Linking Migration Reasons and Origins to Labour Market Outcomes: Recent Evidence from Europe

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Abstract – This paper aims to understand how the labour market integration of migrants in Europe is affected, in an interrelated fashion, by their reason for migration and their region of origin. Using recent data from the European Labour Force Survey, we distinguish immigrants to Europe between four migration motives: economic, education, family reasons, or international protection. We compare labour market outcomes of these categories of immigrants through earnings, controlling for a variety of individual factors (including language skills and age at migration), and we also investigate the role of selection into employment. Our results suggest that an economic reason for migration together with already having a job upon arrival is positively associated with higher, while, other things equal, refugees and family migrants are more likely to end up with lower earnings. However, when estimating full interaction models, we find that these results are highly dependent on where migrants come from.

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mmigration, that is, the arrival of foreign-born populations and their integration in a host country, has long been a topic of political debate in many countries. Part of the debate revolves around the economic and social integration of migrants. However, integration is a complex process that involves both the migrants' individual characteristics and the host countries' immigration and integration policies, reflected in the success of immigrants in the labour market of their host country. The literature on this subject has revealed important gaps between the labour market performance of migrants and that of native-born populations, and these gaps seem to persist across immigrants' generations (see Algan et al., 2010, among others). However, immigrants are not a homogeneous population, in particular with regard to the reason for their migration and their country of origin - the two being possibly linked.

This paper analyses the labour market outcomes of migrants in the European Union (EU) in this perspective, by addressing the following research questions: Do different migration motives affect labour market outcomes and hence influence the economic integration of migrants in Europe? Controlling for other observable characteristics and region of origin, how is a migrant's earnings level affected by his/her reason for migrating? Does the impact of the reason for migration on earnings depend on where the migrant comes from? Finally, how much does selection into employment play a role in explaining the link between a migrant's earnings and reason for migration?

Using data from the European Labour Force Survey (EU-LFS hereafter), we address these research questions by considering possible heterogeneity among migrants beyond conventional observable characteristics. Furthermore, we use information on migration which is rarely available: the main motivation, or reason, for migration. The population of interest is the foreign-born population (first-generation migrants), broken down by reasons for migration, such as economic reasons (employment, distinguishing between those who arrived in the host country with a job already arranged and those who did not), family reasons (reunification), international protection, and education. Taking the migration motive into account provides further insights into the labour market and integration aspirations of different migrant groups and helps to avoid considering migrants as one homogenous group. The reason for migration is possibly also influenced by the migrant's country of origin.

Our results suggest that migrating for economic reasons and already having a job upon arrival is positively associated with higher earnings, after controlling for individual specific factors. However, our main findings highlight that the reason for migration should not be considered separately, as its impact seems to also be highly dependent on the migrant's country of origin. For example, *ceteris paribus*, refugees and family migrants are more likely than other types of migrants to end up with lower monthly earnings; however, this is the case for those from certain regions of origin only (e.g. non-EU European countries, the Middle East or Asia). We also find that an economic motive of migration does not immediately translate into better earnings. Actually, in some cases (for example, when they are from Africa, the Middle East or Asia), economic migrants seem to perform in the labour market similarly to individuals with other migration motives, such as family migrants and refugees. We also find evidence of the closeness of the earnings of economic migrants with a job upon arrival and student migrants.

The contribution of this paper is threefold. First, using a recent cross-country dataset – the EU-LFS -, we compare the labour market outcomes of various categories of immigrants in the EU, while most of the literature compares migrants to natives. Second, we incorporate the migration motive together with the region of origin to understand the differences in labour market outcomes (measured through the position in the earnings distribution). Third, our earnings model implements an econometric technique to control for selection into employment, while respecting the ordered nature of the outcome variable. This evaluation of the role of selection in explaining the differences in observed outcomes is almost never tackled in the literature.

The paper is structured as follows: Section 1 provides a brief overview of the literature on migrants' integration in the labour market; Section 2 describes the data, the main variables used, and provides a summary of the statistics; Section 3 presents the empirical strategy, and Section 4 the estimation results. Then we conclude.

1. Literature Review

While the literature on the labour market integration of migrants is vast, studies that consider this issue from the angle of the migration motive are rather scarce. It is rare to find information on reasons for migration together with information on the labour market in most existing data with a sufficient sample size across Europe. Some surveys include the reason for migration as a separate question, while others ask about entry visa category or admission class. Visa category is clearly correlated with migration motive, but it does not necessarily coincide with the latter: for example, a migrant with work-related objectives might end up migrating as a family member or as an asylum seeker; or a migrant might arrive in the host country as a student if this status is easier to obtain than the family reunification visa.

Among the papers that do look at migration motivation is that of Rodrigues-Planas & Vegas (2011). They focus on family-based and labour-based migration from Morocco to Spain and conduct their analysis by gender. They find that family-based female migrants earn less than labour-based migrants and that selection into employment is key to explaining the differences. This is one of the only papers considering the selection issue in the earnings equation in this context, as we do in our paper. Boeri et al. (2015) distinguish between legal and illegal migrants to study labour market outcomes as well as residence location in Italy. They find that living in areas highly populated by (particularly illegal) migrants is associated with lower employment rates. Campbell (2014) considers the motives of migrants (work, study, family, and asylum) in the UK and finds that work- and study-migrants have successful outcomes in employment and wages, while family migrants perform less well, and refugees perform the worst. The latter finding is similar to our own, but neither of these papers considers the joint effects of migrant's motive and region of origin on outcomes, and hence misses further heterogeneity in integration that we capture.

Other papers consider migrants' labour market outcomes in the host country in relation to entry visa type. For example, using a longitudinal survey of immigrants in Canada, Aydemir (2011) distinguishes several visa categories (family, skilled worker, business, and refugee) to study short-term labour market outcomes such as employment and earnings. He finds that immigrants selected for their particular skills have a modest earning advantage, but not higher employment rates in the short term. Akgüç (2014) looks at visa types among migrants upon arrival in France. She shows that the composition of visa categories varies by origin and gender and finds that migrants with work or student visas have better employment and earnings, while family migrants and refugees perform similarly, but worse in the labour market.

Bevelander & Pendakur (2014), meanwhile, compare entry categories of migrants (family, refugee and asylum seeker) in Canada and Sweden and find that the earnings and employment trajectories of non-economic migrants are similar in both countries. Cortes (2004) looks at refugees and economic migrants in the US in 1980 and 1990 and shows that the former group has better outcomes then the latter group over time. Finally, Hunt (2011) finds that immigrants with student visas have a large earnings advantage over native-born in the US. Many of these findings are in line with our results, but we try to go further by identifying specifically how the employment outcomes of different migrant groups compare according to motivation and origin.

Moreover, most of these studies focus on one or two countries at a time, or sometimes they look only at migrants from a specific region of origin. Analysis at the cross-country level is restricted due to general data limitations. To the best of our knowledge, only very few studies use cross-country European data (as in this paper) in studying integration patterns in relation to motivation for migration. In those studies, the authors mainly rely on an earlier dataset from 2008. One of these studies, by Cangiano (2015), shows that the immigration status on arrival has an impact on participation in the labour market, the probability of being unemployed, and access to jobs that correspond to the migrant's skills. While the participation of family migrants and refugees in the labour market is positively associated with their length of stay, according to this study, it also appears that they are at a significant disadvantage regarding unemployment in almost all European host countries. Cangiano's analysis also provides information on policy differences between host countries and their effect on different categories of migrants. This is an important aspect because immigration policies are likely to shape not only the composition of immigration flows, but also the labour market outcomes of different categories of migrants. This is where migration and integration policies intersect.

Dustmann *et al.* (2017) provide a comprehensive analysis of refugee migration (including policies and the functioning of asylum systems) in Europe in the aftermath of the recent refugee crisis. They also look at past refugee waves using the 2008 ad hoc module of the EU-LFS. They find significant employment gaps between refugees and other non-EU15 migrants, controlling separately for years since arrival, area of origin, and these two variables jointly.

Another study using the earlier 2008 ad hoc module of the EU-LFS is by Zwysen (2018), who analyses the determinants of differences in integration patterns by different categories of migration motivations. In particular, he shows that, on average, non-economic migrants experience faster growth in earnings. To do so, Zwysen (2018) focuses on the concept of "host country human capital", first developed by Duleep & Regets (1999), and measures it according to three indicators: the possibility of obtaining equivalent qualifications in the host country, language skills, and potential naturalisation.

Fasani et al. (2018) use the two ad hoc modules (2008 and 2014) of the EU-LFS to analyse the labour market integration of refugees in Europe. They argue that given the different (i.e. forced) nature of the migration process of refugees compared to, say, voluntary economic migration, it is not surprising to observe a persistent gap between the labour market outcomes of refugees and other migrants. They pool all other migrants together (only distinguishing between EU and non-EU migrants) and compare them to refugees by looking at employment status, unemployment, labour force participation, the probability of being in a highly skilled occupation, and the probability of being in the lowest decile of income distribution. Their findings confirm the gaps between refugees and other migrants as regards the aforementioned outcomes of interest.

Our study goes beyond these last three papers in several ways. First, we consider earnings as a labour market outcome. Second, we study all migration reasons and all regions of origin, without focusing on a specific group. Third, we investigate the interrelation between migration reasons and origins to understand their impact on the labour market performance of migrants. Last but not least, we evaluate the importance of selection into employment as part of our empirical methodology. Unlike others, we also take into account the ordered nature of the outcome variables and use non-linear estimation techniques (rather than linear probability models).

2. Data and Summary Statistics

2.1. The European Labour Force Survey and the Variables of the Analysis

by the national statistical institutes across the European Union, and the national contributions are centrally processed by Eurostat. The whole process leads to a harmonised and representative dataset at the European level. All empirical analyses in this paper are thus conducted by using the appropriate weights provided in the data.

In order to fill part of the knowledge gap surrounding the experience of different categories of migrants in European labour markets, an ad hoc module (AHM) of the EU-LFS on the situation of migrant workers and their direct descendants was first carried out in 2008 (AHM-2008) and a second time in 2014 (AHM-2014).^{1,2} These two ad hoc modules have only a few variables in common. Given that most of the existing papers mainly relied on the AHM-2008 (e.g. Dustmann et al., 2017; Zwysen, 2018), and because it is not possible to track the evolution of all variables over the two periods, we choose to focus on the most recent data from 2014. It is important to note, however, that some major European countries (Germany, Denmark, the Netherlands and Ireland) do not make their data available in the AHM-2014.³ Moreover, using the AHM-2014 for our empirical analysis implies that all countries in the sample are pooled. This gives an average estimate for the pooled set of countries in the data and provides a larger sample size to conduct estimations. We thus acknowledge that some of the results could differ if the analvsis was done for a single country. To partly address this limitation, country fixed effects are included in all estimations to reflect countryspecific characteristics (e.g. demography, but also national immigration policies).

2.1.1. Reasons for Migration

Motives for migration⁴ are very informative, since they usually reflect the arrival conditions of migrants in the host country. These conditions, in turn, explain the opportunities for different types of migrant at the entry in host countries' labour markets. The variable describing the main reason for migrating to the

The EU-LFS is a large household sample survey providing quarterly and yearly results on the labour market participation of people aged between 15 and 64 years old and living in private households, as well as those outside of the labour force. The EU-LFS is conducted

EU-LFS ad hoc modules do not provide information about illegal or irregular status (an issue which is not within the scope of the survey). Nevertheless, we acknowledge that illegal migrants may constitute a non-negligible share of migrants in some countries. For example, according to a survey conducted by Boeri et al. (2015), almost 20% of migrants in Italy are illegal migrants.

Eurostat foresees a third ad hoc module focusing on migrants in 2021.
 For example, Germany participated in the 2014 ad hoc module, but the data are not made available to users for research purposes because of the German national legislation on data privacy.

^{4.} It should be noted that in cases where migrants have migrated multiple times, 'migration motivation' variable only captures the main reason given for their latest move.

current country of residence is collected at the individual level.

The data allow, first of all, to distinguish economic migrants from migrants with noneconomic motives. Moreover, among economic migrants, those who had found a job before migrating can also be distinguished from those who began looking for a job only once they arrived in the host country. As intuition would suggest, we posit that economic migrants have higher chances of a better integration in the destination labour market, as having or looking for a job is the main reason for migration. As regards economic migrants without a job upon arrival, our a priori expectation is mixed, since their individual (observed or unobserved) characteristics, as well as the labour market conditions of the host country, also play an important role in determining integration patterns. As regards non-economic migrants, one can distinguish between family migrants (mainly linked to reunification), migrants who move abroad for education purposes, and migrants seeking asylum or international protection (refugees). We believe that student migrants are also quite different from other categories, as they tend to be better educated. One could even consider them among the economic migrant group, since they may later compare to high-skilled migrants. Therefore, we expect that all non-economic migrants, with the exception of student migrants, are less likely to be integrated into labour markets, as participating in the labour market is not the main reason for their migration.

We also consider age at the time of migration, as it has been shown to play an important role in the social and economic integration of migrants (e.g. Aslund et al., 2009). Many empirical studies support the hypothesis that migrants who arrive in the host country at a younger age perform better at school (e.g. Cortes, 2006; Gonzalez, 2003). For example, Bleakley & Chin (2008) found that the older a migrant's age upon arrival, the less proficient they tend to be in English in adulthood, and this might have negative consequences on the educational performance of the second generation. In fact, migrants arrived before the age of 15 tend to have a similar profile to second-generation migrants, because they generally continue their education in the host country and gain a better knowledge of the language than older migrants. Because we are interested in the labour market outcomes of first-generation migrants (without modelling their educational choices), we retain only migrants arrived in a host country after the age of 15.5

2.1.2. Region of Origin

Country or region of origin is usually considered as a good proxy for culture, and evidence suggests that it plays an important role in the social and economic integration pattern (see, among others, Akgüç & Ferrer, 2015; Fernandez & Fogli, 2009). In this paper, we classify migrant countries of origin into aggregated regions, as provided in the data. This gives us nine groups: (1) EU15 and EFTA (the European Free Trade Association)6 (this will be our reference category); (2) Other EU (the remaining EU countries); (3) Other Europe (e.g. Balkan countries); (4) North Africa; (5) Other Africa; (6) Middle East; (7) Asia; (8) North America, Australia and Oceania; and (9) Central and South America.

2.1.3. Measuring Labour Market Integration

Being integrated in the labour market indicates the extent to which migrants achieve similar labour market outcomes as native-born individuals. The commonly used measures of integration of a group in the labour market are the employment and activity rates. While they do not describe the employment conditions and quality, they are still good indicators for comparing situations between distinct groups on the extensive margin. For example, people who are unable to negotiate job conditions due to a precarious personal situation are often forced into degraded working conditions or part-time work, or they leave the labour market.

In this paper, we measure labour market integration in terms of earnings, which could be considered as part of the intensive margin. As regards earnings, the EU-LFS provides only the earnings deciles for workers in salaried employment (hence the earnings of self-employed workers are not reported). Most studies compare migrants' outcomes to those of a reference group, which is usually the native-born. Here, however, we compare different groups of migrants and retain economic migrants who already have a job on arrival as the reference group. This reference group is very particular and has likely as good (sometimes even better) labour market outcomes as natives (see descriptive analysis); therefore, our results should be interpreted with this basis group in mind. Overall, we interpret the higher (resp. lower) earnings of a particular migrant group (defined

^{5.} Conventionally, individuals who arrive before the age of 15 with their parent(s) are not asked their reason for migration and are automatically classified under the 'family' category.

^{6.} EFTA countries are Iceland, Liechtenstein, Norway, and Switzerland.

by migration motive and origin) as a sign of better (resp. worse) integration into the labour market compared to this reference group.⁷

2.2. Summary Statistics

In 2014, about 11% of the population in Europe accounted for in our sample was composed of foreign-born individuals, with different migration reasons (Figure I). More than half of the migrants in Europe (51.9%) in 2014 had family motives, followed by economic motives, which accounted for one third of migrants (31.7%). Among economic migrants, one third already had a job on arrival. Meanwhile, refugees constituted about 4.1% of total foreign-born populations and student migrants made up 7.1%. Given that AHM-2014 data include neither the four major destinations nor the last inflow of refugees to Europe since 2015, the proportions in this figure would correspond to a lower bound of the current numbers, especially as regards refugees.

Table 1 presents summary statistics of the main variables used in the analysis. We report the variables of interest across migrant grouped by reason for migration, together with figures on the native-born as another benchmark.8

Family migrants have the lowest employment rates of all migrant groups (53%). They mainly come from within the EU and have relatively advanced language skills. There are at least two possible reasons as to why this is the case: most European countries require a language test to be accepted for family reunification⁹ and/or family migrants usually arrive at a younger age,

which could mean more possibilities of learning the host country's language. The second largest group is that of economic migrants (either with a job on arrival and without). Their employment rate is unsurprisingly very high (82%) and they have relatively good language skills. Migrants arrived for educational reasons are significantly younger than the other groups, with employment rates lower than economic migrants, but higher than family migrants and refugees. This subgroup is the one with the highest share of highly skilled individuals. Their average duration of stay is generally similar to or slightly longer than that of economic migrants, which means that some might stay after their studies.

Refugees have, on average, a lower employment rate (57%), similar to that of family migrants. Nearly one third of them are highly skilled (in the same proportion as the native-born). They come mainly from Africa, Other Europe, Asia, and the Middle East. Migrants tend to live in urban city centres rather than in rural areas (see Akgüç & Ferrer, 2015, among others) for

^{9.} As discussed in a recent report by the European Commission (2019) on the implementation of Directive 2003/86/EC on the Right to Family Reunification, Member States usually require family members to demonstrate and/or acquire language proficiency prior and/ or after admission (usually as part of their integration programmes). For more details, see https://eur-lex.europa.eu/legal-content/EN/TXT/ PDF/?uri=CELEX:52019DC0162&from=EN



Figure I – Migration reasons (%)

Notes: The sample includes only migrants aged 15-64 and living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland).

Sources: EU-LFS 2014 ad hoc module

^{7.} Going further in the analysis of labour market integration would require including job quality indicators (e.g. type of employment contract, weekly hours, etc.); this dimension is left to future research.

^{8.} AHM-2014 also provides the category 'Other' among reasons for migration. However, as this group appears to be rather heterogeneous, we do not comment on its characteristics but keep it for the empirical analysis as a residual group.

	Notivo	Migrants by reason for migration					
	born	Eco	onomic	Family	Student	Refugees	Othor
	bonn	with job	without job	T anny	Oludeni	Trefugees	Other
Relative shares among foreign-born (%)	-	9.8	21.9	51.9	7.1	4.1	5.3
Age	40	42	41	39	36	44	44
Women (%)	50	38	41	61	47	44	50
Households with child <15 (%)	32	37	44	42	36	39	34
Household size	3.2	3.0	3.1	3.5	2.8	3.5	2.9
Marital status (%) Married	48.9	60.7	61.1	56.6	48.2	62.2	58.7
Single	41.5	29.5	27.9	33.3	44	24	26.5
Widowed, divorced or separated	10	9.9	11	10	7.8	13.8	14.8
Residence: degree of urbanisation (%)							
Cities (high density)	39	54	55	52	76	60	55
Towns and suburbs (medium density)	30	28	30	29	16	24	26
Rural areas (low density)	30	17	15	18	7	17	19
Share of active people (%)	71	91	88	64	74	70	78
Employment rate (%)	63	82	73	53	66	57	67
Skills level (%) Low skills	28	24	41	35	6	35	25
Medium skills	45	32	40	37	21	37	39
High skills	26	43	19	26	73	27	36
Migrant-specific variables							
Years since migration		12.1	13.2	21.8	13.5	16	15.6
Age at time of migration		29.5	28	19.7	23	27.8	29
Host country's language skills (%)							
Beginner or lower		11.5	12.6	10.1	4.3	17.7	10.3
Intermediate		24	31.8	16.4	15.9	33.7	20.2
Advanceo		35	34.6	29.4	50.1	32.2	33.7
Mother tongue		29.6	21.1	44	29.7	16.4	35.9
Region of origin (%) EU15 and EFTA		28.2	9.1	21	16	3.7	27.6
Other EU		24	29	10.3	8	4.7	13.3
Other Europe		10	16.3	14.6	7.6	22.7	9.8
North Africa		6.1	11.3	14.7	12.4	13.3	7.9
Other Africa		4	7.1	10	18	23.6	11.8
Middle East		1.1	1.3	2	4.5	10	2.9
Asia		12.1	11	13.4	22.4	16.7	7.2
North America, Australia and Oceania		4	1.1	2.6	2.7	0.2	3.6
Central and South America		11.2	14	10.6	7.2	4.4	14.7
Number of observations	512,736	6,961	15,595	33,970	4,920	2,913	3,731

Table 1 – Summary statistics of individual characteristics of native-born and migrants by reason for migration

Notes: The sample includes all individuals (natives and migrants) aged 15-64 years living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland). Source: EU-LFS 2014 ad hoc module.

a number of reasons, such as existing migrant networks, job opportunities or other urban amenities (schools, hospitals, etc.). This is also observed in our sample: more than 80% of all migrant groups live either in densely populated cities or suburbs (compared to 69% of natives). Therefore, we control for residence location in our analysis.

Next, we inspect the earnings distribution by migrant group, taking the native-born average as a benchmark (Figure II). Compared to natives, all migrants are overrepresented in the lowest deciles. Economic migrants with a job on arrival

are quite close to natives, with some deviation in the last decile. Student migrants' earnings pattern is close to that of economic migrants with a job. Family migrants and refugees are overrepresented in the lowest deciles compared to the other migrant groups, as well as economic migrants without a job upon arrival. This might be due to the fact that they are more likely to accept low-paid jobs and poor working conditions than family migrants, because finding a job is their primary motivation, whereas family migrants are not under the same constraint and may take more time to search for better-quality employment.



Figure II – Share of migrants in earnings distribution by migration reason (benchmark group: native-born)

Notes: The sample includes all individuals (natives and migrants) aged 15-64 and living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland).

Sources: EU-LFS 2014 ad hoc module.

Lastly, we look at the variable that summarises the perception of respondents regarding their potential overqualification in their current occupation.¹⁰ At least one third of all migrants are likely to feel that they are overqualified in their jobs (Figure III) and this is significantly higher than the share among natives (less than 20%). Student migrants and refugees are the top two groups to feel this way.

3. Empirical Methodology

Our objective is to compare the labour market integration of migrants in relation to their

reason for migration and their region of origin. We will use the monthly earnings as a measure of economic integration. However, we have to adapt our approach to the data. First of all, the EU-LFS only provides earnings deciles, and more precisely the decile of monthly wage.¹¹ This has two implications of different order. One is that

^{11.} As described in the EU-LFS data user guide, the earning deciles are country-specific and not common to the whole distribution of earnings. We address this issue by adding country fixed effects to account for heterogeneity across countries.



Figure III - Proportion of overqualified individuals for their job, by migration reason (%)

Notes: The sample includes all individuals (natives and migrants) aged between 15-64 and living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland). Sources: EU-LFS 2014 ad hoc module.

^{10.} In particular, the survey asks the following question: 'Do you think that your qualifications and skills would allow you to do more demanding tasks than in your current job?'.

with earnings deciles (i.e. a discrete variable), we cannot apply the usual linear regression; we will then estimate the wage equation through ordered probit. The other is that self-employed workers' earnings are not observed (since their earnings do not consist in wages), so we cannot take them into account. In addition, we will focus on full-time employees¹² because the measure of earnings in part-time jobs is not accurate.¹³

3.1. Wage Equation

To estimate the wage equations, we have to consider that there may exist some potentially self-selected participants, i.e. a binary selection mechanism, but also some active migrants who cannot access the labour market. As we are particularly interested in the effects of the migration reasons and how it interacts with the region of origin, the selection process could be all the more important: not all migrants are looking for a job in the host country, and some have little access to the job market despite their economic reason for migration. The underlying mechanism can be modelled by binary probit (Gronau, 1974).

We then have to combine the usual self selection estimation ($\hat{a} \ la$ Heckman), with an ordered probit estimation of the outcome, which is a discrete variable. This extends the linear second step of the Heckman procedure with a non-linear equation. In this case, the ordered probit model with sample selection can be described as follows:¹⁴

Selection equation:

$$E^* = \beta^T X_1 + \mu \tag{1}$$

$$E = I\left(E^* \ge 0\right) \tag{2}$$

where E^* is the continuous latent variable for the selection process of being full-time employed,¹⁵ X_1 is a vector of exogenous variables, and μ is an error term.

Earnings equation:

$$Y^* = \gamma^T X_2 + \epsilon$$

$$Y = \sum_{h=0}^{H} h \mathbf{1} (\alpha_h < Y^* \le \alpha_{h+1}) \text{ if } E = 1$$
(3)
(3)
(3)

where Y^* is the continuous latent variable for earnings (to the extent that we only observe discrete classes of earnings), X_2 is a vector of exogenous variables, and ϵ is an error term. Y^* is related to the outcome Y through the observational rule (4), where $\alpha = (\alpha_1, ..., \alpha_H)$ is a vector of H strictly increasing earnings thresholds that partition Y^* into H+1 intervals.

Identifying the model parameters requires three restrictions:

- The first restriction is due to the fact that the coefficient γ is not separately identified from the coefficient α because the thresholds are unknown (which is a standard identification issue in ordered probit and logit models). In order to identify these coefficients, we normalise γ to 0, and also make the assumption that the standard deviation of the error term is 1.

- The second restriction is the exclusion restriction: we assume that X_1 contains at least one variable that is not contained in X_2 . In our case, the dummies for having at least one child under 15 in the household, the marital status and the presence of another working adult in the household are considered to affect the selection equation and not directly the earnings equation. Consequently, these exclusion variables are included in the access to job market equation, but not in the earnings equation.

- The third restriction concerns the support of the vectors of exogenous variables. In particular, the identification of a semi-parametric specification requires that X_1 and X_2 each contain at least one continuous variable, as a way to guarantee that both vectors of explanatory variables have sufficiently rich supports. For this, age and age squared (both continuous) are included in both vectors of explanatory variables.

3.2. Choice of Variables

In these models, when including categorical variables, we usually take the most frequent category as the reference category, except for our main variables of interest. Concerning the reason for migration, we take the economic migrants with a job as the reference group, because they are particularly well integrated in the labour market (in terms of their employment rate and the employment quality in general, as seen in the summary statistics). As regards the region of origin, we take migrants from countries of the EU15 or EFTA as the reference group, for they are similar to native-born individuals in terms of most of their observable characteristics.

The main explanatory variables of interest are the reason for migration and the region of origin, as well as the interactions between the two.

 ^{76%} of the observations in the sample are employed in a full-time job.
 We also ran models (not reported here, but available upon request) including a part-time dummy; the results suggest, not surprisingly, that part-time significantly lowers the chances of being in high earnings deciles.
 In particular, we use the Stata package heckoprobit, which estimates ordered probit models with a sample selection. It basically fits the maximum-likelihood ordered probit models with a sample selection, and the package automatically computes the inverse Mills ratio.

^{15.} We estimate the selection of people who are employed full-time with salaries; in other words, we estimate the selection on people working full-time and for whom a monthly wage decile is computed.

These variables also allow to control for some of the unobserved characteristics. For example, the region of origin is a good proxy for culture, which has been found to influence labour market participation and fertility decisions (Fernandez & Fogli, 2009). As for the reason for migration, it could capture some individual aspirations, human or social capital investments, or the perceived gap in wellbeing, financial situation or educational opportunities between the origin and host countries.

As control variables, we consider individual-level characteristics such as age, age squared, gender, education, language ability in the host country (subjectively assessed by the respondent) and the degree of urbanisation of the place of residence. Other variables or specifications were tested, but not conclusive.¹⁶ Moreover, we include host country fixed effects to control for specificities in national labour market access (e.g. different earnings distributions).

The earnings equations are estimated both without (the baseline model) and with self selection. This allows us to test the role of selection into employment when explaining the potential differences observed in the labour market outcomes of migrants with different migration motivations and from diverse geographical and cultural backgrounds. All models include individual controls, country fixed effects and robust standard errors and are estimated with probability weights as provided in the data.

4. Results

4.1. Baseline Estimation of the Earnings Equation

The results for the baseline earnings equation estimation with ordered probit are reported in Table 2 (detailed results are presented in the Online Appendix – see link at the end of the article).

In column 1, we only introduce the reason for migration to check how each migrant category compares to economic migrants with a job. All other categories (except student migration) show significant and negative coefficients, suggesting that all the other reasons for migration are associated with a higher probability of lower earnings, with refugees having the highest negative coefficient in magnitude on the probability of higher earnings. Column 2 then adds the region of origin dummies to check its impact on earnings compared to individuals from the EU15 or EFTA countries. All regions of origin, except North America, Australia and Oceania, are associated with significant and

negative coefficients, i.e. significantly lower probabilities for migrants from these regions to reach higher earnings deciles. Column 3 introduces both the reason for migration and country of origin in the baseline model. We see that, generally, both the coefficient estimates for migration reasons and country of origin remain rather stable (significance levels do not change either). Holding everything else constant and controlling for origin and migration reasons jointly, student migration remains not statistically different from economic migration (with a job at arrival). The last column introduces interaction between migration reason and origin, to investigate whether the impact of migration reason on earnings is dependent on origin, which is one of the main hypotheses of the paper.¹⁷ However, uncovering this information from the raw interaction models in column 4 is not straightforward.

To clarify, the next table (Table 3) reports the total effect estimates (with their significance and standard errors) corresponding to the interaction model (Table 2, col. 4). This estimate can be interpreted as the total effect of a certain migration reason (say, international protection) and being from a certain region of origin (say, Middle East).¹⁸ The results confirm our hypothesis and suggest that the impact of

^{16.} Firstly, we included 'job search method' in the earnings equation, but the results were unchanged for other variables and the coefficient was not significant for this variable; therefore, we do not report them here. Secondly, we also estimated models including the 'duration of stay', or 'years since migration', variable as reported in the summary statistics (with a median of 12.5 years). The duration of stay in the host country is an interesting variable to consider when analysing the integration of migrants; in fact, the longer the length of stay in the host country, the more likely the labour market integration. Less than 1% of the migrants in the sample stayed in their host country for less than a year; while these migrants might not have had enough time to enter the labour market, but given their proportion, we assume that their influence on our estimates is very limited. Adding this variable led to essentially the same coefficients with similar significance results throughout all models (without or with selection correction), which suggests that excluding it does not lead to an omitted variable bias. However, it resulted in a convergence issue in the full-interaction model with selection correction due to the collinearity of this variable with age. For these reasons, we choose not to include the 'years since migration' variable in the models. Finally, we estimated models by gender. The baseline results remained the same; however, the number of observations per migration reason and region of origin dropped significantly, causing convergence issues for estimations with selection correction. For these reasons, we decided to work with the pooled sample by including a dummy variable for gender.

^{17.} We double-checked the number of observations in each cell when interacting migration reasons and region of origin to be sure that this justified the interaction models. The precision of the estimates is also reinforced as we have a pooled sample comprised of a number of destination countries in Europe. Only in some cases, the number of observations was small, which led to estimates that are not relevant.

^{18.} This is done by running a post-estimation command (lincom) after the ordered probit estimations, in order to compute the linear combination of two categorical variables (here migration reason and region of origin) when they each take a certain value. In other words, we compute the sum of the coefficient in front of the migration reason variable (when it takes a certain value, say 5 if international protection) and the coefficient in front of the interaction between migration reason for a particular category (e.g. 5 if international protection) and a particular region of origin (e.g. 6 if Middle East).

	· ·		,	
	(1)	(2)	(3)	(4)
Reason for migration (Ref. Economic migrant with job upon an	rival)			
Economic without job	-0.327***		-0.297***	-0.479***
	(0.034)		(0.034)	(0.077)
Family	-0.348***		-0.322***	-0.269***
	(0.037)		(0.037)	(0.074)
Student	-0.085		-0.016	-0.213**
	(0.054)		(0.055)	(0.108)
Refugee	-0.594***		-0.522***	-0.812***
	(0.070)		(0.075)	(0.237)
Other	-0.269***		-0.287***	-0.563***
	(0.053)		(0.054)	(0.102)
Region of origin (Ref. EU15 and EFTA countries)				
Other EU		-0.424***	-0.401***	-0.502***
		(0.044)	(0.044)	(0.077)
Other Europe		-0.445***	-0.400***	-0.580***
		(0.044)	(0.044)	(0.093)
North Africa		-0.521***	-0.499***	-0.722***
		(0.063)	(0.063)	(0.154)
Other Africa		-0.406***	-0.362***	-0.399***
		(0.053)	(0.054)	(0.142)
Middle East		-0.317***	-0.245***	-0.013
		(0.085)	(0.085)	(0.316)
Asia		-0.517***	-0.500***	-0.463***
		(0.052)	(0.052)	(0.094)
North America, Australia and Oceania		0.245**	0.272***	0.332*
		(0.100)	(0.100)	(0.189)
Central and South America		-0.524***	-0.505***	-0.763***
		(0.056)	(0.056)	(0.112)
Individual controls	Yes	Yes	Yes	Yes
Host country fixed effect	Yes	Yes	Yes	Yes
Interactions (migration reason × region of origin)	No	No	No	Yes
Pseudo R-squared	0.1002	0.1023	0.1062	0.1091
Prob > Chi2	0.000	0.000	0.000	0.000
Observations	14,637	14,637	14,637	14,637

Table 2 – Baseline earnings (decile) estimations (dependent variable: earnings decile, ordered probit estimations)

Notes: All models are estimated with the ordered probit method using probability weights. Only migrants (natives are excluded) aged 15-64, living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland), who were aged 15 or above at the moment of arrival in the host country, and (of those employed) are employed full-time (excluding self-employed people) are included. Robust standard errors are in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Source: EU-LFS 2014 ad hoc module.

the migration reason on monthly wage level is highly dependent on region of origin, which is a finding that comes from the interaction model only. For example, any other model would suggest that being a refugee has a negative impact on earnings regardless of origin. Results from Table 3 suggest that this is actually not the case: the effect of being a refugee from the Middle East, Other Africa, Asia and Other Europe on the probability of having higher earnings than other migrants from these regions is negative and significant, meaning that only individuals who migrated for international protection and who are from some regions (Other Europe, Other Africa, the Middle East and Asia) are worse off in terms of earnings (at 1% significance level).

We also observe that in the interaction model, the coefficient associated with the origin 'Middle East' is no longer significant: it seems to come from its underlying heterogeneity across migration reasons. For example, there is a concentrated negative effect of being a refugee or family migrant from the Middle East on the probability of higher earnings, whereas student and economic migrants (without a job) from the Middle East are not penalised, i.e. they seem to be better integrated in their host country's labour market. Moreover, student migrants were generally found to be not statistically different from economic migrants with a job on arrival; however, this also appears to be highly origin-dependent in the interaction models, which could reflect heterogeneity among student

Interaction: migration reason ×	region of origin	Total effect estimate	Std.error
Economic migrant with no job	× Other EU	-0.279***	(0.060)
	× Other Europe	-0.197**	(0.080)
	× North Africa	-0.122	(0.152)
	× Other Africa	-0.146	(0.152)
	× Middle East	-0.510	(0.352)
	× Asia	-0.424	(0.098)
	× North America, Australia, Oceania	-0.353	(0.282)
	× Central and South America	-0.136	(0.103)
Family migrant	× Other EU	-0.291***	(0.076)
	× Other Europe	-0.220***	(0.081)
	× North Africa	-0.160	(0.163)
	× Other Africa	-0.406***	(0.151)
	× Middle East	-0.825**	(0.330)
	× Asia	-0.588***	(0.106)
	× North America, Australia, Oceania	-0.504**	(0.240)
	× Central and South America	-0.110	(0.115)
Student migrant	× Other EU	0.048	(0.124)
	× Other Europe	0.364**	(0.164)
	× North Africa	0.031	(0.401)
	× Other Africa	-0.380**	(0.166)
	× Middle East	-0.016	(0.390)
	× Asia	-0.019	(0.124)
	× North America, Australia, Oceania	-0.568*	(0.320)
	× Central and South America	0.476***	(0.171)
Refugee	× Other EU	-0.260	(0.195)
	× Other Europe	-0.326***	(0.125)
	× North Africa	-0.645*	(0.368)
	× Other Africa	-0.738***	(0.167)
	× Middle East	-1.078***	(0.351)
	× Asia	-0.623***	(0.152)
	× North America, Australia, Oceania	4.327***	(0.295)
	× Central and South America	0.728	(0.643)

lable 3 – interactions total effect estimates for earnings equat
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migrants. For example, among migrants from Central and South America or Other Europe, student migrants are more likely to have higher earnings than other migrants, while among those from Other Africa and North America, Australia and Oceania, they are more likely to have lower earnings. Thus, full interaction models allow for joint effects of the origin and migration reason on earnings to be highlighted.

4.2. Estimations with a Selection Model

The results of monthly wage estimation with selection in employment are reported in Table 4. Similar to the baseline results, all migrant categories (including student migrants this time)

are significantly and negatively associated with higher monthly wages, compared to economic migrants (with a job at arrival). Taking into account selection in employment generally increases the magnitudes of the estimated coefficients of migration reasons compared to those of the baseline results. This suggests that selection might be an important issue to explain the chances of being in different earnings deciles.

Looking at the selection equation (that is, being in full-time salaried employment), we observe that the motive for migration impacts the selection process. While all motives are estimated to negatively impact the probability

Notes: The total interaction coefficients are calculated based on the estimates from interaction models in column 4 of Table 2 above. Only migrants (natives are excluded) aged 15-64, living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland), who were aged 15 or above at the moment of arrival in the host country at the age 15, and (of those employed) are employed full-time (excluding self-employed people) are included. Robust standard errors are in parentheses. * p<0.1, ** p<0.05, *** p<0.01. Source: EU-LFS 2014 ad hoc module.

of being employed in a full-time job, family migrants are the least likely to be so, whereas economic migrants without a job at arrival are the most advantaged (after those with a job on arrival) in terms of finding a full-time paid job. Refugees are also less likely to be employed full-time compared to economic migrants, but this difference disappears once the region of origin is controlled for.

However, there is one major limitation in these selection models. For each ordered probit, a

Wald test is run to check if the self selection is justified: it is justified if the residuals of both equations are significantly correlated. Here, taking into account selection is rejected in all models as reported in Table 4.¹⁹ There could be several reasons for the rejection of the selection models in this context, and firstly, there might

^{19.} We note that it is still valid to interpret the coefficients of both earnings equations even if the selection model is rejected; what we have to keep in mind is that the endogenous selection is rejected, but of course, there is an exogenous selection, which leads to similar estimates in both specifications.

	(1)	(2)	(3)	(4)		
Reason for migration (Ref. Economic migrant with job upon arriva	1)					
Economic without job	-0.326***		-0.301***	-0.393***		
	(0.032)		(0.031)	(0.069)		
Family	-0.422***		-0.415***	-0.391***		
	(0.069)		(0.057)	(0.084)		
Study	-0.240***		-0.203***	-0.449***		
	(0.071)		(0.063)	(0.123)		
Refugee	-0.661***		-0.624***	-0.641***		
	(0.090)		(0.080)	(0.176)		
Other	-0.304***		-0.339***	-0.581***		
	(0.063)		(0.058)	(0.099)		
Region of origin (Ref. EU15 and EFTA countries)						
Other EU		-0.330***	-0.333***	-0.461***		
		(0.044)	(0.043)	(0.071)		
Other Europe		-0.361***	-0.298***	-0.475***		
		(0.040)	(0.040)	(0.084)		
North Africa		-0.485***	-0.405***	-0.551***		
		(0.062)	(0.070)	(0.129)		
Other Africa		-0.356***	-0.277***	-0.248*		
		(0.047)	(0.048)	(0.133)		
Middle East		-0.474***	-0.335***	-0.218		
		(0.087)	(0.087)	(0.272)		
Asia		-0.483***	-0.444***	-0.346***		
		(0.046)	(0.047)	(0.103)		
North America, Australia and Oceania		0.335***	0.352***	0.365*		
		(0.091)	(0.091)	(0.191)		
Central and South America		-0.453***	-0.425***	-0.632***		
		(0.049)	(0.049)	(0.099)		
Individual controls	Yes	Yes	Yes	Yes		
Host country fixed effect	Yes	Yes	Yes	Yes		
Interaction (migration × region)	No	No	No	Yes		
Selection equation						
Reason for migration (Ref. Economic migrant with job upon arriva	1)					
Economic without job	-0.116***		-0.105***	-0.197**		
	(0.033)		(0.033)	(0.078)		
Family	-0.701***		-0.657***	-0.689***		
	(0.032)		(0.032)	(0.060)		
Study	-0.597***		-0.543***	-0.608***		
-	(0.046)		(0.046)	(0.093)		
Refugee	-0.746***		-0.678***	-0.261		
C C	(0.048)		(0.05)	(0.195)		
Other	-0.498***		-0.474***	-0.530***		
	(0.045)		(0.045)	(0.082)		

Table 4 – Earnings (decile) estimations with sample selection (Dependent variable: earnings decile, ordered probit with selection)

	(1)	(2)	(3)	(4)
Region of origin (Ref. EU15 and EFTA countries)				
Other EU		0.285***	0.190***	0.040
		(0.035)	(0.036)	(0.075)
Other Europe		-0.0613*	-0.0494	-0.308***
		(0.036)	(0.036)	(0.086)
North Africa		-0.568***	-0.528***	-0.385***
		(0.044)	(0.044)	(0.120)
Other Africa		-0.012	0.065	0.162
		(0.042)	(0.043)	(0.177)
Middle East		-0.311***	-0.184***	-0.266
		(0.062)	(0.064)	(0.214)
Asia		0.116***	0.166***	0.567***
		(0.039)	(0.039)	(0.102)
North America, Australia and Oceania		0.120	0.129*	0.486***
		(0.074)	(0.072)	(0.176)
Central and South America		0.065	0.077*	-0.159
		(0.042)	(0.042)	(0.1)
Exclusion variables	0.440***	0.400***	0.404444	0.400***
Presence of child in the household	-0.140***	-0.132***	-0.121***	-0.130***
	(0.024)	(0.023)	(0.023)	(0.024)
Any other adult working in the household	0.041	-0.009	0.018	0.017
	(0.031)	(0.031)	(0.031)	(0.031)
Marital status (Ref. Single)	Yes	Yes	Yes	Yes
Married	0.105***	0.072***	0.111***	0.123***
	(0.037)	(0.037)	(0.038)	(0.039)
Widowed, divorced, separated	-0.04	-0.089^^^	-0.027	-0.02
	(0.032)	(0.029)	(0.034)	(0.036)
	Yes	Yes	res	res
Host country fixed effect	Yes	Yes	Yes	Yes
Interaction (migration × region)	No	No	No	Yes
Wald test of indep. eqns. (rho = 0),	0.0545	0.4000	0 7704	0.0005
Prob > cni2	0.8545	0.1026	0.7701	0.8295
Number of observations	37,777	37,777	37,777	37,777

Notes: All models are estimated with the ordered probit method using probability weights, extended with selection model (*heckoprobit*). Only migrants (natives are excluded) aged 15-64, living in private households in an EU country (except Germany, Denmark, the Netherlands and Ireland), who were aged 15 or above at the moment of arrival in the destination country, and (of those employed) are employed full-time (excluding self-employed people) are included. Robust standard errors are in parentheses. * p<0.1, ** p<0.05, *** p<0.01. Source: EU-LFS 2014 ad hoc module.

be an issue about the validity of the exclusion variables: it is possible that they are not sufficient to isolate the selection mechanism. For example, the dummy for having children under age 15 could be a valid exclusion variable for women, but perhaps not for men. Similarly, the dummy for the presence of another working adult in the household or for the marital status might have an impact on the intensive margin of employment (e.g. hours worked), but it may still not be sufficient to identify the selection to explain the extensive margin (e.g. access to the job market).

Moreover, overall results are quite similar between Tables 2 and 4, implying that for most of these categories of migrants, selection (into being full-time employed) appears to be exogeneous as far as earnings are concerned.²⁰

4.3. Alternative Estimations for Occupation Groups by Skills

In order to test the validity of our results on a broader sample, we have estimated a similar model on a sample extended to self-employed migrants. In this case, as mentioned above, earnings deciles are not available for the self-employed, so we turn to another labour market outcome related to the job's qualification which we define based on ISCO occupation categories. We estimate the same model as previously, using the same explanatory variables, but changing the explained variable: the earnings deciles

^{20.} Similar to the baseline case, we ran post-estimation commands (lincom) after the ordered probit estimations with selection. While selection specification is rejected, the signs and significance of estimated coefficients are mostly the same as before (Table 3). The results are available in the Online Appendix.

are replaced by the ordered jobs' qualifications (low-, medium- and high-skilled occupations).²¹ Overall, earnings and occupation estimations are consistent with each other (the results are available in the Online Appendix).

* *

In recent years, the integration of migrants to the labour market has been taking an ever more important place in policy debates around the world. Having recently received large inflows of refugees, European countries are now facing the challenge of implementing migration and integration policies in a context of diverse political discourses and varying public opinion on the subject. When it comes to economic integration, however, it is often forgotten that differences exist between migrants, if only in their individual characteristics and aspirations. In this paper, we focus on reasons for migration together with region of origin to understand the differences in labour market outcomes for migrants in Europe. Given the data available, we only consider labour market outcomes and not social outcomes, but it is evidenced that the two are closely intertwined and that the former is a key predictor of the latter (Hansen, 2012). Using the recently available EU-LFS ad hoc module 2014, we analyse the economic integration of various migrant groups, broken down by reason for migration and region of origin.

Our analysis focuses on earnings (intensive margin), meaning that we go one step further than looking only at activity or employment rates (extensive margin). In the earnings equation, we also investigate the bias that might arise from selection into employment, since some individuals might not be employed in the first place and this could be linked to their migration motive or region of origin, among other reasons. However, we find that the selection model is statistically rejected, which is why we choose to estimate ordered models for earnings by controlling for a large set of individual characteristics and host country fixed effects.

Our results suggest that an economic motive for migrating and already having a job upon arrival is positively associated with higher earnings in the host country. However, our main findings highlight that the impact of the reason for migration should not be considered on its own; rather, it seems to also be highly dependent on the migrant's region of origin. For example, ceteris *paribus*, refugees and family migrants are more likely than other types of migrants to end up with lower monthly wage levels; however, this is the case for migrants from certain regions of origin only (e.g. Other Europe, Middle East or Asia). While these findings are similar to those from the literature (Cortes, 2004; Campbell, 2014; Akgüç, 2014), our paper goes further by analysing origin-specific aspects, with the estimation of interaction models. We also find that an economic motive for migration does not necessarily translate into better earnings. Actually, for certain regions of origin (e.g. Africa, the Middle East or Asia), these migrants seem to perform similarly in the labour market to non-economic migrants, such as family migrants and refugees. Our results also show some evidence of a similarity in earnings between student migrants and economic migrants with a job on arrival.

All in all, our results shed further light on the labour market integration of migrants by providing evidence from the most recent data (to date) in Europe. Our paper highlights the importance of 'reason for migration' and 'region of origin' in explaining where migrants lie in the earnings distribution. It also highlights how the two aspects, migration reason and region of origin, are interrelated to explain the differences in labour market performances amongst heterogeneous foreign-born populations. The results show clearly that migrants are not a homogeneous group, and that differences between them would call for diverse policy measures to improve their integration. However, some key migrant-receiving countries (e.g. Germany or The Netherlands) are missing from the sample, which is a limitation of this paper. Further research is thus needed to analyse in greater depth the underlying mechanisms to successful migrations.

Link to Online Appendix: https://www.insee.fr/en/statistiques/5396140/ES-524-525_Akguc-Welter_Online_appendix.pdf

^{21.} The EU-LFS provides one-digit occupation categories (nine in total, ISCO-08); based on the skill requirements in these categories, we generate three broader occupational groups, defined as low-skilled (groups 8 and 9), medium-skilled (groups 3, 4, 5, 6 and 7) and high-skilled (groups 1 and 2). The ISCO-08 groups are as follows: (1) Managers, (2) Professionals, (3) Technicians and associate professionals, (4) Clerical support workers, (5) Service and sales workers, (6) Skilled agricultural, forestry and fishery workers, (17 Craft and related trades workers, (8) Plant and machine operators and assemblers, (9) Elementary occupations. There is also a last category (0) for jobs in the Armed Forces (excluded from the estimations).

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