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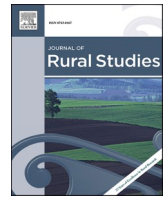
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# Immigration and integration in rural areas and the agricultural sector: An EU perspective

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## ABSTRACT

Immigrants in rural areas and immigrant employment in the agricultural sector have been studied from a variety of perspectives. However, we currently lack a bird's-eye view of these two phenomena covering all EU member states through time. This paper tackles that gap, first by describing the main features of immigrant settlement and economic integration in rural areas in the EU. Second, it offers an EU-wide overview of immigrants' integration in the agricultural sector. Then, it investigates empirically the degree to which the different characteristics of agricultural production in two member states – Italy and Spain – are associated with a migrant presence in the area. The study finds that, in the context of a shrinking agricultural labour force, the share of migrant workers in that sector in several regions is increasing over time. Migrants living in rural areas are more likely to be unemployed and face economic hardship than locals. Migrants employed in agriculture are, also, more likely to work in elementary occupations and temporary jobs. Finally, the case studies on Italy and Spain demonstrate that the relative size of the migrant population is related to the typology of agricultural land use and to the labour intensity and seasonality of cultivation.

## 1. Introduction

The focus of academic literature on migration to countries or metropolitan areas has so far diverted attention away from the analysis of migration processes involving rural areas and small towns (Dufty-Jones, 2014; Hugo and Morén-Alegret, 2008). These processes – in terms of both the settlement of immigrant populations and their integration – play a critical role in social and economic dynamics in rural areas. For instance, the literature has highlighted the consequences of migration to rural areas in the transformation of agricultural and agro-food industries and in contrasting depopulation trends in rural areas. At the country level, concerns surrounding the stability of the supply of labour migration for agriculture emerged in the UK (Quinn, 2019), and feature also in the case of migration from Ukraine to Poland (Górny and Kaczmarczyk, 2018). In the US, there has been increasing concern that immigration restrictions, and a greater demand for agricultural work in Mexico, could mean a dangerous fall in farm labour (Zahniser et al., 2018).

The academic literatures addressing the rural dimension of migration and the role of labour migration in agriculture are generally based on qualitative analyses and consider specific countries and migratory corridors (for recent overviews, see King et al., 2021 in this issue; Rye and

Scott 2018). Some examples include analyses conducted for rural areas in Italy (Corrado, 2018; Kilkey and Urzi, 2017; Melossi, 2021), Spain (Hoggart and Mendoza, 1999; Morén-Alegret and Solana, 2004), Greece (Kasimis and Papadopoulos, 2005), Sweden (Hedberg, 2021; Hedberg and Haandrikman, 2014), and more recently Poland (Górny and Kaczmarczyk, 2018). International comparisons have also been carried out (Jentsch and Simard, 2009), as well as regional ones (for the Mediterranean region, see Corrado et al., 2017).

While these studies and others like them offer valuable insights, there are still important gaps in comparative statistical and quantitative analyses, especially for the EU (Rye and Scott, 2018). Comparative analyses are essential not only for developing EU policies, but also for properly situating and contextualising case studies in a broader European perspective. This article aims at filling a gap in the academic literature by outlining an EU-wide quantitative account of the available statistical knowledge on migration in rural areas and of labour migration in the agricultural sector. It does that in two ways. First, it describes some of the main features of immigration into and immigrant integration in rural areas. Second, it analyses, in greater detail, migrant labour in the agricultural sector, first from an EU28 perspective, and then in case studies. We select two Mediterranean countries – Italy and Spain –

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for a more detailed investigation of the relationship between immigration and the agricultural sector at the Local Administrative Unit (LAU) level. Italy and Spain are selected because in these countries (together with Denmark) the percentage of migrants employed in agriculture is higher compared to other sectors and because past academic literature has abundantly shown that migrant labour has become an essential plank of their agricultural sectors (Corrado et al., 2017). Unfortunately, we could not include Denmark as the agricultural census information for Denmark is available only at a much higher territorial aggregation level.

Our study highlights the importance of migration for the European agricultural economy and for the evolution of contrasting demographic trends in specific regions. The paper contributes to raising awareness of the fact that migrants residing in rural areas and working in agriculture are a particularly vulnerable group. It demonstrates that the temporariness of employment in agriculture and the comparatively lower performance on most of the immigrants' integration indicators make integration in rural areas necessary but difficult to target through policies. The challenge of integrating migrants in rural areas is amplified by the fact that they are geographically circumscribed to specific regions and areas that until recently had not developed public policies related to the presence of immigrant communities.

The article is structured as follows. The next section recaps some key findings in the academic literature and points to how this article contributes to that body of knowledge. Section 3 presents the data used in the subsequent analysis. Section 4 describes the residential and territorial aspects of migration in rural areas, providing an analysis of socio-demographic characteristics and the living conditions of EU and non-EU migrants by degrees of urbanisation (cities, towns, and rural areas). Section 5 focuses on the labour market and compares migrants employed in agriculture with migrants employed in other sectors and with local populations (people born in the country of residence or 'reporting country'). Section 6 presents more geographically detailed analyses for Spain and Italy. These analyses show how local patterns of migrant concentration in specific LAUs relate to the presence of labour-intensive agriculture with a corresponding high demand for temporary work. Section 7 concludes.

## 2. Migration in EU rural areas: the lack of an EU28 perspective

When dealing with immigration into rural areas and migrant labour in agriculture, the scholarly literature has mainly focused on three perspectives. The first is residential and territorial. Migrants often settle in the rural or peripheral areas of large cities due to the affordability of housing without necessarily working in agriculture. By substituting a dwindling local population in rural areas, they can play a fundamental role in maintaining the socio-economic viability of areas subject to depopulation and ageing (Aure et al., 2018; Bayona-i-Carrasco and Gil-Alonso, 2013; Fonseca, 2008). Some quantitative studies have documented how international migration may in some cases halt depopulation trends (for Spain, see Collantes et al., 2014; for Sweden, see Hedberg and Haandrikman, 2014). Other studies indicate that increasing diversity due to migrant communities can be positively viewed to the extent that immigrants are 'fitting in' rural villages (Moore, 2021). Critical perspectives are also present, highlighting how rural areas which struggle the most with depopulation may also be economically deprived, thus becoming less attractive as a migrant destination (see, for instance, the case of Norway, Rye and Slettebak, 2020). Indeed, many aspects of the demographic impacts of migration in rural areas are still not thoroughly understood and represent an active field of research in spatial demography and rural sociology.

The second focus of the literature concerns migrant contributions to the agricultural labour market. The industrialisation, specialisation and intensification of agriculture since the mid-20th century have been accompanied by a reduction in employment in agriculture and a higher share of temporary and wage labour in respect to family labour. These needs for recruited labour have been increasingly met, since the 1990s,

by employing foreign workers. The characteristics of the agricultural labour market entail a high dependency on seasonal and precarious labour (McCollum and Findlay, 2018), which the domestic labour force supplies to a dwindling extent (Rye and Scott, 2018). Improvements in education, women's emancipation and increasing aspirations offer young people and women from rural areas the opportunity of avoiding low-paid jobs in agriculture in developed economies (Hoggart and Mendoza, 1999). In this context, labour demand is matched either through mechanisation or with the import of agricultural labour (Taylor and Charlton, 2019) from countries at an earlier stage of development and with a more elastic farm labour supply. The fact that migrants complement rather than compete with local agricultural workers is shown by the experience of Mexican farm workers in the United States in the mid-1960s. There, the abrupt interruption of the decades-long *bracero* immigration programme, rather than producing changes in farm wages and an increase in the recruitment of domestic workers, resulted in the mechanisation of some sectors (such as tomato production) and in production shifting to less labour-intensive sectors, in cases where mechanisation was not yet economically or technically viable (Clemens et al., 2018). In general, in increasingly segmented European labour markets, immigration from low-income countries has become one of the solutions for filling labour shortages (see Refslund, 2016 for Denmark; Scott, 2015 for the UK). While all the above would suggest complementarity rather than the substitution of the labour force from one predominantly born in the country to a foreign-born one, this is not always the case. Scholarship has shown that in Poland the intense accumulation of migrant labour in the agricultural sector has occurred despite an abundant local workforce in the same sector (Górny and Kaczmarczyk, 2018). Studies focusing on employers also highlight how they prefer migrant workers who are perceived as hard-working, and better able to meet peaks in demand linked to seasonal production (Scott, 2013). These trends are particularly evident in the greenhouse, nursery, fruit and vegetable sectors, which remain labour-intensive and require high inputs of labour in particular during planting and harvesting.

The third aspect supporting the importance of migration in rural areas is linked to the specific needs for integration posed by the temporary nature of work and by the, at times, irregular status of migrants employed in agriculture (Somerville et al., 2015). Several studies provide evidence of how irregularity, poor working conditions, and dependency on intermediaries for recruitment, are defining characteristics of migrants in agricultural employment (for an overview, see Rye and Scott, 2018). It has also been contended that rural areas may be ill-equipped to deal with the sudden arrival of migrants, compared to urban areas (McAreavey, 2012; Moore, 2021). For instance, large inflows of foreign agricultural manpower to rural areas pose integration challenges for local authorities, especially in areas that do not have a long experience of migration and that are experiencing ageing and dwindling populations. This is particularly the case when labour flows are seasonal. Beyond making it difficult to record such economic and social integration in traditional labour force surveys, the seasonality and temporary nature of migration suggests the need for a re-definition of what integration can or should mean in these cases (McAreavey and Argent, 2018). The literature also points to exceptions to these prevailing negative integration patterns, as in the case of female migrants in Swedish rural areas, who reportedly have higher employment rates than their urban peers (Hedberg and Haandrikman, 2014). Overall, given these characteristics, migrants in rural areas represent a predominantly vulnerable group (Maher and Cawley, 2016), deserving particular attention when formulating social inclusion policies. At the same time, the often-transitory nature of employment in agriculture may hinder longer-term stabilisation and integration.

Taking into account this body of findings, we test a set of hypotheses related to the situation of migrants in rural areas and the agricultural sector. The first hypothesis is related to the economic integration of migrants in rural areas:

- *Hypothesis I* - migrants in rural areas tend to display lower economic integration outcomes compared to both migrants in urban areas (cities and towns) and locals in rural areas.

The second hypothesis is related to the employment condition of migrants in the agricultural sector:

- *Hypothesis II* - migrants employed in the agricultural sector tend to show lower economic outcomes compared to migrants employed in other sectors and compared to local agricultural workers.

In the paper, we tackle hypotheses I and II with an EU-wide approach, based on data from the European Union Labour Force Survey (EU-LFS); and European Union Statistics on Income and Living Conditions (EU-SILC). Our last hypothesis concerns the relationship between the migrants' residential settlement patterns in rural areas and particular types of agricultural production requiring high labour input on a seasonal basis:

- *Hypothesis III* - the relative size of the migrant population (share in total population) is positively associated with the labour intensity and seasonality of cultivation.

Due to data constraints, this last hypothesis is addressed with an analysis of data from Italy and Spain.

### 3. Data

This study provides a quantitative analysis of migration in EU rural areas based mainly on two sources: EU-LFS and EU-SILC. The two data sources are characterised by a high degree of harmonisation which allows for comparability across EU member states. The surveys provide a rich set of information including, *inter alia*: the type of place of residence (cities, towns, and rural areas); labour market status; employment sector; and place of origin (country of birth and citizenship). These are used to provide a series of descriptive statistics comparing population share and basic integration indicators by migratory status, place of residence, and employment sector in the EU.

While the two surveys are designed to optimise data comparability among member states and are used by Eurostat to produce statistics in terms of labour market integration, education, and social inclusion, they also have certain limitations. First, both surveys target the entire resident population and not migrants specifically, leading to coverage issues. Second, the surveys do not include recently-arrived migrants, individuals living in collective households, and they may suffer from the higher non-response rates of migrant populations. Another limitation of these data sources is related to the fact they do not necessarily cover individuals irregularly present on member states' territory or seasonal workers: these are two migrant categories that are particularly relevant in the agricultural sector. Because of these limitations, the statistical data sources available at the EU level and used in this article risk underestimating the size of the phenomenon. Hence, the reported figures should be interpreted with caution. In terms of economic and social integration outcomes, the figures are likely to represent upper ceilings: it is probable that immigrants on regular, stable, and medium-to long-term working contracts record higher outcomes (e.g. in terms of incomes) than those who are irregular. As a further data source, we explored Eurostat statistics on seasonal permits for non-EU migrants, which are collected according to the EU Seasonal Workers Directive (European Union, 2014). Unfortunately, this data is not available for many EU countries, and data do not always include admissions from visa-free countries. Eurostat data on first permits for remunerated activities – which do not include data relating to the implementation of the 2014 Seasonal Workers Directive – only count permits of more than three months, thus omitting a substantial portion of seasonal workers (for more context on these two data sources, see Kalantaryan et al., 2020). In

addition, adding data on seasonal permits for non-EU migrants would break the systematic comparisons we establish in the paper, as the same data is unfortunately not available for EU-born workers. At the same time, we know that intra-EU mobility is decisive in addressing labour market shortages for seasonal work in the agricultural sector. Interestingly, the outflow of agricultural workers from some eastern member states generated replacement demand for seasonal workers from non-EU countries. For instance, while many Polish citizens are employed in seasonal agricultural work in Germany, Poland recruits Ukrainian citizens for seasonal work in the same sector (Górny and Kaczmarczyk, 2018). To sum up, the data landscape, when it comes to the foreign labour force in agriculture, is very fragmented and partial, making EU-wide analysis and generalisations very difficult. Even when these figures are available, they do not, as we stressed above, include irregular migration and undeclared employment, which we know from previous studies (Corrado et al., 2016; Górny and Kaczmarczyk, 2018; Rye and Scott, 2018) and reports (European Commission, 2014; European Migration Network (EMN), 2017) to be an issue in the agricultural sector.

Both EU-LFS and EU-SILC provide information on the degree of urbanisation of the LAUs where the respondent resides. The classification of LAUs as being rural depends on population density and does not necessarily coincide with the agricultural nature of production in the area. In fact, EU-LFS suggests that about 68% of those employed in agriculture reside in rural areas while 25% reside in towns and 7% in cities.

Because of the data limitations set out above, we supplement the analysis based on the EU-LFS and EU-SILC with administrative data related to the presence of migrants in rural areas in two member states – Spain and Italy – where the percentage of migrants in agriculture is higher compared to all other sectors. We combine municipality-level population information obtained from the Spanish and Italian national statistical institutes with agricultural census information to analyse the relationship between immigration and the agricultural sector at the LAU level. These datasets are included in this study to analyse migrant labour in agriculture from a more granular geographical perspective; to investigate the role of agricultural specialisation in migrant-worker communities; and to include information on whether the prevalence of some typologies of working arrangements is again connected with the presence of migrants. A third EU member state with high concentration of migrants in the agricultural sector is Denmark. This country could not be included as a case study due to the lack of agricultural census information at a similar level of territorial disaggregation.

### 4. Overview of migrant population living in rural areas

In this section, we analyse a set of indicators for the following three population subgroups: people born in the reporting countries (labelled here as *locals* and used as a benchmark), EU-born migrants (labelled here as *EU migrants*), and non-EU-born migrants (labelled here *non-EU migrants*).

We first present the residential settlement patterns and the demographic characteristics of the three groups across areas of residence, classified according to the three degrees of urbanisation: cities, towns, and rural areas. Then we analyse the economic conditions of migrants by using a set of indicators including income distribution, the share of population below the at-risk-of-poverty threshold, and the unemployment rate. The choice of the indicators is based on the list of indicators proposed by the Zaragoza declaration on the integration of migrants and reports monitoring migrant integration in the EU (OECD and European Union, 2018).

#### 4.1. Immigrant population by residential patterns

In 2017, EU and non-EU migrants represented, respectively, 2.6% and 2.9% of the total population living in rural areas (Table 1). This

**Table 1**  
Selected characteristics of population by type of settlement. EU, 2011–2017.

	Origin	Cities		Towns		Rural	
		2011	2017	2011	2017	2011	2017
Share of foreign population (country of birth)	Locals	88.15%	86.72%	92.77%	91.45%	95.49%	95.18%
	EU migrants	3.30%	3.75%	2.82%	3.38%	2.15%	2.22%
	Non-EU migrants	8.56%	9.53%	4.41%	5.17%	2.36%	2.60%
Share of foreign population (country of citizenship)	Locals	92.28%	91.40%	95.27%	94.22%	97.01%	96.92%
	EU migrants	2.75%	3.43%	2.01%	2.82%	1.51%	1.62%
	Non-EU migrants	4.97%	5.17%	2.72%	2.97%	1.48%	1.46%
Share of working-age population in total population	Local	65.96%	63.60%	65.41%	63.58%	65.80%	63.18%
	EU migrants	78.20%	79.08%	77.66%	77.14%	77.26%	73.42%
	Non-EU migrants	84.84%	84.43%	84.49%	85.09%	82.47%	81.76%
Share of low-educated	Locals	33.69%	29.62%	41.71%	35.28%	41.95%	36.84%
	EU migrants	31.82%	25.34%	37.53%	31.62%	35.71%	33.38%
	Non-EU migrants	39.55%	35.85%	47.49%	43.75%	45.45%	44.82%
Share of population in lower-income deciles	Locals	19.72%	17.12%	20.64%	18.77%	22.40%	21.53%
	EU migrants	29.20%	20.19%	29.23%	24.73%	31.12%	26.88%
	Non-EU migrants	33.02%	27.71%	29.37%	25.70%	31.88%	28.48%
Share of population with income below the at-risk-of-poverty threshold*	Locals	13.54%	13.71%	14.07%	14.17%	19.60%	19.14%
	EU migrants	20.33%	18.86%	21.22%	20.75%	24.51%	28.35%
	Non-EU migrants	28.12%	30.91%	27.16%	32.66%	32.15%	33.83%
Share of unemployed among active population	Locals	9.93%	8.28%	8.92%	7.98%	10.16%	7.09%
	EU migrants	11.44%	7.44%	12.90%	9.42%	15.46%	9.88%
	Non-EU migrants	16.78%	13.92%	18.55%	16.30%	20.40%	17.11%

Source: Authors’ elaboration of EU-LFS and EU-SILC microdata Notes: \* Based on EU-SILC and refers to 2011 and 2016 years.

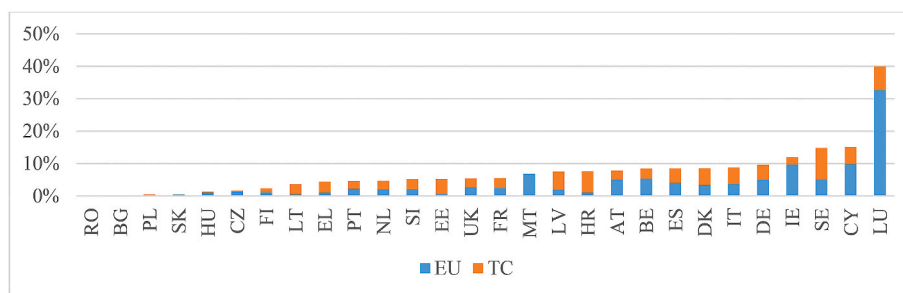
contrasts with 4.4% (4.2%) for EU migrants and 10% (6%) for non-EU migrants in cities (towns). Moreover, the share of migrants in the total population of towns and cities has been increasing since 2011, whereas in rural areas it has been stable. In absolute terms, while between 2011 and 2017 the local population residing in rural areas decreased from 106.8 to 100 million, the numbers of EU and non-EU migrants residing in rural areas have remained relatively stable at, respectively, 2.4 and 2.7 million.

These EU-wide figures suggest that migrants are more likely to live in cities and towns than in rural areas. However, the shares of migrants in rural areas vary significantly across EU member states; see Fig. 1. The share of non-EU migrants in the total population in rural areas is highest in Sweden (9.9%), Luxembourg (7.3%) and Croatia (6.5%). Meanwhile, the share of EU migrants in the total population in rural areas is highest in Luxembourg (32.7%), Cyprus and Ireland (9.7% each), followed by Belgium (5.3%), Austria (5.1%) and Germany (5.1%). The reported figures indicate that the new EU member states are characterised by a lower percentage of migrants in rural areas, which might be explained by the fact that these countries are new to immigration and are witnessing intense emigration towards other EU member states or to traditional destination countries such as the USA, Canada and Australia.

#### 4.2. Demographic characteristics

While the gender structure is even across origin groups and settlement types, there are notable differences among origin groups in terms of demographic characteristics such as age structure and education level. These are important factors to be considered when looking at integration outcomes, as differences in outcomes may be the results of compositionality, i.e. differences in the characteristics of a group. For instance, differences in educational attainments between groups may go a long way to explain differences in labour market integration (Dustmann and Frattini, 2011).

The relative weight of the working-age population varies across origin groups. The share of the working-age population is lowest among the local population (63% in 2017), and is connected to the broader trend of population ageing trend in the EU. The share of working-age population is highest among non-EU migrants (85% in 2017) regardless of the type of settlement. Slightly lower values are recorded in the case of EU migrants (73–79% in 2017). The fact that immigrant populations – both EU and non-EU – have higher shares of working-age population points to the short-term positive demographic effects on ageing trends among the local population.



**Fig. 1.** Share of migrants in rural areas by origin and member states (2017).

Note: Figures for Bulgaria, Malta, Romania and Slovakia should be considered with caution due to the limited (<50) number of observations in the EU-LFS. Source: Authors’ elaboration of EU-LFS microdata.

The share of individuals with low levels of education is higher among non-EU migrants everywhere compared to both the local population and EU migrants; however, the highest figures are observed for those residing in rural areas – above 45% (Fig. 2). For EU migrants, too, the share of individuals with a low level of education is highest for those residing in rural areas. For the same period, the share of individuals with only up to primary education was the highest among non-EU migrants in rural areas (17%), which is higher compared both to non-EU migrants residing in cities (14%), and to EU migrants and locals in rural areas (both 12%). This pattern is confirmed when looking at those employed in the agricultural sector; the share of those with low levels of education is higher among those employed in agriculture, with figures significantly higher for migrants compared to local workers (Fig. 3). These figures point to a negative selection based on education level among non-EU migrants as well; the share of individuals with a low level of education among those residing in rural areas is higher compared to those residing in towns and cities. Considering the key importance of education in explaining economic integration outcomes, the negative selection of migrants, especially those coming from non-EU countries, might affect their overall performance in the labour market.

### 4.3. Immigrants' economic and labour market integration

To test Hypothesis 1 – migrants in rural areas tend to display lower economic integration outcomes compared to both migrants in urban areas (cities and towns) and locals in rural areas – we employ a set of indicators commonly used to measure the living conditions of the EU population, and, in particular, immigrant integration and the unemployment rate (OECD and European Union, 2018).

Income level and the risk of poverty are two commonly used indicators to measure the living conditions of the EU population, and immigrant integration in particular. We first look at the share of individuals with low income, i.e. whose monthly (take home) pay from their main job is within the first two deciles of income distribution. In 2017, the share of the local population with low income thus defined was 17.1% in cities, 18.8% in towns, and 21.5% in rural areas. The corresponding figures for migrants were substantially higher. In rural areas, the share of EU and non-EU migrants with low incomes was approximately 30% in 2011, with no major difference between the two groups. Some positive dynamics over time are recorded for migrants living in cities and towns, but the picture is more constant in the case of migrants living in rural areas.

The second indicator concerns the parts of the population at risk of

poverty (the threshold is equal to 60% of the median of disposable income). The share of the local population below the threshold is 14% in cities and towns and 19% in rural areas (Table 1). Non-EU migrants have the highest risk of poverty in all three settlement types. Even more worrisome is the fact that, when considering the trend over the period 2011–2016, while the indicator is relatively stable for the local population and EU migrants living in cities and towns, EU and non-EU migrants living in rural areas have seen a deteriorating situation. In these cases, the share of those at risk of poverty increased over the period in question, reaching 28% for EU and 34% for non-EU migrants.

Finally, we turn to unemployment rates to capture the degree of labour market integration. Looking exclusively at 2017, we note the following (see Table 1 for the precise details):

- the unemployment rate of the local population across the three types of settlements is similar (approximately 8%);
- the unemployment rate of EU migrants is in line with the local population in cities, slightly higher in towns (1 percentage point) and the highest in rural areas (3 percentage point);
- the unemployment rate among non-EU migrants is higher compared to the other two groups in all three types of settlements;
- the unemployment rate in rural areas is highest for non-EU migrants (17%), compared to both EU migrants (10%) and the local population (7%).

The overview presented in this subsection supports our first hypothesis. At the EU level, all three indicators – income, risk of poverty, and unemployment – suggest that migrants in rural areas tend to display lower economic integration outcomes compared to migrants in urban areas and also compared to locals in rural areas. Migrants in rural areas are more likely to be unemployed and to face financial difficulties compared to migrants in cities and towns, and to local populations in rural areas. Moreover, the observed gap is wider for non-EU migrants compared to EU migrants. Part of the observed discrepancies in the unemployment rate may be explained by differences in human capital measured by education level across the nine groups, as discussed in the previous section. However, the higher unemployment rate among EU migrants, a group characterised by a relatively smaller share of individuals with low levels of education in all three types of settlement, suggests that human capital is not the only factor affecting the economic performance of migrants. In particular, migrants' social capital gaps come out in the different job-searching methods used as compared to locals. Both EU and non-EU migrants tend to use fewer services provided

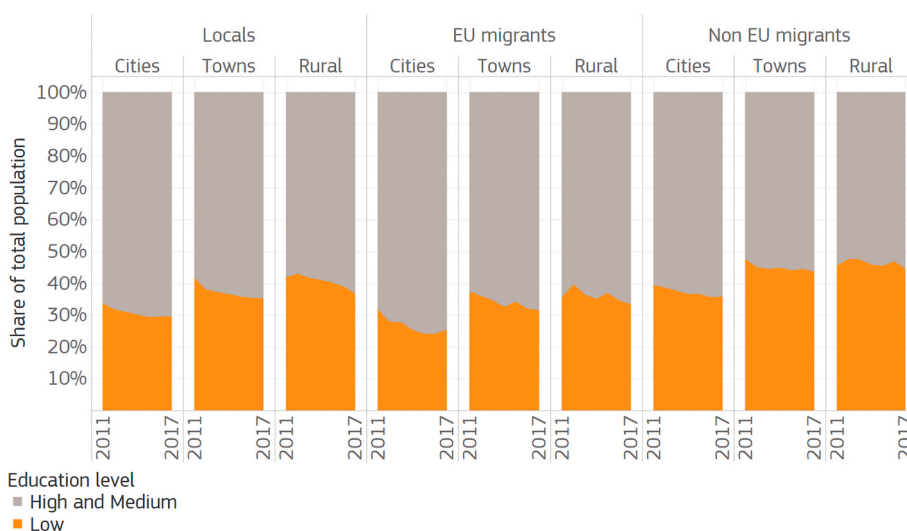


Fig. 2. Population by education level, origin and degree of urbanisation, EU (2011–2017). Source: Authors' elaboration of EU-LFS microdata.

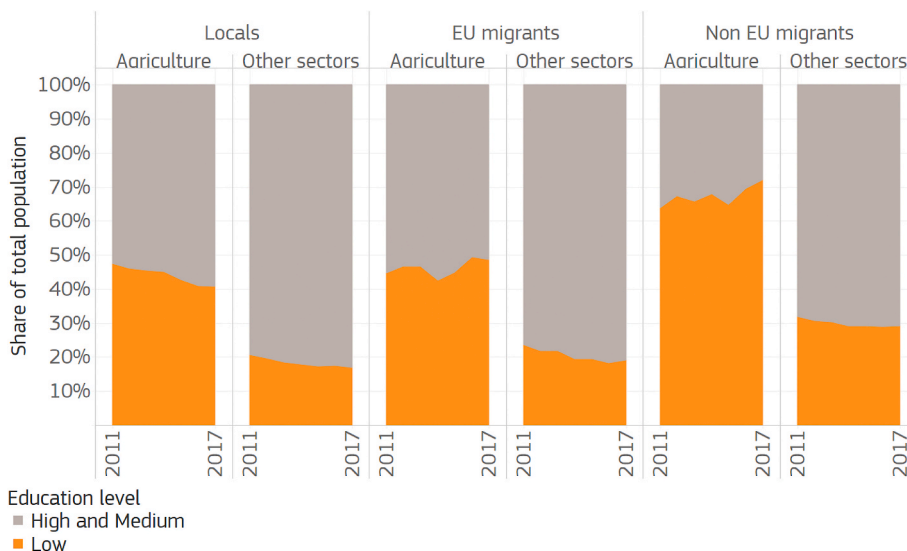


Fig. 3. Population by education level, origin and employment sector, (2011–2017). Source: Authors’ elaboration of EU-LFS microdata.

by relevant public institutions and private agencies as compared to locals (Fig. 4). While searching for a job, both EU and non-EU migrants residing in rural areas rely on their networks (friends, relatives, trade union) or contact employers directly more often than do the locals in rural areas, and migrants in cities and towns. They also tend to rely more on private employment agencies compared to locals in cities, towns and rural areas, and contact public employment offices less than locals in rural areas.

### 5. Characteristics of immigrants’ employment in agriculture

The share of EU-born and non-EU-born migrants in total employment in agriculture was very limited in 2011, standing at, respectively, 1.6% and 2.7% (Table 2). Between 2011 and 2017, both the relative and

absolute figures markedly changed. The total number of people employed in agriculture in the EU decreased by more than a million: from 10.1 to 8.9 million. This decrease is overwhelmingly due to changes in the local population. In 2017, there were 1.3 million fewer locals employed in agriculture compared to 2011. This was only partially compensated by EU-born and non-EU-born migrants: the two groups increased by, respectively, 58,500 and 83,700. The combined effect of the decrease in the number of locals and the inflow of migrants led to an increase of two percentage points in the share of foreign-born among those involved in agriculture.

In most EU member states, the share of migrants employed in agriculture is lower than their shares in all other sectors pooled together. The exceptions are Spain, Italy, and Denmark, where the percentage of migrants in agriculture ranges between 6 and 9 percentage points higher

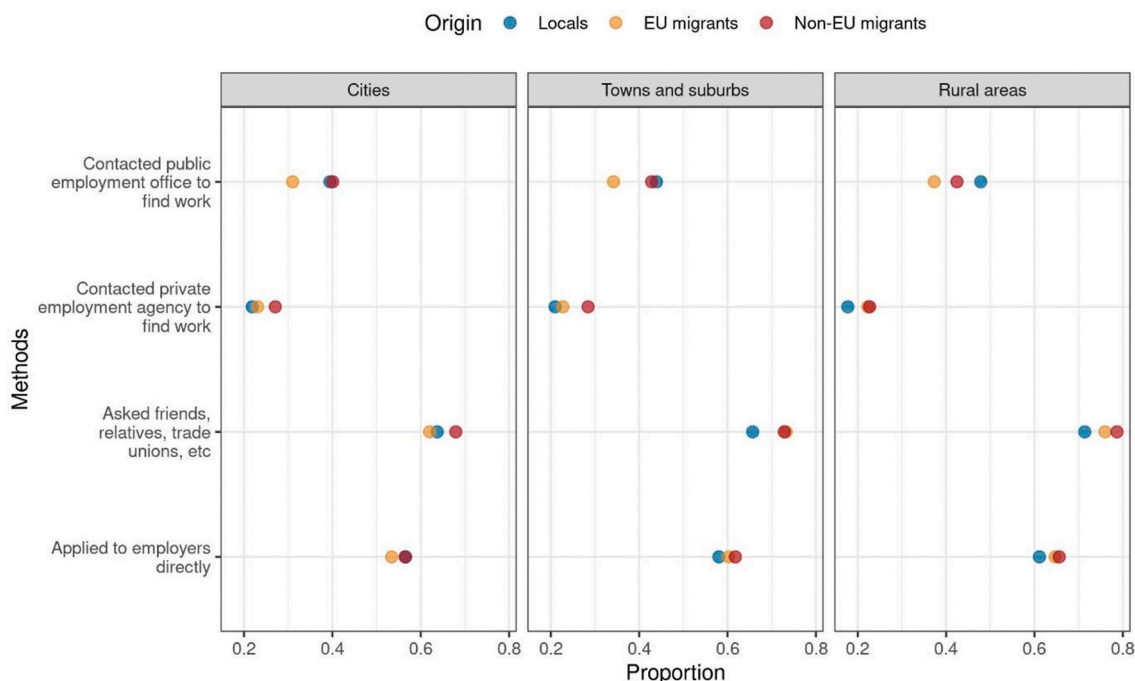


Fig. 4. Methods used while searching for a job (2011–2017). Source: Authors’ elaboration of EU-LFS microdata.

**Table 2**  
Selected characteristics of workers employed in agriculture. EU, 2011–2017.

		Locals		EU migrants		Non-EU migrants	
		2011	2017	2011	2017	2011	2017
Total employed in agriculture	% of employed Population (1,000)	95.70%	93.50%	1.60%	2.50%	2.70%	4.00%
		9,656	8,352	163	221	272	357
By occupation	Other (ISCO1-5)	5.94%	7.70%	5.44%	4.56%	4.40%	4.70%
	Skilled agricultural, forestry and fishery workers (ISCO6)	77.06%	74.49%	37.08%	36.69%	33.46%	25.68%
	Craft and related trades workers (ISCO 7)	1.19%	1.45%	4.42%	1.37%	2.43%	1.05%
	Plant and machine operators, and assemblers (ISCO8)	3.08%	4.19%	5.42%	4.48%	3.18%	3.03%
	Elementary occupations (ISCO9)	12.73%	12.17%	47.65%	52.89%	56.53%	65.54%
By prof. status	Self-employed	57.16%	56.14%	14.44%	11.93%	10.85%	8.36%
	Family worker	21.00%	16.48%	4.57%	3.02%	3.33%	1.71%
	Employee	21.84%	27.38%	80.98%	85.05%	85.83%	89.93%
Incidence of temporary employment	Other sectors	13.01%	13.80%	15.13%	13.75%	18.87%	19.92%
	Agriculture	28.61%	30.15%	40.93%	52.76%	54.05%	60.20%

Source: Authors' elaboration of EU-LFS microdata.

compared to other sectors in 2017. In Denmark, the share of migrants employed in agriculture steadily increased from 10 to 20% between 2011 and 2017. In 2017, about 14% of those employed in agriculture were from another EU member state (compared to 6% in 2011), whereas in 2017, 5% were from non-EU European countries. In Spain, the share of foreign workers employed in agriculture increased from 20 to 25% over the period in question, albeit with a sharp decline in 2014. While the economic downturn in Spain resulted in an outflow of migrants from sectors where they were primarily employed (e.g. construction), agriculture continued to attract migrants. This points to the countercyclical nature of the agricultural sector. Moreover, in Spain (as well as in Denmark) there was an increase in EU migrants in the agricultural sector after restrictions on labour mobility for Bulgarian and Romanian citizens were lifted in 2014. In 2017, approximately 7% of those employed in agriculture came from another EU member state, 9% from Africa, and 7% from Central and South America. In Italy, the share of migrant workers employed in agriculture steadily increased from 15% to 20% between 2011 and 2017. Compared to Denmark and Spain, in Italy the origin of migrants employed in agriculture was more diverse. In 2017, about 8% of those employed in agriculture came from another EU member state, 4% from non-EU European countries, 4% from Asia, and 4% from Africa.

### 5.1. Type of occupation, professional status, and temporary employment

To test *Hypothesis II* – migrants employed in agriculture tend to show lower economic outcomes compared to migrants employed in other sectors (pooled together) and local workers in the agricultural sector – we analyse the occupational distribution, employment status, and the incidence of temporary employment across the three origin groups.

The distribution of those employed in agriculture across ISCO groups demonstrates that there are large occupational discrepancies between local workers and immigrants in this sector (Table 2). Among local workers, 75% of the employees are classified as 'skilled agriculture, forestry and fishery workers' and only 11% are categorised as 'elementary occupations'. Conversely, slightly more than a quarter of non-EU migrants and one-third of EU migrants are qualified as 'skilled agriculture, forestry and fishery workers occupational group', and the shares of EU and non-EU migrants in 'elementary occupations' are, respectively, five and six times higher compared to the respective share for local workers.

More than half of local individuals employed in agricultural sectors are self-employed and 16% are 'family workers', leaving only 27% as employees. The share of employed among migrants is three times higher compared to local workers (almost 90%). The share of self-employed among EU and non-EU migrants is more than five times lower

compared to local workers (approximately 10–11%).

The share of those having temporary jobs is higher in agriculture compared to other sectors. This is true both across origin groups and over time. The incidence of temporary employment in agriculture was lowest among local workers in 2011 and it remained stable over the period under study (about 30%). Among EU migrants, it increased from 41% in 2011 to 53% in 2017. Approximately 60% of non-EU born migrants employed in agriculture had temporary jobs in 2017, up from more than half in 2011. While some degree of job insecurity seems inherent to the peculiarities of the agricultural sector (e.g. seasonal patterns of work), the degree of this exposure is not equal across origin groups. Both EU and non-EU migrants are more frequently employed in temporary jobs than local workers, and this trend is growing over time.

This subsection (summarised in Table 2) supports our second hypothesis. At the EU level, all three indicators – occupational distribution, employment status, and incidence of temporary employment – highlight that migrants employed in agriculture tend to show lower economic outcomes compared to migrants employed in other sectors (pooled together), as well as relative to local workers in the agricultural sector. Migrants employed in the agricultural sector are more often employed (rather than self-employed or family worker) and work in elementary occupations compared to local workers. Moreover, they are more likely to be employed in temporary jobs compared to migrants employed in other sectors as well as compared to local workers in the agricultural sector. And here too, the observed gap is wider for non-EU migrants compared to EU migrants.

## 6. Residential patterns of migration and characteristics of agriculture at the local level in Spain and Italy

The analyses in Sections 4 and 5 provided an overview of the situation of migrants residing in rural areas and employed in the agricultural sector. However, EU or country-level analyses do not capture different territorial processes taking place in rural areas in regions, provinces, and LAUs within each country. It is particularly important to understand whether, at lower geographical scales, the inflow of migrants is compensating for depopulation trends in specific rural areas and whether these trends depend on the structural characteristics of agricultural production.

As a further step in the analysis, we merged the administrative statistics on resident populations in Italian and Spanish LAUs with information from agricultural censuses. We did so to explore whether high concentrations of migrants and changes in the migrant population can be explained by the characteristics of agriculture and, in particular, by the high share of temporary work and by the presence of labour-intensive farming typologies. This enables us to test *Hypothesis III* on



the positive association between the relative size of a migrant population (i.e. its share of the total population) and the labour intensity of cultivation.

### 6.1. The model

To capture the relationship between migrants' presence and agricultural activities we estimated two econometric models described in Equations (1) and (2) below.

$$Migrantspresence_i^{Spain} = \beta_0 + \beta_1 NonFamilywork_i + \beta_2 Horticulture_i + \beta_3 Greenhouses_i + \beta_4 Tobacco_i + \beta_4 \log(Population)_{2011,i} + \delta Typeofsettlement + \epsilon_i \quad Eq. 1$$

$$Migrantspresence_i^{Italy} = \beta_0 + \beta_1 TemporaryEmployment_i + \beta_2 Horticulture_i + \beta_3 Greenhouses_i + \beta_4 Fruits_i + \beta_4 \log(Population)_{2011,i} + \delta Typeofsettlement + \epsilon_i \quad Eq. 2$$

*Migrantspresence<sub>i</sub>* is the dependent variable. For both countries, it is measured as the share of migrants out of the entire population residing in each LAU in 2011. On the right-hand side of each equation, we have a set of independent variables which we hypothesise to be connected with the variation in the migrant presence across LAUs. The sets of independent variables vary between the two countries due to the heterogeneity of information provided by the agricultural censuses in Italy and Spain. *NonFamilywork<sub>i</sub>* is non-family work in full-time equivalence, *TemporaryEmployment<sub>i</sub>* is the temporary employment in full-time equivalence, *Horticulture<sub>i</sub>*, *Greenhouses<sub>i</sub>*, *Tobacco<sub>i</sub>*, *Fruits<sub>i</sub>* are the corresponding shares of agricultural surface in LAUs. The *log(Population)<sub>2011,i</sub>* and *Typeofsettlement* capture the effects of the size and degree of urbanisation of LAUs. Finally,  $\epsilon_i$  is the unobserved error term which captures factors that might affect migrants' settlement choice, but which are not listed in the model (e.g. unemployment rates, housing prices, amenities, etc.).

### 6.2. Data description

Table 3 provides descriptive statistics of the datasets used to estimate the empirical models described in Equations (1) and (2). It demonstrates that more than 80% of all Spanish and 65% of Italian LAUs are considered to be rural. The information on agricultural production comes from the agricultural censuses conducted in Spain in 2009 and in Italy in 2010. The *non-family work* and *temporary employment* variables are supposed to capture the variation in the share of migrants across LAUs due to labour market characteristics in all types of settlements. *Horticulture*, *greenhouses*, *tobacco* and *fruits* are the share of area used for the cultivation of corresponding crops in all farmed agricultural areas. According to the agricultural census, in 2009 in Spain, across all LAUs, on average 22.8% of working days were related to non-family work, and less than 1% of the agricultural surface was used for horticulture, greenhouses, or tobacco cultivation. In Italy, on average about 5% of working days are covered by temporary employment, 2.4% of the agricultural surface is used for horticulture, greenhouses, and fruit production. While in both countries the agricultural land use covered in the model may seem low on average, Table 3 informs us that there are LAUs with very large shares of this kind of production (i.e. there is evidence of local specialisation). A similar reasoning applies to employment type, as Table 3 again points out that, in Spain, there are LAUs where 100% of working days are carried out by non-family workers and, in Italy, LAUs where nearly 91% of the working days are completed by non-family, temporary workers.

### 6.3. Results

The two regression models above are estimated using the ordinary least squares. We added the logarithmic transformation of the overall population size and the degree of urbanisation of LAUs as additional controls. The regression includes a set of dummies for capturing the effects attributable to the type of area.

Table 4 presents the results of regression models on the relationship between the presence of migrants and the characteristics of agriculture

in Spain. The reported results indicate that there is a positive and statistically significant association between the share of agricultural surface dedicated to horticulture, greenhouses and tobacco within each LAU and the share of migrants. A positive relationship emerges, in fact, between the share of migrants and the percentage of land dedicated to horticulture and greenhouses, though, there is a negative one in the case of tobacco cultivation (Column 1). We check the robustness of these results by focusing only on rural areas, where agricultural activities are more likely to take place. The coefficients remain statistically significant and increase in magnitude when we restrict the sample to LAUs in rural areas only (Column 2). These results indicate that Rye and Scott's (2018) suggestion to have more analysis on different agricultural sectors and not to focus exclusively on horticulture deserves attention, as statistically significant relationships emerge between migrant presence and other forms of cultivation. The results suggest that non-family work is positively associated with the presence of migrants. This positive association may be explained by the fact that when the farming system

**Table 3**  
Descriptive statistics for case studies.

	Mean	Std. Dev.	Min	Max
<b>Spain</b>				
Share of migrants in 2011	0.146	0.121	0.000	0.870
Non-family work (in full time equivalence)	0.228	0.208	0.000	1.000
Share of agricultural surface				
<i>Horticulture</i>	0.003	0.014	0.000	0.387
<i>Greenhouses</i>	0.002	0.026	0.000	0.833
<i>Tobacco</i>	0.000	0.008	0.000	0.376
Log (population 2011)				
Towns	6.664	1.881	0.720	15.193
Rural areas	0.136	0.343	0.000	1.000
<b>Italy</b>				
Share of migrants in 2011	0.059	0.043	0.000	0.367
Temporary employment (in full time equivalence)	0.050	0.088	0.000	0.907
Share of agricultural surface				
<i>Horticulture</i>	0.008	0.027	0.000	0.571
<i>Fruits</i>	0.015	0.049	0.000	0.899
<i>Greenhouses</i>	0.001	0.008	0.000	0.322
Log (population 2011)				
Towns	7.852	1.347	3.401	14.778
Rural areas	0.319	0.466	0.000	1.000
Rural areas	0.646	0.478	0.000	1.000

Source: Authors' elaboration. Population: *Padrón Continuo* (Spanish Statistical Institute - INE) and *Demography in figures* (Italian Statistical Institute - ISTAT), 2011 and 2017. Agriculture production: Agricultural Census 2009 for Spain and 2010 for Italy. Number of observations: Spain, 8,105; Italy, 7,693.

**Table 4**  
Results of regression models on the relation between the presence of migrants and characteristics of agriculture in Spain.

	Share of migrants (All LAUs)	Share of migrants (Rural LAUs)
	(1)	(2)
Non-family work (in full-time equivalence)	0.054*** (0.007)	0.074*** (0.008)
Horticulture (% of agricultural surface)	0.310*** (0.096)	0.500** (0.213)
Greenhouses (% of agricultural surface)	0.237*** (0.054)	0.550*** (0.185)
Tobacco (% of agricultural surface)	-0.243** (0.123)	-0.450*** (0.140)
Towns	0.024*** (0.001)	-
Rural areas	0.046*** (0.008)	-
Log (population 2011)	0.052*** (0.009)	0.023*** (0.001)
Constant	-0.081*** (0.013)	-0.023*** (0.006)
Observations	8,105	6,780
R-squared	0.168	0.125

Note: The dependent variable = is the share of migrants in total population in 2011. Robust standard errors in parentheses \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

depends on recruited labour, these needs are often satisfied through migrant labour.

Turning to the case of Italy, the regression analysis confirms the presence of a positive association between the migrant share of the population and agricultural characteristics (Table 5). In particular, the positive relationship detected for horticulture and fruit production indicates that a larger share of the surface in agricultural sectors that are labour-intensive is positively associated with the presence of migrants (Column 1). When restricting the sample to LAUs in rural areas, the

**Table 5**  
Results of regression models on the relation between the presence of migrants and characteristics of agriculture in Italy.

	Share of migrants (All LAUs)	Share of migrants (Rural LAUs)
	(1)	(2)
Temporary employment (in full-time equ)	-0.087*** (0.006)	-0.054*** (0.008)
Horticulture (% of agricultural surface)	0.151*** (0.024)	0.226*** (0.035)
Fruits (% of agricultural surface)	0.017* (0.010)	0.067*** (0.014)
Greenhouses (% of agricultural surface)	-0.094 (0.078)	-0.117 (0.181)
Towns	0.014*** (0.003)	-
Rural areas	0.012*** (0.003)	-
Log (population 2011)	0.005*** (0.001)	0.005*** (0.001)
Constant	0.010* (0.005)	0.020*** (0.005)
Observations	7,693	4,971
R-squared	0.049	0.034

Note: The dependent variable is the share of migrants in total population in 2011. Robust standard errors in parentheses \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

coefficients remain statistically significant and increase in magnitude, confirming the positive association between certain types of agricultural production and migrants' presence in Italy (Column 2). The lack of significance for the coefficient for greenhouses and the statistically negative coefficient for temporary employment may be explained by collinearity and the confounding of effects with the variables on horticulture and fruit production.

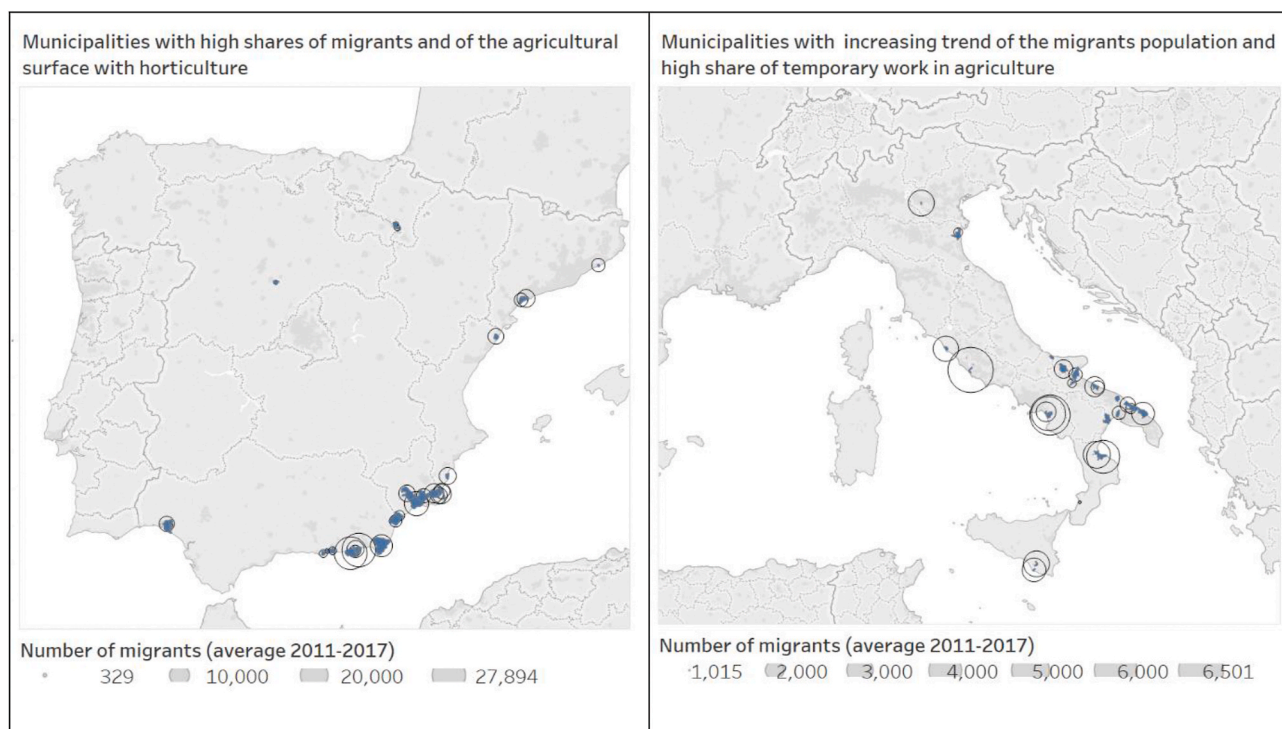
The importance of the relationship between a high share of migrants and the presence of horticulture is acknowledged in the literature on migration in rural Spain. These cases are plotted in the map on the left part of Fig. 5. They include municipalities in the areas of the Poniente Almeriense (e.g. El Ejido), the strawberry fields of Huelva and the agricultural fields around Murcia and Castelló de la Plana. The right part of the figure, related to Italy, shows the cases where a high increase in the share of migrants corresponds to a particularly high share of temporary work in agriculture. These cases include well-known areas described in the migration literature and often associated with the exploitation of irregular migrants (Corrado, 2018). Some examples include LAUs in the greenhouse area of Ragusa, the tomatoes and fresh vegetables production area of Salerno and the Sele plain (Eboli, Battipaglia), and in the fruit production areas of San Ferdinando and the Rosarno-Gioia Tauro plain.

Overall, both the analysis for Spain and for Italy show how residential patterns at the local level can, in many cases, be explained by a particular type of agriculture requiring high inputs of non-family and temporary work. This confirms the third hypothesis on the positive relationship between the relative size of migrant population and the labour intensity of cultivation. It is in line with previous findings which concluded that immigrants have tended to settle more in rural areas where specific agricultural sectors needed workers (Rye and Slettebak, 2020), compared to other rural areas which lacked this kind of economic driver. These patterns are more difficult to capture quantitatively at the higher administrative levels of provinces and regions. Here the marginal importance of agriculture and the tendency of migrants to concentrate in cities risks hiding territorial specificities. Also, this comparison may confirm what has already been suggested in the literature (Rye and Scott, 2018), namely that the relationship between the kind of agricultural production and migrant presence is mediated by local factors. Greenhouse production seems to be systematically associated with a higher concentration of migrants in Spain, but the same is not so true in Italy. However, to ascertain this properly, further analyses with more fine-grained data on agricultural production and local variables would be needed.

## 7. Conclusions

This article provides a quantitative overview of migrants in rural areas and in the agricultural sector for the entire EU. Previous research (Górny and Kaczmarczyk, 2018; McCollum and Findlay, 2018; Scott, 2013) has shown that migrants living in rural areas and working in agriculture, despite representing a relatively small group compared to migrants in cities, can have a fundamental role in sustaining certain types of agricultural production in constant demand for temporary work. It is also known that immigrants working in the agricultural sector face several difficulties in terms of integration. What this study has shown is how widespread migrants are in rural areas across EU member states. It has also shown that immigrants tend to fare worse on most indicators of integration, not only in respect of the local population, but also compared to migrants living in cities and towns.

While providing one of the first quantitative analyses of the incidence and character of migration in rural areas at the EU level, our study has the important limitation of under-representing the real size of the phenomenon, and not fully representing all its aspects of temporariness, seasonality, vulnerability, and the possible irregularity of migrants employed in agriculture. This limitation stems from the difficulty to capture in official statistics at EU level the temporariness and at times



**Fig. 5.** Presence of migrants in LAUs and agricultural activities.

Note: For Italy and Spain, the circles in the map are proportional to the population of migrants residing in the LAUs Source: Authors' elaboration of population data from Padrón Continuo and the Agricultural Census 2009 in Spain and population data from ISTAT and the 6° Agricultural Census 2010 in Italy.

irregular nature of employment conditions of migrants in agriculture, as well as their abuse or harsh working conditions.

The study confirms that, at the EU28 level, migrants tend to be overrepresented in cities as against towns and rural areas. However, when unpacking the data by member state, it is possible to observe strong differences concerning the tendency of migrants to settle in rural rather than urban areas. When considering integration indicators, non-EU migrants in rural areas register a higher share of the population in lower-income deciles and at risk of poverty. Over time, the at-risk-of-poverty indicator is seen to be worsening in the case of EU migrants in rural areas and in the case of non-EU migrants in all settlement types. Non-EU migrants in rural areas tend to be more disadvantaged in the labour market, as evidenced by higher unemployment rates compared to all other groups.

Turning to the agricultural sector, the proportion of rural employment that is filled by migrant workers has gradually increased over time. Among individuals employed in the agricultural sector, migrants are more likely to work in elementary occupations, to be employees, and to have temporary forms of recruitment than locals.

The two case studies for Italy and Spain show that migrants in rural areas tend to reside in areas where there is intensive agricultural production and a high degree of temporary employment. We also saw that different forms of agricultural production lead to different kinds of migrant presence. In the case of Spain, the two are positively related in the cases of horticulture and greenhouses, but negatively connected in the case of tobacco cultivation; for Italy, a positive relationship emerges in the cases of horticulture and fruits, but no statistically significant relationship is found in the case of greenhouses. Our Italian and Spanish analysis answers calls for more comparative research on the relationship between different agricultural sectors.

This paper provides important insights into the relationship between migrants' presence and agricultural production, it also points to some future avenues for research. First, it does not take into account the impact of economic conditions (e.g. unemployment rate, *per capita* GDP) or the presence of other economic sectors in LAUs, which might attract

migrants too (for a case-study confirming this, see [Hedberg and Haandrikman, 2014](#)). Second, it does not consider the impact that, *inter alia*, variation in capital intensity (use of machinery) and R&D investments might have on reliance on migrant labour. Alternatively, the inflow of cheap labour might affect the speed with which technological advances are applied in the sector. The economic literature demonstrates that the availability of a new and cheaper labour force (especially a low-skilled one) may induce firms to delay specific investments in the renewal or upgrading of their stock of capital and increase, instead, the labour intensity of their productive process by hiring new migrant workers ([Lewis, 2011](#)).

Finally, from a policy perspective, this article has shown that migration is already playing an important role in slowing down ageing in some member states, and that immigrants play a key role in the agricultural workforce in several European countries. However, these facts are often coupled with low integration outcomes both in rural areas in general, and in the agricultural sector in particular. This represents a clear policy challenge at several levels, not only for local authorities dealing with migrant communities on the ground, but also for national and European policy-makers, given the importance that agriculture plays in global value chains. Therefore, it is important to have a holistic approach, mainstreaming migration in agricultural subsidies and in regional development projects. While our statistical research has highlighted how most migrants still concentrate in urban areas, it has also shown that, in some regions of Europe, they represent an important community in rural areas, too, and thus that they would benefit from targeted integration projects grounded in local realities.

#### Declaration of competing interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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