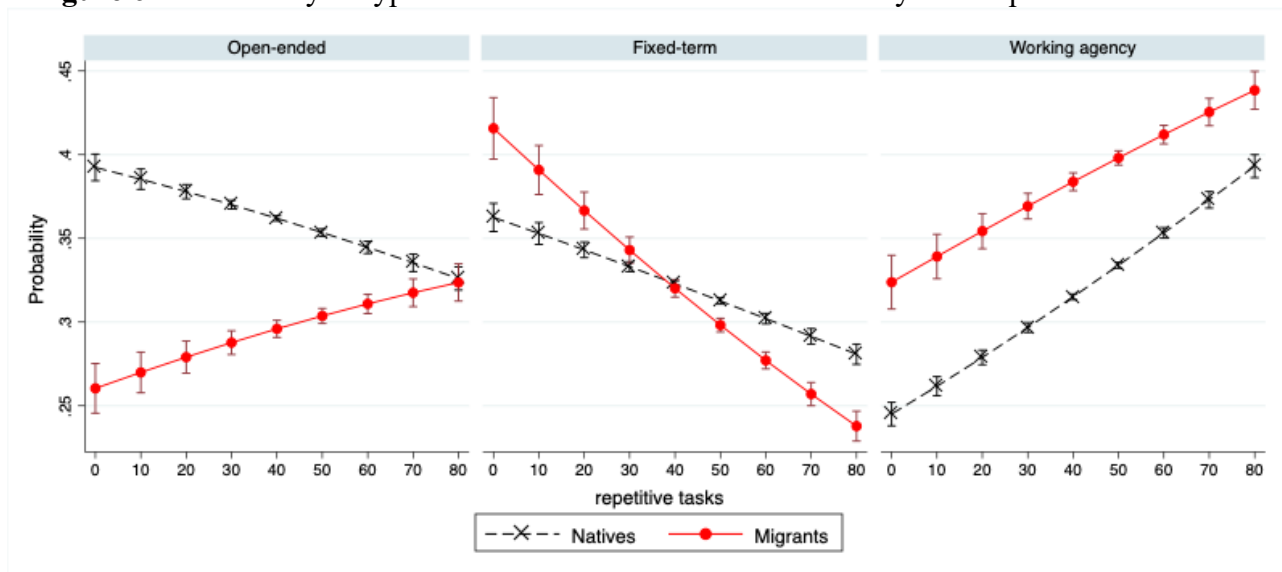
Notes: Own elaborations from European Labour Force data. Low skill services include: 7. Wholesale and retail trade, repair; 8. Transportation and storage; 9. Accommodation and food service activities; 10. Information and communication. High skill services include: 11. Financial and insurance activities; 12. Real estate activities; 13. Professional, scientific and technical activities; 14. Administrative and support services; 15. Public administration and defence; 16. Education; 17. Human health and social work activities. All year differences are significantly different from zero at 5% level, except high skill services for Emilia-Romagna in 2008, which is not statistically significant.

**Figure 5** – Contract activations for migrant workers in the manufacturing sector of the Emilia-Romagna region



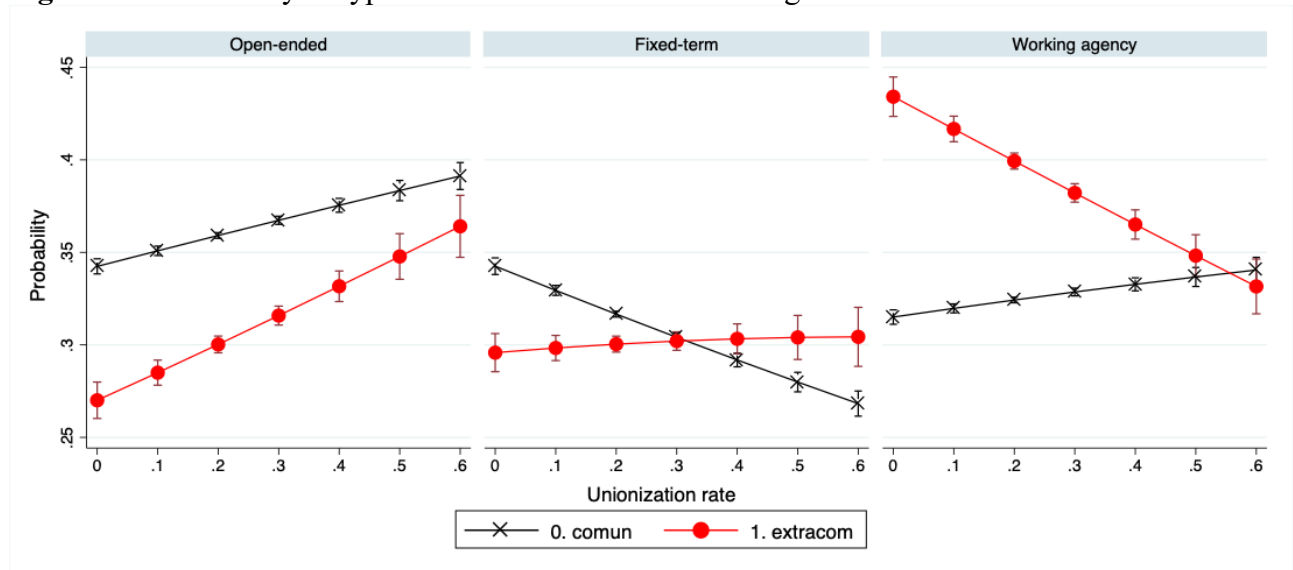
Notes: Own elaborations on SILER-ARTER data. Open-ended refers to employment contracts with no date of termination. Temporary refers to employment contracts with a fixed-term duration. Agency refers to contracts in which the workers is employed through an external agency.

**Figure 6 – Probability of type of contracts: interaction of nationality with repetitiveness of tasks**



Notes: authors' own elaboration on SILER, AIDA and ICP data. Multinomial-logit model, marginal effects. Dependent variable: type of activation of a contract: 0. Open-ended contract, 1. Fixed-term contracts, 2. Agency contracts. Independent variables: migrant (binary), male (binary), age at activation, university degree (binary), log(total sales), log(productivity), ROI, log(firm's age), task repetitiveness. Controls: ISCO3d, ATECO2d, year, provinces. Observation unit: activation of a contract type. Interaction of variables migrant worker and task repetitiveness.

**Figure 7 – Probability of type of contracts: interaction of migrant workers with sectoral union rate**



Notes: authors' own elaboration on SILER, AIDA and RIL data. Multinomial-logit model, marginal effects. Dependent variable: type of activation of a contract: 0. Open-ended contract, 1. Fixed-term contracts, 2. Working agency contracts. Independent variables: migrant (binary), male (binary), age at activation, university degree (binary), log(total sales), log(productivity), ROI, log(firm's age), task repetitiveness. Controls: ISCO3d, year, provinces. Observation unit: activation of a contract type. Interaction of variables migrant worker and industry-level union density.

**Table 1 – Descriptive statistics**

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Contract type	2.1116	0.8003	1.0000	3.0000
Migrant (0/1)	0.1632	0.3696	0.0000	1.0000
Male (0/1)	0.6660	0.4717	0.0000	1.0000
Age at activation	35.9311	11.4403	13.0000	75.0000
University degree (0/1)	0.0777	0.2677	0.0000	1.0000
Log(total sales)	9.3749	2.6572	-6.9078	15.2348
Log(productivity)	4.2487	0.7974	-4.1997	12.1653
ROI	6.4047	9.5487	-29.9200	29.9900
Log (firm's age)	2.7533	1.0527	0.0000	4.7361
Occupational repetitive tasks	44.8763	16.5381	0.0000	77.5000
Sectorial union density	0.2160	0.0882	0.01634	0.5943

Source: authors' own elaboration on SILER, AIDA, ICP and RIL data.

**Table 2** – Workers and firms determinants of types of contracts probability: baseline results

	(1)	(2)	(3)	(4)	(5)
<b>1. Fixed-term contracts</b>					
Migrant worker (0/1)	0.361*** (0.01)	0.304*** (0.01)	0.112*** (0.01)	0.084*** (0.01)	0.179*** (0.02)
University degree (0/1)		-0.684*** (0.01)	-0.018 (0.01)	-0.095*** (0.01)	-0.123*** (0.02)
Male (0/1)				-0.261*** (0.01)	-0.307*** (0.01)
Age at activation				-0.017*** (0.00)	-0.021*** (0.00)
<b>2. Working agency contracts</b>					
Migrant worker (0/1)	0.509*** (0.01)	0.431*** (0.01)	0.184*** (0.01)	0.147*** (0.01)	0.384*** (0.02)
University degree (0/1)		-1.070*** (0.01)	-0.182*** (0.02)	-0.331*** (0.02)	-0.546*** (0.02)
Male (0/1)				-0.521*** (0.01)	-0.547*** (0.01)
Age at activation				-0.038*** (0.00)	-0.035*** (0.00)
Occupation fixed-effects (ISCO3d)	No	No	Yes	Yes	Yes
Industry fixed-effects (ATECO2d)	No	No	Yes	Yes	Yes
Province fixed-effects	No	No	Yes	Yes	Yes
Year fixed-effects	No	No	Yes	Yes	Yes
Firm-level controls	No	No	No	No	Yes
Observations	589275	588913	588913	588682	352061
Pseudo R2	0.0025	0.0097	0.1614	0.1718	0.2096
Log pseudolikelihood	-641455.17	-636450.86	-538955.36	-532030.51	-305341.26

Source: authors' own elaboration on SILER and AIDA data. Robust clustered standard errors in brackets. Multi-logit model. Dependent variable: type of activation of a contract: 0. Open-ended contract (baseline), 1. Fixed-term contracts, 2. Working agency contracts. Firm-level controls include: logarithm of total sales, return on investment index, logarithm of valued added per employee, logarithm of firm age. Observation unit: activation of a type of contract of a worker in a firm. Significance levels: \* 10%, \*\* 5%, \*\*\* 1%.

## Appendix

**Table 1 – Correlation matrix of all variables of interest**

	Migrant (0/1)	Male (0/1)	Age at activation	Un. degree (0/1)	Log (tot sales)	Log (prod)	Log (firm's age)	ROI	Repetitive	Union
Migrant (0/1)	1									
Male (0/1)	0.0875	1								
Age at activation	-0.0693	-0.0425	1							
University degree (0/1)	-0.0909	-0.04	-0.0594	1						
Log(total sales)	-0.1074	-0.0416	-0.0445	0.1256	1					
Log(productivity)	-0.0667	0.0149	-0.0754	0.1261	0.5111	1				
Log (firm's age)	-0.054	-0.0445	-0.0319	0.0574	0.3433	0.2168	1			
ROI	0.0085	0.0517	-0.042	-0.0094	0.0685	0.2984	-0.0382	1		
Occupational repetitive tasks	0.1753	-0.0245	-0.0555	-0.2995	-0.0224	-0.0829	0.0298	0.014	1	
Sectorial union density	0.0668	0.0489	0.0015	-0.0599	-0.1511	-0.0754	-0.0395	0.0251	0.0611	1

Source: authors' own elaboration on SILER, AIDA, ICP and RIL data. All correlations are significant at .01 level.

**Table 2** – Workers and firms determinants of types of contracts probability: interaction of migrant worker with repetitiveness variables (regression of Figure 6)

	<b>(1)</b>
<b>1. Fixed-term contracts</b>	
Migrant worker (0/1)	0.660*** (0.05)
Repetitiveness	-0.001 (0)
Migrant#repetitiveness	-0.011*** (0)
University degree (0/1)	-0.123*** (0.02)
Male (0/1)	-0.311*** (0.01)
Age at activation	-0.021*** (0)
<b>2. Working agency contracts</b>	
Migrant worker (0/1)	0.872*** (0.06)
Repetitiveness	0.011*** (0)
Migrant#repetitiveness	-0.009*** (0)
University degree (0/1)	-0.554*** (0.02)
Male (0/1)	-0.605*** (0.01)
Age at activation	-0.035*** (0)
Occupation fixed-effects (ISCO3d)	Yes
Industry fixed-effects (ATECO2d)	Yes
Province fixed-effects	Yes
Year fixed-effects	Yes
Firm-level controls	Yes
Observations	352061
Pseudo R2	0.1897
Log pseudolikelihood	- 313049.92

Source: authors' own elaboration on SILER, AIDA and ICP data. Robust clustered standard errors in brackets. Multi-logit model. Dependent variable: type of activation of a contract: 0. Open-ended contract (baseline), 1. Fixed-term contracts, 2. Working agency contracts. Firm-level controls include: logarithm of total sales, return on investment index, logarithm of valued added per employee, logarithm of firm age. Observation unit: activation of a type of contract of a worker in a firm. Significance levels: \* 10%, \*\* 5%, \*\*\* 1%.



**Table 3** – Workers and firms determinants of types of contracts probability: interaction of migrant worker with unionization variables (regression of Figure 7)

	<b>(1)</b>
<b>1. Fixed-term contracts</b>	
Migrant worker (0/1)	0.092*** (0.04)
Union rate	0.722*** (0.06)
Migrant#union	-0.24 (0.15)
University degree (0/1)	-0.152*** (0.02)
Male (0/1)	-0.363*** (0.01)
Age at activation	-0.021*** (0)
<b>2. Working agency contracts</b>	
Migrant worker (0/1)	0.692*** (0.04)
Union rate	-0.275*** (0.06)
Migrant#union	-1.05*** (0.15)
University degree (0/1)	-0.552*** (0.02)
Male (0/1)	-0.629*** (0.01)
Age at activation	-0.034*** (0)
Occupation fixed-effects (ISCO3d)	Yes
Industry fixed-effects (ATECO2d)	Yes
Province fixed-effects	Yes
Year fixed-effects	Yes
Firm-level controls	Yes
Observations	352015
Pseudo R2	0.1724
Log pseudolikelihood	-319673.69

Source: authors' own elaboration on SILER, AIDA and RIL data. Robust clustered standard errors in brackets. Multi-logit model. Dependent variable: type of activation of a contract: 0. Open-ended contract (baseline), 1. Fixed-term contracts, 2. Working agency contracts. Firm-level controls include: logarithm of total sales, return on investment index, logarithm of valued added per employee, logarithm of firm age. Observation unit: activation of a type of contract of a worker in a firm. Significance levels: \* 10%, \*\* 5%, \*\*\* 1%.