

Department of Economics and Statistics  
“COGNETTI DE MARTIIS”

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# Working Paper Series

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41/13

## WAGE ASSIMILATION: MIGRANTS VERSUS NATIVES AND FOREIGN MIGRANTS VERSUS INTERNAL MIGRANTS

STEINAR STRØM, ALESSANDRA VENTURINI and  
CLAUDIA VILLOSIO

Department of Economics and Statistics “Cognetti de Martiis”  
Campus Luigi Einaudi, Lungo Dora Siena 100A, 10153 Torino (Italy)  
[www.unito.it/de](http://www.unito.it/de)





# **Wage assimilation: migrants versus natives and foreign migrants versus internal migrants.**

**Steinar Strøm**

(University of Oslo and Università di Torino)

**Alessandra Venturini**

(Università di Torino, IZA, MPC, CHILD)

**Claudia Villosio**

(LABORatorio R. Revelli, Collegio Carlo Alberto)

## **Abstract**

### **BACKGROUND**

Italy is a country of recent foreign immigration with a long history of internal migration. Concerns about economic integration addressed in the past flows of southern natives to the north and now the international migrants, who are crucial in an ageing society.

### **OBJECTIVE**

This paper studies the assimilation pattern of foreign migrants in Italy by comparing wage profiles for foreign nationals with both locals and internal migrants. Possible causes of under-assimilation are analysed by controlling for macro economic conditions at entrance into the labour market and for labour market segmentation.

### **METHODS**

WHIP data are used to estimate a fixed effect model for the weekly wages of males aged 18-45. Controls for selection for return migration are introduced through a duration extension of the traditional Heckman correction term and alternatively through a hazard rate correction.

### **RESULTS**

The three groups of workers start their careers at the same wage level. But, as experience increases, the wage profiles of foreigners and the two groups of natives diverge. The analysis shows that the concentration of foreign nationals in “migrant intense sectors” is the primary reason for lack of assimilation. We also find positive selection in returns for foreign workers: the more skilled are more likely to leave Italy because of the lack of opportunities in terms of career upgrading.

### **CONCLUSIONS**

Under assimilation of foreign workers in the Italian labour market is essentially caused more by job segregation than by a lack of language knowledge and social capital endowment or by the macro economic conditions faced at entrance into the labour market.

JEL code: J31, J61, C23

Keywords: Migration, Assimilation, Wage differential, Return Migration

Correspondence author:

Alessandra Venturini - [alessandra.venturini@unito.it](mailto:alessandra.venturini@unito.it)

## 1. Introduction<sup>1</sup>

The populations of European countries, and Italy in particular, are ageing rapidly. This process, which has important consequences for the welfare systems and for labour markets, has moved the debate on migration from the role of migration flows in the labour market to the need for permanent foreign settlements to offset population decline. Consequently, migration policies have moved their programs from encouraging temporary migration as a means to reduce the economic and social costs of migration, to promoting foreign integration in the economy and in society.

Therefore, the assimilation of migrants, defined as disappearing differences between groups over time (Alba and Nee, 1997), and of policies that can be implemented to improve assimilation has gained strategic relevance in the migration debate, as a first step in the integration process. Understanding the mechanisms underlying assimilation is of the utmost importance for immigration policies whether they are at the *ex-ante* level (by selecting only those foreign nationals who have a high chance of integration) or at the *ex-post* level (by putting in place an effective set of assimilation policies which can be implemented after arrival).

In this paper we contribute to this debate by analysing the economic assimilation of foreign migrants in Italy. Italy is a country of recent immigration, but also a country with a long experience of internal mobility and, in particular, of emigration from the poor South to the wealthy North<sup>2</sup>. This study compares the wage patterns of three groups: foreign migrants (individuals born abroad); internal native migrants (individuals born in Italy but migrating in a different region to work); and native local workers (who work in their birth area). With this comparison we aim at providing new insights into the assimilation process<sup>3</sup>.

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<sup>1</sup> A different version of the paper has been published in the EUI-MPC working series.

<sup>2</sup> For a survey see Del Boca and Venturini 2005.

<sup>3</sup> The empirical economic literature mostly uses the rate of post-migration wage convergence between immigrants and natives as a measure of assimilation (see section 3). Some authors have analysed

To the best of our knowledge this type of comparison has not yet been exploited (in Italy or elsewhere) and it is highly relevant to policy. In fact, internal native migrants, unlike foreign immigrants, are supposed to know the language of the destination country, which has been shown by the empirical literature to be crucial for assimilation<sup>4</sup>. Moreover, internal native migrants should also share some of the social rules that apply in the destination country, so that they are not disadvantaged relative to local workers. Therefore, internal native migrants should be less disadvantaged than foreign migrants.

However, evidence on Italian internal native migrants, as found in novels, newspaper articles, movies and sociological research (for instance Fofi 1975 and Ascolani *et al.* 1974), presents a very different picture. At the time of unification in 1861, Italy was an extremely heterogeneous place, linguistically fragmented into sometimes mutually incomprehensible dialects and characterized, by a strong dualism between the wealthy Centre-North and the less developed South. These two areas of the country have been persistently characterized by two different types of social integration and economic development, so much so that the Centre-North and South of Italy can be viewed as two distinct countries (e.g. Mingione, 1993)<sup>5</sup>.

As a result internal Italian migrants were not so different from foreign migrants: they had to face bureaucratic tangles and discrimination in their everyday life (for instance when renting accommodation). As Pugliese (2006) stresses, they never

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immigrant assimilation by considering other indicators of labour market performance such as employment prospects (Husted et al., 2001; Amuedo-Dorantes & de la Rica, 2007; Venturini & Villosio 2008), unemployment (Bauer & Zimmermann, 1997; Zorlu & Hartog, 2012), job quality (Amuedo-Dorantes & de la Rica, 2007; Zorlu & Hartog, 2012; Chiswick & Miller, 2009, Fullin & Reyneri 2011), over-education (Lindley, 2009; Dell'Aringa & Pagani, 2011).

<sup>4</sup> For instance, Dustmann and Van Soest, 2002, Chiswick and Miller, 2012

<sup>5</sup> Different factors have contributed to this division. The north has been historically characterized by a stronger industrial structure and, more recently, by the development of the advanced tertiary sector. The south in contrast has been characterized by lack of industrial development, out-migration and high employment in the public sector. This dualism has been reinforced in recent decades and youth unemployment, black or irregular forms of employment and the insufficient provision of public and private welfare services have increased in the South.

properly integrated and they almost always had wages and positions below their ability.

Our aim is, therefore, first, to test whether *foreign* migrants and *internal native* migrants perform differently from local workers. Second, we aim to understand the reasons why these three groups perform differently by taking into account: the effect of the community of origin which might constrain assimilation; the labour market trends at the time of arrival, which might affect the possibility of finding more promising jobs; and, finally, the employment sector which might lead to segmentation.

The Italian administrative dataset on dependent employment (WHIP) is used to estimate a fixed effect model for the log weekly wage of males aged 18-45 with controls for selection in return migration and unobserved heterogeneity from 1985 to 2003. We have modelled the selection in return migration for foreign migrants through a duration extension of the traditional Heckman correction term and alternatively through a hazard rate correction.

Results from wage equations show that the three groups of workers start their careers at a similar wage level. However, as experience increases, the wage profile of foreign nationals diverges from the wage profile of natives, both internal migrants and locals. This result is driven by positive selection in returns, since foreign workers with lower wages are the most likely to remain in Italy. The under-assimilation of migrants does not depend on the macro-economic conditions at the time of entrance, but rather on labour market segmentation. Foreign migrants do not assimilate because they are employed in sectors that do not provide career options.

The present paper is divided into the following 6 sections: (i), a brief history of migration in Italy; (ii), a brief review of the assimilation literature; (iii), a description of the assimilation model used, which includes return migration; (iv), a description of the dataset and the variables used; and, (v), a section of results. A concluding section, (vi), closes the paper.

## **2. Historical background**

Foreign migrants started to choose Italy as a destination country at the end of the 1970s: after the first oil shock, Northern European countries adopted restrictive immigration policies and it became increasingly difficult to enter their labour markets. As with other Southern European countries Italy, thereafter, became increasingly important as a destination for migrants. Italy was first exposed to immigration from neighbouring areas (North Africa) and from Asia (mainly Filipinos) and Latin America. With the fall of the Berlin Wall, inflows also began from Eastern Europe (See Figure 1). By 2010, migrants represented 8% of the population in Italy<sup>6</sup>. The political debate in Italy initially focused on competition in the labour market between foreign nationals and natives.<sup>7</sup> However, the rapid ageing of Italian society (31% of the total population is 65 or older, one of the oldest populations in Europe) and the need for a permanent foreign population to alleviate the burden that ageing poses for the welfare state has moved the debate on the economic and social integration and the best policies to favour assimilation.

According to the most recent data (2012, ISTAT) 61.6% of foreign residents were located in the North while only 25% in the Centre and only 13% in the South and the

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<sup>6</sup> The share of foreign nationals over total population is 7.4% in Greece, 6.3% in Portugal and 14.5% in Spain (OECD, 2012). Figure 1 is derived from residence permits, which cover legal foreign nationals only. Undocumented foreign nationals were estimated to be about half a million in 2010, equal to 12% of the resident foreign population. This share is highly volatile and it is affected by recurring amnesties.

<sup>7</sup> The available empirical research shows that, in general, foreign nationals do not compete with natives in the Italian labour market (Gavosto *et al.* 1999, Venturini and Villosio 2006).

Islands. In general they had unskilled jobs, though in a few cases they had higher qualifications. Men usually worked in construction, in agriculture and in manufacturing, while women worked in family services and the services in general. A few women also worked in industry (2011, ISTAT).

Foreign migration is a relatively recent phenomenon. But Italy has a long tradition of internal migration from the less developed areas of the South, but also of the North East, to the richer areas of the North West: see Figure 2 which compares the magnitude of internal migration with foreign migration in the last thirty years<sup>8</sup>. Such internal migration flows characterized what has been called the Italian economic miracle (*miracolo economico*) that brought Italy into the first league of industrialized countries in the 1960s. Indeed, migration between Southern and Northern Italy was very important both in terms of dimension and duration. It declined steadily, from the 1970s onwards, despite a substantial increase in unemployment differential between the two areas.

After a period of decline, in the second half of the 1990s, internal migration flows acquired new strength, especially those towards the North East of the country.

Most of the studies on the determinants of internal flows in Italy found that differentials in *per capita* GDP and in unemployment were the main driving factors (Furceri 2006, Fachin 2007, Piras 2012). Faini *et al.* (1997), using a special edition of the quarterly Labour Force Survey, show that the fall in mobility levels during the 1980s in Southern Italy may have been driven by a combination of several factors: demographics; high mobility costs; and inefficiencies in the job matching process sufficiently strong to offset the influence of rising unemployment differentials.

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<sup>8</sup> Information on internal migration can also be derived from the ISTAT Local registers which report the change of residency. However, these are only flow data and have no labour information. Hence they are not suited for any assimilation study. We overcome this problem by using the WHIP – Work Histories Italian Panel, based on social security data – which enables us to discriminate between workers on the basis of their place of birth.



Attanasio and Padoa Schioppa (1991) point to the role of mismatches in the labour market as possible explanations for the coexistence of low mobility and high unemployment in the South. Cannari *et al.* (2000) show that the North-South housing price differential was a notable factor in the internal mobility slow down. Using information on residency change, as reported by local registers, Piras (2006, 2007) shows that the propensity to emigrate increases with education level, and that there is evidence of brain drain from the South. Finally, Mocetti and Porello (2010) find that the recent increase in South-North flows have also been affected by the reduction in public sector employment, traditionally one of the most important employment opportunities in the South, and by the decrease in the North-South housing price differentials.

Some authors have analysed the role played by foreign immigration in South-North internal flows. Brücker *et al.* (2011) find that foreign immigration has replaced internal native mobility in Italy; Mocetti and Porello (2010) find that immigrant concentration in the northern regions has partially substituted the traditional South-North mobility of less-skilled natives<sup>9</sup>.

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<sup>9</sup> Gabrielli *et al.* (2007) also investigated the mechanisms that link internal migration and fertility in Italy.

### **3. Wage assimilation literature: an overview**

The economic literature on the wage assimilation of immigrants began with the pioneering work of Chiswick (1978) and the seminal contributions by Borjas (1985b) and La Londe and Topel (1992): all these studies were based on the US Census. The over-assimilation initially found (Chiswick 1978, using a single census) was attributed to the positive self-selection of migrant workers: that is, they were selected among those who were more entrepreneurial, more talented and less risk averse. The later under-assimilation of immigrants found by Borjas (1985b) in the US was attributed to the lower quality of the most recent cohorts.

The differing quality of cohorts at the time of immigration may be due to various factors: changes in immigration policy, so that individuals with different characteristics are selected; different economic conditions in the destination country, which alter the nationality mix of immigrants and thus gives rise to changes in their productivity; and changes in the composition of the cohorts due to non-casual repatriation. The same result of under-assimilation was reported by La Londe and Topel (1992), and it was attributed to a deterioration in the economic conditions in the destination country at the time of arrival, and to the reduced career prospects for migrants. This debate is conditioned by a series of methodological problems that arise when using the US Census and that can be solved only with longitudinal data. The study on true longitudinal data conducted by Lubotsky (2007), however, offers a similar conclusion: immigrant wages increase by about 10-15% in the first 20 years in the US, but not enough to offset the 35-40% immigrant/native wage differential. Assimilation is a function of immigrants' human capital: while college degree immigrants earn 30% more than average natives, immigrants who arrive with low schooling levels never attain the average native earning levels (Card 2005).

Economic assimilation research in Europe started a little later and has been mainly based on national panel data.

In Denmark, Nielsen *et al.* (2004) found that wage assimilation increased for foreign nationals with employment assimilation, emphasizing the role of human capital acquisition on the job. Kee (1994), for the Netherlands, concludes that one of the causes of the lack of assimilation of foreign workers is that only a few immigrants continue their studies in the receiving country. Also Grainer and Marciano (1975) using 1968 French census data in a descriptive way, reached the same conclusions. They suggest that the lower average wages for foreign nationals with a nuclear family is mainly due to lower investment in human capital, which, indeed, varies substantially across ethnic groups.

In addition to the role of immigrant's *education and human capital* before and after arrival (for a recent review see Dustmann and Glitz 2011), the European literature on economic assimilation has highlighted the role played by *proficiency* in the language of destination. Chiswick (1991) found that knowledge of the native language was crucial for assimilation into the British labour market. This was, then, confirmed by Shields and Wheastley Price (2002), and also by more recent studies by Dustmann and Van Soest (2002), Dustmann and Fabbri (2003), Haley and Taengnoi (2011) and Chiswick and Miller (2012).

Other relevant variables in explaining different patterns of economic assimilation include the *labour market situation*, which determines workers' future prospects: i.e. the business cycle upon arrival and the effect of technological innovation. Rosholm *et al.* (2006) found that, between 1985 and 1995, job opportunities in both Sweden and Denmark, for male immigrants, deteriorated due to increased demand for workers with high communication skills.

Additional factors affecting the assimilation process include migrant *networks* and

*communities* (Borjas 1992 and 1995, Cutler and Glaeser 1997, Hatton and Leigh 2011). On the one hand, a migrant network can exert a positive effect by favouring job search and job matching. But, on the other, it can have a negative effect. It can reduce social integration, interaction with natives and the acquisition of knowledge in the host country's language and informal life rules (see e.g. Chiswick 1991, Dustmann and van Soest 2002, Dustmann and Fabbri 2003, Shields and Wheatley Price 2002, Danzer and Yaman 2013). Consequently, policies to discourage the agglomeration of immigrants in particular areas, have been adopted in some countries. However, Husted *et al.* (2001) have shown that the distribution of refugee immigrants all around the country seems to be less efficient in integrating foreign nationals than previous agglomeration models.

Finally, assimilation also depends on the characteristics of immigrants who remain in the destination country. As Borjas (1985a), Borjas and Bratsberg (1996), Dustmann (2003), Dustmann and Weiss (2007), Mayr and Peri (2008) and Dustmann *et al.* (2011) stress in their articles on the return decisions of migrants, foreign workers who remain in the destination country may be disproportionately drawn from the lower or the higher tail of the group's skill and wage distribution. They may represent the "best and brightest" or the "worst and dimmest" of their initial group. In fact, the migrant may decide to return if the migration project fails or, in the opposite case, if the migration project is very successful and if it allows the migrant to return home and to start a business there. If those who remain are the best, the empirical estimates of assimilation will be biased upwards (over-assimilation). Alternatively, if those who remain are the worst, the estimates will be biased downwards (under-assimilation). In both cases they are inconsistent. In this literature, the modeling of "the re-migration decision" – as Dustmann (1996, 2003) terms it – is used as a first step to control for the selectivity of assimilation. The

return decision function is then introduced into the wage equation to analyze assimilation.

Dustmann (2003), Constant and Massey (2003) and Fertig and Schurer (2007) modeled the return decision as a migration decision function of the income differential. They used family ties as instruments for the identification of the selection equation. However, de Haas & Fokkema (2011) have found that social ties with sending countries were not significant in the return intentions of African immigrants in Spain and Italy. Recent research on return migration and return migration policies focus more on the role played by economic prospects in the countries of origin in attracting migrants back home: e.g. Cassarino (2007) for the Maghreb areas; Mansoor and Quillin (2006) for many European and Central Asian countries; and Venturini and Villosio (2008) for migrants in Italy.

#### **4. The assimilation model and return migration**

The assimilation model used in this paper is the traditional human capital model adopted by Chiswick in 1978. We explicitly include measures of human capital acquired on the job and out of the job and control for selection in return migration.

The dependent variable is the individual **log** weekly wage [ $Y_{it}$ ] which depends on individual fixed effects [ $\alpha_i$ ], individual time variant human capital variables [ $x_{it}$ ] and a worker's job characteristics [ $z_{it}$ ]. In addition, we control for different **economic cycles** [ $m_{rst}$ ], which affect both the region [ $r$ ] and the sector [ $s$ ] where the workers are employed and for the size of the migrant's network [ $c$ ] in the destination area [ $k_{crt}$ ].

As already anticipated in the previous section, we need to control for possible selection in return migration. If a systematic link between the decision to stay and labour market outcomes can be safely assumed then a fixed effect estimate is

sufficient to eliminate the bias. Otherwise, if the link is not systematic, we need to proceed in two stages, since fixed effect estimates may give unreliable parameter estimates.

We thus explicitly model the immigrants' decision to leave the host country, by following two different innovative strategies.

First we abandon the use of a "static" Heckman correction that implies that in each period the migrant decides whether to stay or to leave without memory of his previous experience<sup>10</sup>. We, instead, follow the dynamic approach of Dustmann (2003) and we extend the Constant and Massey (2003) time event-history analysis which describes the return decision as a function of the years since migration. We model a "duration version" of the Heckman correction<sup>11</sup> as follows.

Assume that the log weekly wage equation has the following form:

$$(1) \quad Y_{it} = f(x_{it}, z_{it}, m_{rst}, k_{crt}; a_i) + \eta_{it}$$

where  $f(\cdot)$  is a function of the variables and effects mentioned above and  $\eta_{it}$  is normally distributed with zero mean and it is independent from the variables and effects inside  $f(\cdot)$ . Let  $T_{is}$  be the individual's length of stay in the destination country, given that the individual arrived in year  $s$ . (To this end we suppress the subscript  $i$  which accounts for the fact that  $s$  varies across individuals  $i$ ). We assume that  $g(T_{it+s}) = q_{it}\gamma + \varepsilon_{it}$ , where  $\varepsilon_{it}$  is normally distributed with zero mean and variance  $\tau^2$ ,  $g$  is a suitable monotonic increasing transformation and  $t+s$  is the year when the wage is observed. Note that  $\varepsilon_{it}/\tau$  is normally distributed  $(0,1)$ .  $q_{it}$  are some observed variables that will be explained below. We assume that  $\eta_{it}$  and  $\varepsilon_{it}$  are normally

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<sup>10</sup> What we call a static Heckman correction was employed in Venturini and Villosio (2008) and used by many including Fertig and Schuler (2007).

<sup>11</sup> The Heckman correction term using a duration approach was implicitly applied by Constant and Massey (2003), but it was not explicitly modeled.

**jointly** distributed. We assume that the time of arrival is uncorrelated with  $\eta_{it}$ . Let  $\phi$  denote the p.d.f of the standard normal distribution and let  $\Phi$  be the corresponding c.d.f. We only have wage observations for those who are still in the country in year  $t+s$ . As mentioned already, we shall derive a duration version of Heckman's procedure (Heckman, 1979) to control for possible selectivity bias.

To do so, note that due to the normality assumption we can write  $\eta_{it} = \rho \varepsilon_{it} + v_{it}$ , where  $v_{it}$  is normally distributed and independent of  $\varepsilon_{it}$ , and where  $\rho$  is the correlation coefficient. Let  $1\{ \}$  denote the indicator function. We then get for any real number  $a$  that:

$$(2) \quad E(\eta_{it} 1\{\varepsilon_{it} > a\}) = \rho E(\varepsilon_{it} 1\{\varepsilon_{it} > a\}) = \tau \rho E\left(\frac{\varepsilon_{it}}{\tau} 1\left\{\frac{\varepsilon_{it}}{\tau} > \frac{a}{\tau}\right\}\right) = \tau \rho \int_{a/\tau}^{\infty} x \phi(x) dx = \tau \rho \phi\left(\frac{a}{\tau}\right)$$

From (2) we then get the inverse Mill's ratio

$$(3) \quad E(\eta_{it} | \varepsilon_{it} > a) = \tau \rho \frac{\phi(a/\tau)}{\Phi(-a/\tau)}$$

Consequently, it follows that

$$(4) \quad E(\eta_{it} | T_{sit} > t+s) = E(\eta_{it} | g(T_{sit}) > g(t+s)) = \tau \rho \frac{\phi\left(\frac{g(t+s) - q_{it} \gamma}{\tau}\right)}{\Phi\left(-\frac{g(t+s) - q_{it} \gamma}{\tau}\right)}$$

The  $q_{it}$  are macro-economic variables of the countries of origin as attractors for migrants who go back home (GDP growth in origin country)<sup>12</sup> and of other possible destination countries (GDP growth in other preferred destination countries) as measures of job opportunities in other countries. Note that the selection term is the conditional expectation of the error term in the log wage equation, conditional on the length of stay  $T_{it+s}$  being at least as long as the length of time from arrival in the

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<sup>12</sup> The attempt to introduce income dispersion in the origin country to capture the different income opportunity has been abandoned because time series income dispersion data are not available. Both [http://www.wider.unu.edu/research/Database/en\\_GB/wiid/](http://www.wider.unu.edu/research/Database/en_GB/wiid/) and Freeman and Osterdoorp <http://www.nber.org/oww/> have been used by Belot and Hatton (2012) and Grogger and Hanson (2011) not in time series.

country to when the wage is observed. From (2) we then get that  $t+s$  enters the correction term. In estimating the log weekly wage equation we account for the possible selection by employing this duration version of the inverse Mill's ratio.

The alternative method used for controlling the migrants' selection is the use of a proportional hazard rate function  $\mathbf{h}(t)$  for the probability of leaving the host country at time  $t$  conditional on surviving to time  $t-1$ <sup>13</sup>. The proportional hazard rate model assumes that the covariates have a multiplicative effect on the hazard rate function, given the values of the covariates and the respective survival time ( $t$ ). The reason for employing the hazard rate function is that it is an alternative specification for a selection term which also accounts for duration effects.

$$(5) \quad h(t_i) = h_0(t)g(q_{it})$$

where  $h_0(t)$  is the baseline hazard function, the hazard for the individual when all independent variable values are equal to zero, and  $g(q_{it})$  is a function of the covariates.

The log weekly wage equation (1) is thus augmented by a selection term for return migration, giving origin to:

$$(6) \quad Y_{it} = \alpha_i + x_{it}\beta + z_{it}\delta + k_{crt}\xi + m_{rst}\eta + \lambda_{it}\omega + \varphi_r + \phi_s + \varepsilon_{it}$$

where  $[\lambda_{it}]$  is the duration version of the inverted Mill Ratio that capture selection when the selection model (4) is used; or the log of the hazard rate when the selection

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<sup>13</sup> Similarly Kirdar (2009) adopts a hazard rate function to inquire into the effect of saving in the decision of return.



model (5) is chosen (note that in the first case  $\omega = \tau\rho$ );  $[\varphi_r]$  are region fixed effects,  $[\phi_s]$  are sector fixed effects and  $[\varepsilon_{it}]$  is an idiosyncratic error component. Note too that there are fixed effects in the wage equation, but not in the selection terms.

## 5. Dataset, variables used and first descriptive statistics.

The only longitudinal dataset which enables distinctions between foreign migrants, internal native migrants and native locals is WHIP – *Work Histories Italian Panel*, a database of individual work histories based on Italian social security (INPS) archives<sup>14</sup>. In this paper we restrict our analysis to the WHIP section concerning dependent employment in the private sector, a longitudinal linked employer-employee database that combines individual and job characteristics from 1990 to 2003<sup>15</sup>. Thus, public-sector employees (17% of total employment), self-employed workers (22%)<sup>16</sup>, workers in the agricultural sector (5%) and domestic workers (4.8%) are not included in our study.

To deal with these limitations we also exclude women from our analysis since they are largely employed in the public sector (natives) and in the family services (foreign nationals). Moreover studies on family migration describe female migrants as followers in the migratory process and as secondary workers<sup>17</sup>. Furthermore, we have restricted our focus to male workers aged 18-45 in order to compare foreign nationals with the most homogeneous group of Italian workers.

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<sup>14</sup> Developed at the LABORatorio R. Revelli (more information can be found at [www.laboratoriorevelli.it/whip](http://www.laboratoriorevelli.it/whip)). For a description of the dataset, its strengths and weaknesses for the study of migration issues see Venturini and Villosio (2008).

<sup>15</sup> There is no attrition because it is compulsory for firms to provide information about their workers to INPS.

<sup>16</sup> These two limitations are not very relevant for foreign nationals, who are rarely employed in the public sector; nor do they belong to the professions, which usually employ natives.

<sup>17</sup> This feature is not limited to foreign immigrants alone but it is also a characteristic of native immigrants: the booming manufacturing industry of the North attracted first southern males and their families followed later. Thus, expecting different motivations and behaviour between male and female migrants, we concentrate our analysis on the male component only.

The dataset has, however, some important limitations. The main weakness is the lack of an *education* variable. Though for both native locals and internal migrants we might expect that age and skill level would proxy the education level, for foreign migrants these two variables are unfortunately not enough, given the high degree of over-qualification of migrants found in the Italian labour market (Dell’Aringa and Pagani 2011). However, the number of years spent at school has always been a weak indicator of the productivity of a worker given that education quality is very difficult to compare, both within a country and across countries, as Razin and Wahba (2011) have shown<sup>18</sup>.

In addition the dataset does not provide information on the *time of arrival* of foreign immigrants. However, given that our sample is restricted to working age men, thus migrating for working purposes, we can safely proxy the time of arrival with their first legal enrolment in the WHIP dataset.

Within this dataset we can distinguish three different types of workers: locals, internal native migrants and foreign immigrants.

1. ***Locals***: workers who are mainly employed in their birth area;
2. ***Internal native migrants***: workers born in Italy who are employed in a geographical area different from the area of their birth;
3. ***Foreign migrants***: Workers born abroad.

To identify internal native migrants we used four macro areas of origin and destination (North West, North East, Centre and South), in order to avoid, as far as possible, counting commuting workers as internal migrants. By concentrating on

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<sup>18</sup> Since we employ a wage fixed effect model, we cannot use the Hanushek and Woessmann (2009) measure of cognitive differences, which is not in a time series and will disappear in the assimilation equation.

changes in these macro areas in the identification of internal migrants, we are in line with the Italian perception of internal migrants as only long-distance migrants.

Foreign workers were selected by using place of birth: the dataset did not contain information on nationality. Only workers born outside Europe and the main industrialised countries were chosen, in order to avoid counting Italians born abroad as immigrants. Workers born in Argentina, Brazil and Venezuela<sup>19</sup> were also excluded, because those are countries with high Italian emigration and with large return migration flows from Latin America.

The variables in the dataset allow us to control for the **age** of the worker, **gender**, **type of contract** (open-ended, fixed-term, part-time), the **skill level** (blue-collar, white-collar, highly-skilled white-collar, manager), **firm size**, **sector of economic activity**, and **territorial area**. We use the data to construct measures of the workers' human and social capital [ $x_{it}$ ] and of the migrant community [ $k_{crt}$ ].

The accumulation of human and social capital can take place both in and out of employment. Periods in employment allow the accumulation of specific human capital while periods out of employment can be devoted to education, employment in sectors not covered by the dataset, unemployment, irregular employment and, for foreign nationals, temporary home returns. Therefore, out-of-employment spells may play a different role in the assimilation process depending on whether the worker is native or foreign. For natives the periods of non employment could affect wages negatively, representing a depreciation in the human capital accumulated before. For foreign nationals, instead, the effect periods out of the job has on wages is more uncertain because they could acquire additional human capital in the underground economy or more general social capital outside the labour market.

The migrant **community in the destination** area is captured by the share of the migrant worker community (nationality for foreign migrants and region of birth for

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<sup>19</sup> Procedure adopted for the first time in Gavosto *et al.* 1999 and also by Natale *et al.* (1999).

internal native migrants) over total regional employment. Its effect can be positive by favouring employment and social integration or negative by reducing it. We cannot control for the tenure of members, nor for any active role played, thus it captures the congestion effect more than the network effect<sup>20</sup>.

Even if we do not exactly know their destination when leaving, it is likely that most foreign nationals move home or at least abroad<sup>21</sup>. In order to capture the **factors that pull migrants exiting** we include in the selection function variables related to the annual GDP growth in the country of origin, and a weighted index of GDP growth in all the alternative preferred destinations. This last variable is obtained by weighting the annual growth rate of Real GDP *per capita* in the main destination countries (excluding Italy) by the annual flows of migration in those countries (see Appendix A for details and values). In addition, we include in the return equation the duration of stay in Italy as the sum of spells in and out of employment.

The data on prime age males show that internal migrants on average earn 6-10% more than locals in all periods (see Figure 3). However, this difference is never statistically significant. Instead, the wage differential between foreign workers and either locals or internal native migrants is always significant and has increased since 2000. In 2003, foreign wages were, on average, about 75% of those of locals and about 70% of those of internal native migrants.

Such wage differentials are, in large part, due to the different characteristics of workers in the three groups (Table 1). Foreign migrants are younger than local

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<sup>20</sup> Anderson *et al.* (2009) shows that both the quantity and the quality of enclaves matter in the wage upgrade of foreign nationals. Hatton and Leigh (2011) stress the long-term effect of the community variable, and even employ ten-year lags. However, as migration in Italy is quite recent, we had too few observations to use such long lags.

<sup>21</sup> Even if, over the short run, they transit into unemployment or irregular jobs, if they are unable to find a legal job again, over the medium term they will leave the country (Dustmann 1996, Venturini 2007 for an overview).

workers, who are younger than internal native migrants. In fact, South-North migration mainly took place after the Second World War, while foreign migration is much more recent (cfr. section 1). Internal native migrants are more present in the large and very large firms which dominated Italian development during the 1960s; conversely foreign migrants are concentrated in small firms, which, instead, dominated economic development during the 1980s and 1990s. Internal native migrants are mainly employed in the North West, a booming Fordist industrial area, which attracted workers from all over the country during the 60s. Foreign workers are concentrated not only in the North West, but also in the North East, the area which boomed during the 1980s and 1990s. Blue-collar employment dominates in all groups, but for foreign immigrants it represents over 90% of total employment. Finally, foreign immigrants are over-represented in the construction sector.

## **6. Results**

### **6.1 Return migration**

According to our model, the first step in the empirical analysis is the estimation of the return migration of foreign immigrants, modelled both with a duration version of the Heckman correction and through a hazard function.

The selection process is more likely for foreign nationals, while internal native migrants are like locals in this respect<sup>22</sup>. The hazard ratio of exiting definitively dependent employment for male workers aged 18-45 computed on our dataset is 0.5 higher for foreign nationals than the hazard for locals and internal native migrants. This is so even when individual, job and career characteristics are controlled for (see Table 2). The stronger effect of selection among foreign immigrants, rather than among natives, require a control for the selection bias in the wage equation. The

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<sup>22</sup> The gross emigration rate out of Italy is around 0.1 percent *per annum* during this period (Bonifazi *et al.*, 2009).

empirical results will show whether or not migrants are self selected, i.e. if they are the best or the worst in terms of unobservable skills and abilities.

The results when employing the duration extended Heckman selection function as in (4) show that the probability of leaving for immigrants increases with their presence in the host country. This is captured by the variable months spent in employment and out of employment showing both a positive sign (Table 3, i).

Similarly, the results from the hazard rate version of the selection process (see Table 3, ii) show that the probability of leaving increases the longer the migrant is in the country. The hazard model was estimated by assuming  $h_0(t)$  to be a Weibull distribution<sup>23</sup> thus assuming  $h_0(t)=pt^{p-1}$ . The value of the shape parameter [p] estimated from the data was greater than 1 ( $p=1.64$ ). This means that the hazard of failure increases over time. This result confirms the negative duration dependence already found with the Heckman approach, and, therefore, the temporary character of the migration project and the appropriateness of the choice of a hazard model for the selection equation.

Both models also suggest that economic growth in origin countries attracts emigrants back. Similarly, economic prospects in countries which represent other possible destinations positively affect the probability of immigrants leaving Italy.

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<sup>23</sup> Very similar results are also obtained without imposing  $h_0(t)$  to be a specific distribution, following the Cox partial likelihood estimation.

## 6.2 Assimilation results

The second step in the analysis is the estimation of the wage assimilation equation augmented, for foreign nationals, by the selection term for return migration.

The equation is estimated by an OLS fixed effects estimate<sup>24</sup> to control for unobserved heterogeneity among individuals (results reported in Table 4).

As expected no striking differences are found among the three groups of workers. The Italian labour market is, in fact, quite closely regulated and collective agreements cover both unionised and non-unionised workers. However, since the 1993 Income Policy Agreement, wage variability has increased because firms are allowed to adjust their wage structure according to their economic performance and to local labour market conditions (Devincenti *et al.* 2008).

Starting from the selectivity control, the Inverse Mills Ratio coefficient (significant at 5% level) as well as the log hazard rate<sup>25</sup> (significant at 1% level) indicates a positive correlation between the error terms in the return decision and the wage function. Thus, the higher the expected weekly wage, the higher the probability of leaving: the unobservable worker characteristics that positively influence the wage of migrants, negatively influence their decision to stay in Italy. All things being equal, the “best and brightest” foreign workers are more likely to re-migrate out of Italy, while the less skilled are less likely to abandon the host country. This result suggests that the main factor driving foreign re-migration out of Italy is the lack of opportunities and/or low employment wages<sup>26</sup>. The positive selection in the return migration was already highlighted in Venturini and Villosio (2008) using the “static” Heckman correction and it is not unusual in the literature. It was found, for instance, by Constant and Massey (2003) in their analysis of guest-workers in Germany in

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<sup>24</sup> Note that, given our sample selection as explained in section 1 and the type of estimation described in section 2, the time invariant individual characteristics  $h_{its}$  in the equation are eliminated.

<sup>25</sup> Since the average hazard rate is  $>1$  (see table 2) the log hazard rate is on average positive

<sup>26</sup> In light of these results, the lack of information about the family in the origin countries for the estimation of the selection function looks less relevant as also pointed out by de Haas and Fokkema (2011).

1984; by Fertig and Schurer (2007) in some cohorts of migrants who arrived in Germany between 1969 and 1973; by Rooth and Saarela (2007) among Finnish return migrants from Sweden and by de Haas and Fokkema (2011) who found a positive effect of education on the return migration intentions of Africans in Italy and Spain.

All the human capital variables are significant with the expected sign. The age variable is more important for locals, even if it declines at a higher rate, followed by internal native migrants and foreign migrants, while experience on the job is more important for internal migrants than for the other two groups of workers and declines at a very low rate for foreign migrants.

Periods spent out of employment have a negative effect (as found by Edin and Gustavsson 2008) only for local workers' wages. They are not significant for internal native migrants, nor, indeed, for foreign ones as in Venturini and Villosio (2008) and Husted *et al.* (2001).

Dynamic on the demand side helps explain the wage growth of the three groups of workers in different ways. Growth in the local value added<sup>27</sup> pushes up the wages of all groups, foreign migrants being most sensitive to these changes; regional unemployment, on the other hand, affects only the local workers wage.

Last, but not least, the community variable is significant and negative for foreign and internal native migrants, which stresses a negative agglomeration effect. This is not an unusual result: for instance, Hatton and Leigh (2011) and Danzer and Yaman (2013) found a negative sign for the community variable in the UK. Given that our community variable represents the size of the community of workers coming from the same area, the negative result points to a supply effect: the network probably favours the job search, but not the career upgrading in a segmented labour market<sup>28</sup>.

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<sup>27</sup> Change in the log value added by sector and region

<sup>28</sup> Interesting is the result of Anderson *et al.* (2009) where the network plays a positive role, if its



In order to facilitate the comparability of the results, we have estimated the effect of human capital variables on wage growth for the three groups of workers, based on the estimates presented in Table 3. These are calculated for a “standard individual” who entered the labour market at the age of 16, employed as a blue collar worker in a small firm of the manufacturing in the North West of Italy. Estimated wage growth for foreign nationals includes also return migration effects. Figure 4 illustrates the wage assimilation profile for the first 13 years spent in Italy: foreign male migrants never assimilate with internal native migrants or with locals. The profiles of locals and internal migrants are not statistically different from each another, while they *are* statistically different from those of foreign migrants. A test for common coefficient restrictions was run on a pooled regression of (a) internal native migrants and locals, (b) foreign immigrants and locals. The null hypothesis that all the coefficients for internal migrants and foreign migrants are zero was accepted for internal migrants and rejected for foreign nationals<sup>29</sup>.

To the best of our knowledge, our approach and the corresponding results are the first to address the assimilation of internal native migrants. Although this issue has been discussed in the sociological literature, it has never been empirically tested with a large dataset. What is more, the empirical results contradict the main conclusions of sociologists - e.g. Pugliese (2006), Paci (1973) and Fofi (1975) - who stress the slight economic and social assimilation of internal native migrants. Our results suggest, instead, that internal migrants are assimilated in economic terms. However, our results are not conclusive in terms of social assimilation, which needs to be further researched.

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members are well assimilated and have a high probability of being employed.

<sup>29</sup> Test of the comparison between native immigrants and locals:  $F(1,356376) = 0.58$ ,  $\text{Prob} > F = 0.4481$ ; test of the comparison between foreign immigrants and locals:  $F(1,323473) = 6.00$ ,  $\text{Prob} > F = 0.0143$

As Figure 4 clearly shows, workers in the three different groups start their career at the same wage level. However, as experience increases, the profiles of foreign migrants and the two groups of natives start to diverge. The wage gap is about 11% after 5 years of experience in the labour market and more than 18% after 10 years of experience<sup>30</sup>.

Research in Italy has already shown that migrants do not assimilate to natives: see Venturini and Villosio 2008 who use the same dataset; Fullin and Reyneri 2012 and Dell'Aringa and Pagani 2011 who employ several years of the Labour Force Survey; Accetturo and Infante 2010 who analyse immigrants' earnings in the Lombardia region. However, few explanations of the differential can be found in these studies.

The increasing differences between the wage profile of locals and foreign nationals cannot be imputed to the initial differences in language and social capital. In fact no differences are found at the entrance in the labour market. The gap, instead, widens with the time spent in the country, even if migrants likely improve their language skills and increase their social capital in the destination area. In addition, the selection of migrants who remain in Italy certainly plays a role as they appear not to be the "best and brightest".

In the following paragraphs we try to give some possible explanation for the under-assimilation of foreign nationals with respect to both locals and internal native migrants.

First of all, since the internal native migration is older than foreign migration to Italy, we analyse the role played in the assimilation by the different time of entrance in the labour market. Second, we investigate if Italian labour market segmentation and in

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<sup>30</sup> Note that the graph in Figure 4 does not include the effect of periods spent outside employment, which have a negative effect on native wages but which do not penalize native and foreign migrants.

particular the concentration of foreign nationals in specific jobs is a possible reason for their under-assimilation.

### **6.3 Macro-economic conditions at entrance and assimilation**

The literature has already pointed out the importance of the phase of the business cycle migrants face when they arrive for their labour market prospects in the host country (see for instance Bratsberg *et al.* 2006).

It is even more important in the case at hand. Native locals enter the labour market throughout the whole period under scrutiny; foreign nationals arrived in the late 1980s; while a large share of internal native migrants did so in the 1970s. Of course, age and experience capture the human capital embodied by the worker and the macro variables included in the estimation capture the effect on the observed wages of the business cycle in different regions and sectors. But, in order to control more carefully for the macro economic conditions faced by the three groups at the beginning of their career, we selected a subsample of native and foreign workers entering the labour market in the same two years: 1991 and 1992. We, then, followed their assimilation patterns.

Table 6 sets out the results. Better controls for the business cycle do not change the picture. As in the general case, the selection for return migration is positive, the age variable has a higher impact on wages for locals and the experience variable for internal native migrants. Hence foreign migrants never catch up. The macro and community variables exert the effect found in the general case.

Comparing the results on assimilation in the subsample of the entrants in 1991-92 with the overall sample results, we find a similar non-assimilating profile between foreigners and natives, and a very similar profile between internal native migrants and locals (Figure 5). However, contrary to the general results, a wage differential

between the three groups emerges at entrance to the labour market too. For foreign migrants the gap with locals is 15% at entrance, rises to 23% after five years of experience, and reaches 26% after 10 years of experience. For internal native migrants the gap with locals is about 8% at entrance, but it vanishes after 10 years of labour market experience.

The results seem again to show that the accumulation of human capital matters more for internal native migrants than for foreign nationals. Furthermore, macro conditions at the time of entry to the labour market cannot alone explain the under-assimilation of foreign immigrants.

#### **6.4 Segmentation and assimilation**

The Italian labour market is highly segmented and foreign workers are largely concentrated in low-paid and low-quality jobs even when highly-educated (Fullin and Reyneri 2011): this is in contrast with the experience of U.S, Canada and U.K. with their relatively flexible labour markets and a long tradition of migration. Understanding the role of labour market segmentation in the assimilation pattern is particularly policy relevant given that many southern European countries, which share with Italy the segmented nature of the labour market, were the preferred destination of most recent migration flows.

To disentangle the role of segmentation we look at the type of jobs held by workers at the beginning of their career and at the possibility of upgrading the skill match through occupation mobility. We divide locals and foreign nationals between those starting their observed career in sectors with a high density of foreign workforce (the majority of foreign workers) and those starting in different sectors. Moreover, we look at the wage profiles of workers who enter and spend most of their career in

“migrant jobs” separately from those who are able to move, at a certain point of their career, to a different job.

For this analysis we exploit the information present in WHIP about the sector of economic activity of the firm, which is detailed at the three-digit level (more than 160 different sectors). This allows us to characterise jobs with great precision. We compute the average share of foreign workers from 1990 to 2003 in more than 160 jobs identified by the combination of three-digit sector and blue collar occupation<sup>31</sup>. The variability in this share is very high. There are sectors in construction and manufacturing where the share of foreign workers is over 30%, even reaching 60%, while the presence of immigrants is almost zero in many sectors of the services. We define “migrant jobs” as those 47 sectors out of 160 in which the share of foreign employment is 1.5 times the average share: i.e. higher than 15%<sup>32</sup>. These sectors employ 70% of the foreign workers of our sample, while, on the contrary they employ fewer than 40% of internal native migrants and 30% of locals (Table 7). Both internal native migrants and locals in “migrants’ jobs” earn on average 25% less than corresponding workers employed in other sectors; the local-foreign wage differential in “migrant jobs” is reduced to 4% from the average 12% reported in table 1.

In addition to being low-paid, “Migrant jobs” represent a trap for most foreign immigrants. In fact, most foreign nationals spend their entire working career in these jobs and will never move to a different one (58%), while this happens for 26% of internal native migrants and only 19% of locals.

If we compare the wage profiles of foreign migrants, internal native migrants and locals who spend their entire (observed) working career in such jobs, we find that they are almost similar (Figure 6, Figure 7 and Table 10). When locals and internal native migrants are confined to “migrant jobs”, the accumulation of experience has

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<sup>31</sup> As already pointed out, more than 90% of foreign workers are employed in blue collar occupations (see Table 1).

<sup>32</sup> See table 9 for the listing of the sectors.

for them the same (low) return showed by foreign workers. This return is much lower than the return experienced by natives employed in different jobs; it is lower also with respect to those native workers who start their career in “migrant jobs”, but who are able to escape from them later in their working life. Our results are in line with those of Paggiaro (2013) who highlights that when considering only workers with similar characteristics, the different effect of the downturn on immigrants and natives in Italy disappears.

Thus, most of the non-assimilating profile highlighted in the previous sections comes from the different jobs held by the three groups of workers. The segmentation of the Italian labour market is the main reason for the lack of assimilation between foreign nationals and locals. This last result confirms that also in Italy the immigrants’ disadvantage in occupational attainment is an important source of the wage gap with natives; similar results have already been found for other European countries (Nielsen *et al.* 2004, Constant and Massey 2005, and Brodmann and Polavieja 2011).

## **7. Concluding comments**

Italy has a recent history of foreign migration and a longer history of internal migration from the South to the North. Italy, thus, offers a unique opportunity to compare local workers – who work in the region of birth – not only to *foreign* migrants but also to internal *native* migrants – who work in a different region from the region of their birth. These last are, on the one hand, proficient in the language and in the knowledge of the social rules of the destination country. But, on the other hand, they face some of the obstacles to integration met by foreign migrants.

Thus, the aim of the paper has been to understand the pattern of economic assimilation of male foreign and male internal migrants in the Italian labour market with respect to native locals.

For this purpose, we used the administrative dataset on dependent employment, WHIP, which enabled us to distinguish between locals, foreign workers and internal native migrant workers; a comparison not exploited before. A fixed effect model of log weekly wage of males aged 18-45, which controlled for unobserved heterogeneity and selection in return migration, was carried out.

In particular, return migration was estimated taking into account the duration of stay in the destination country and job opportunities in home and other countries. We implemented two different methods: the Heckman correction model redefined in term of duration and the Hazard rate model.

We also investigated the role of two possible determinants of the assimilation patterns: the macro economic conditions at the beginning of a career, and labour market segmentation.

The main findings of our empirical analysis were the following:

First, native locals and internal native migrants experienced only minor differences in terms of labour market assimilation, while foreign migrants do not assimilate in the long run to either native group. Thanks to this analysis, the first using a large dataset and an econometric technique, all the debate on discrimination (i.e. Pugliese 2006) and segregation of internal migrants should be reconsidered and limited to social assimilation. There are no differences between the two groups of workers in terms of economic assimilation. Moreover, this result provides indirect evidence that language and social capital matter for the accumulation of human capital. On the other hand, our analysis confirms previous findings of a lack of economic integration among foreign nationals and a widening of the wage gap as experience in the labour market increases.

Second, our novel modelling of the return decision of foreign migrants highlights the temporary character of the immigration project in Italy and confirms previous finding

of a positive selection of return migrants. Foreign workers better able to earn higher wages are more likely to move back home or to go to other countries.

Third, the migrant community has a negative effect on the economic assimilation of all migrants both foreign and internal native, but particularly foreign nationals.

Fourth, the control for the business cycle at time of entrance into the labour market confirms the under-assimilation of foreign nationals and the assimilation of internal native migrants. This allows us to reject the hypothesis that macro-economic conditions at the beginning of a career substantially affect the assimilation pattern of migrant workers in Italy.

Finally, labour market segmentation and the concentration of foreign nationals in specific job types is the main reason for the lack of assimilation. In fact, when restricting the analysis to sectors where migrants are more present, we found that workers in the three groups have almost the same wage profile. It is the occupational mobility that differentiates the three groups: the probability of not-exiting from these sectors is, in fact, 58% for foreign migrants and, respectively, 19% and 26% for locals and internal native migrants. Thus, sector segregation, which means low wage and no career progress, seems to be the key driver in the under assimilation of foreign migrants.

Labour market segmentation helps explain the positive selection found in return migration: the difficulties that foreign migrants find in occupational mobility encourage the best to go elsewhere in search of better opportunities. Occupational segmentation provides also an additional set of explanations for the negative role played by the migrant community, as it is probably reinforced by geographical concentration..

Internal and foreign migrants are often considered, by employers and by themselves, as quite similar at the beginning of their career. However, the very limited career



options offered to foreign migrants push the more able workers to leave Italy, slowing the assimilation patterns of foreign migrants with respect to internal migrants.

Thus policies aimed at increasing occupational mobility for foreign workers should allow them to escape from those jobs where they are concentrated. This can help in reducing foreign under-assimilation. Given the rapid aging of the population, foreign migrants need to become a permanent component of the Italian economy and eventually citizens. Italy should hence invest in migration and integration policies designed to prevent the segregation of foreign workers in sectors of the economy where there is little chance of upgrading.

### **Acknowledgments**

We would like to thank David Card, Martin Ruhs, Herbert Brucker, Dan-Olof Rooth, Tommaso Frattini, Emilio Reyneri, John Dagsvik, Tito Boeri, Dalit Contini and participants in the ESPE, EALE, IMISCOE and TOM conferences, EUI Migration Working Group, the CEPII and OCDE conference and two anonymous referees for helpful comments.

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## Appendix A: Procedure used to compute GDP growth rate in possible destination countries

In order to build a measure of job opportunities in other possible destination countries (not exclusively European Countries) we use the growth rate of Real GDP *per capita* weighted by the flows of migration in the most chosen destination countries different from Italy.

In particular for each nationality in our sample we first computed total outflow, then the share of flows towards each of the main destinations in each year, 1990-2003. We, then, weighted the annual growth rate of Real GDP *per capita* for each destination by this share. We obtained an indicator of the attractiveness of other possible destination for each group of migrants.

Table A1 shows the main destination countries (Italy excluded) for the main origin groups in our sample.

*Table A1.* Main destination countries and share of flows in 1990 and 2003 by origin (Italy excluded)

Origin group	Main destination countries (share of total flows in the first year 1990 and in the last year 2003 in parenthesis)
Albania	Germany (5.2; 4.9), Greece (94.8; 95.1)
Algeria	Belgium (2.8; 1.9), Canada (11.8; 7.2), France (57.5; 73.4), Germany (20.6; 6.6), Spain (2.4; 9.0), United States (4.9; 2.0)
Bangladesh	Australia (4.9; 5.7), Canada (4.5; 14.1), France (0.9; 2.1), Germany (10.9; 4.2), Spain (0.1; 2.5), United Kingdom (42.5; 37.1), United States (36.2; 34.3)
China	Australia (2.1; 3.1), Canada (5.3; 12.1), Germany (3.6; 5.3), Korea (43.7; 19.2), Japan (19.6; 30.7), Netherlands (0.7; 1.3), New Zealand (2.8; 2.0), Spain (0.5; 2.5), United Kingdom (0.7; 10.3), United States (20.9; 13.5)
Egypt	Canada (6.9; 8.4), Germany (8.8; 7.0), United States (14.3; 14.6), Saudi Arabia (70.0)
Turkey	Austria (5.0; 12.0), Belgium (2.1; 4.4), Canada (0.6; 1.7), France (3.1; 9.9), Germany (70.5; 57.2), Netherlands (10.7; 7.1), Switzerland (5.1; 3.2), United Kingdom (0.8; 1.1), United States (2.1; 3.5)
Tunisia	Belgium (8.1; 3.8), Canada (4.6; 4.9), France (35.8; 70.2), Germany (48.5; 18.2), United States (3.0; 2.6)
Pakistan	Australia (3.6; 2.9), Canada (9.6; 34.2), Germany (20.5; 9.1), United Kingdom (22.5; 27.7), United States (43.8; 26.1)
Sri Lanka	Australia (19.8; 13.6), Canada (18.9; 26.6), France (5.0; 8.2), Germany (43.5; 8.1), United Kingdom (6.0; 35.9), United States (6.8; 7.5)
Senegal	France (54.1; 43.6), Spain (13.9; 47.7), United States (32.1; 8.7)
Romania	Belgium (0.5; 1.0), Canada (3.0; 5.5), France (0.7; 1.6), Germany (85.0; 23.7), Hungary (5.5; 9.6), Spain (0.2; 55.0), United States (5.1; 3.7)
Philippines	Australia (4.3; 2.0), Canada (8.0; 6.6), Germany (2.3; 1.9), Japan (32.5; 51.6), Korea (8.9; 5.6), Spain (0.2; 0.6), United Kingdom (1.3; 6.6), United States (42.5; 25.0)
Morocco	Belgium (7.7; 9.5), Canada (2.4; 3.6), France (19.2; 25.3), Germany (16.1; 7.0), Netherlands (27.5; 5.0), Spain (20.1; 46.1), United States (6.9; 3.4)

Source: Own elaboration on SOPEMI data

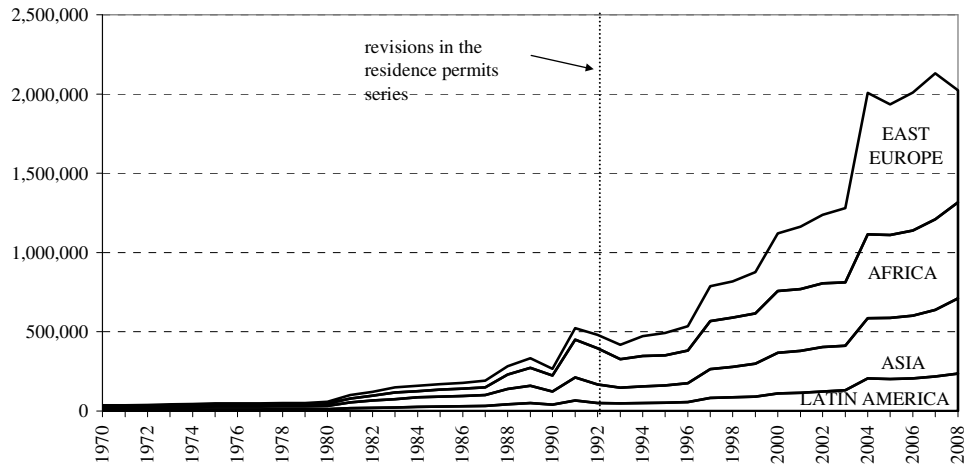
*Table A2. Human capital, macro, community and return migration variables.*

Variables	Description	Source	Level of aggregation
Months of employment	Sum of months spent in regular employment up to year t since 1985 for natives and since entrance in the Italian labour market for foreign nationals	WHIP	Individual
Months out of employment	Sum of months spent out of regular employment up to year t since first employment spell observed	WHIP	Individual
Log VA	Logarithm of value added in t	ISTAT national accounts	Branch and Region
Reg. unemployment rate	Regional unemployment rate in t	ISTAT Labour force survey	Region
Share of reg. foreign employment	Number of workers coming from the individual's same country of origin (for foreign nationals) or from the same region (for internal natives migrants) on total regional employment in year t	WHIP	Country of origin and Region
Growth rate of real GDP	growth rate of Real GDP per capita (Constant Prices: Chain series)	Penn Tables	Word Country
Years of stay	Number of years in Italy since entrance	WHIP	Individual
Age at entry	Age of foreign national when entering legal employment	WHIP	Individual

*Note.* Countries included: Albania, Bangladesh, Bosnia and Herzegovina, Bulgaria, Chile, China, Colombia, Cote d'Ivoire, Croatia, Dominican Republic, Egypt, Ethiopia, Hungary, India, Lebanon, Libya, Macedonia, Morocco, Pakistan, Peru, Philippines, Poland, Romania, Senegal, Somalia, Sri Lanka, Tunisia, Turkey, Ukraine and Uruguay

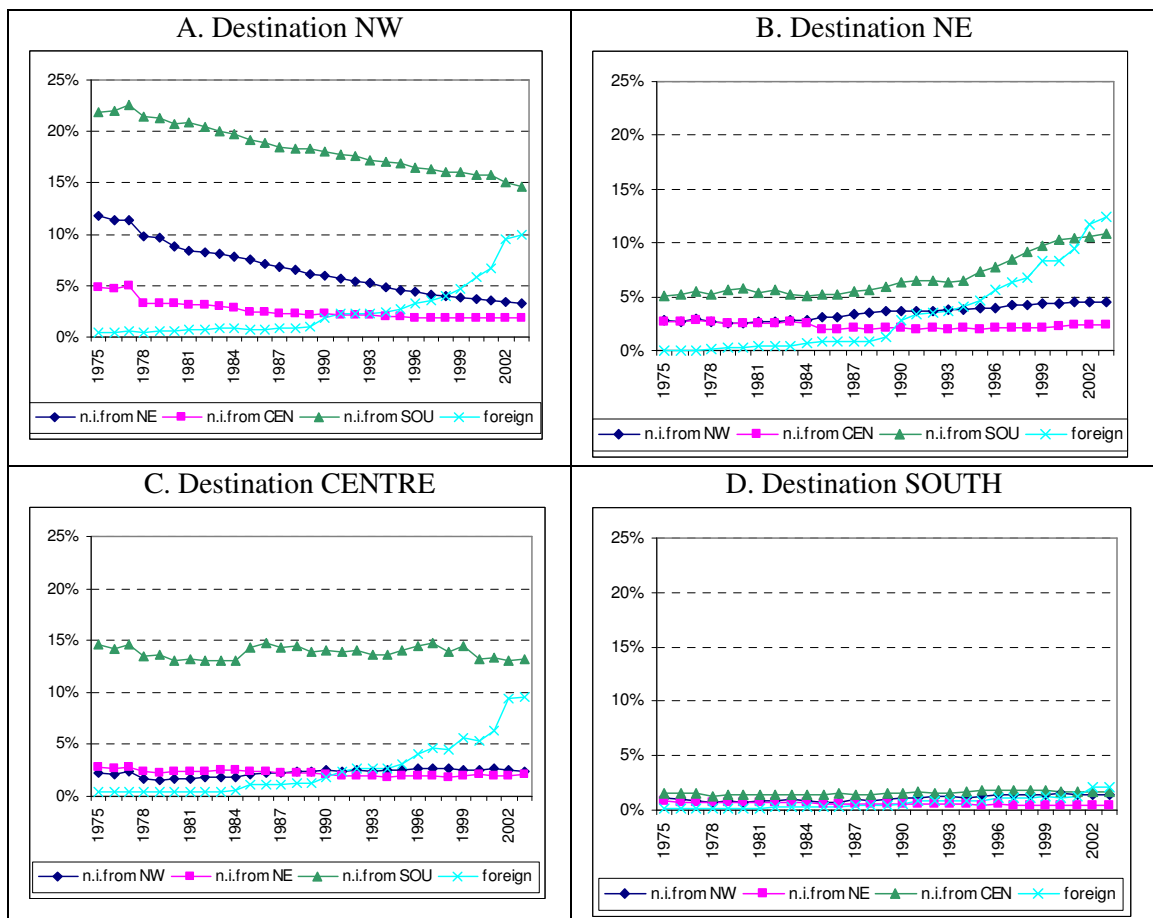
## Tables and Figures

Figure 1. Stock of resident permits for foreign nationals by main areas of origin.



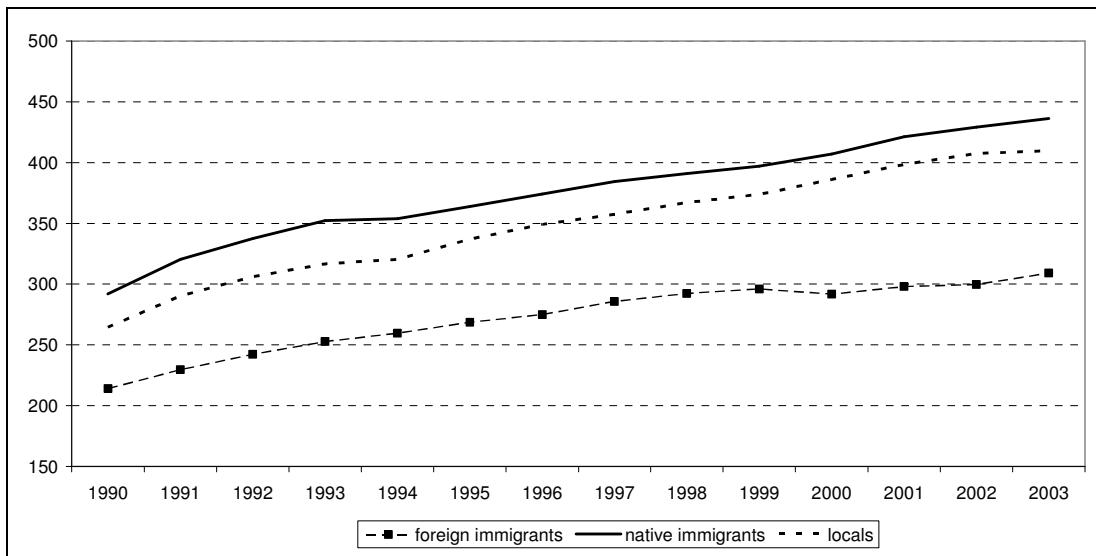
Source: ISTAT

Figure 2. Share of internal native migrants and foreign migrants on the total employment of the area by origin areas.



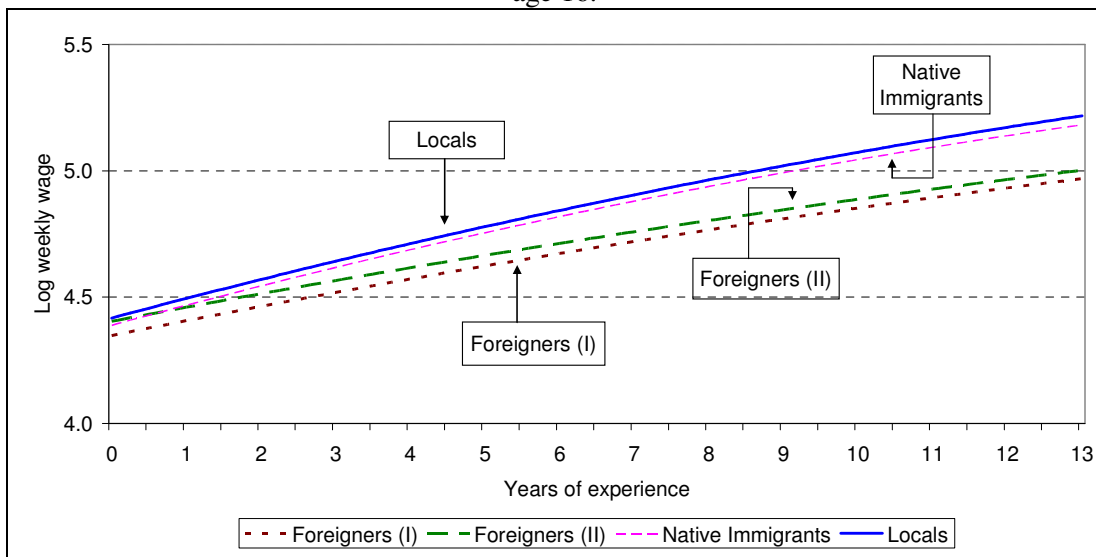
Source: WHIP and INPS data, own calculations

Figure 3. Average nominal weekly wage by groups - Male 18-45.



Source: WHIP, own calculations.

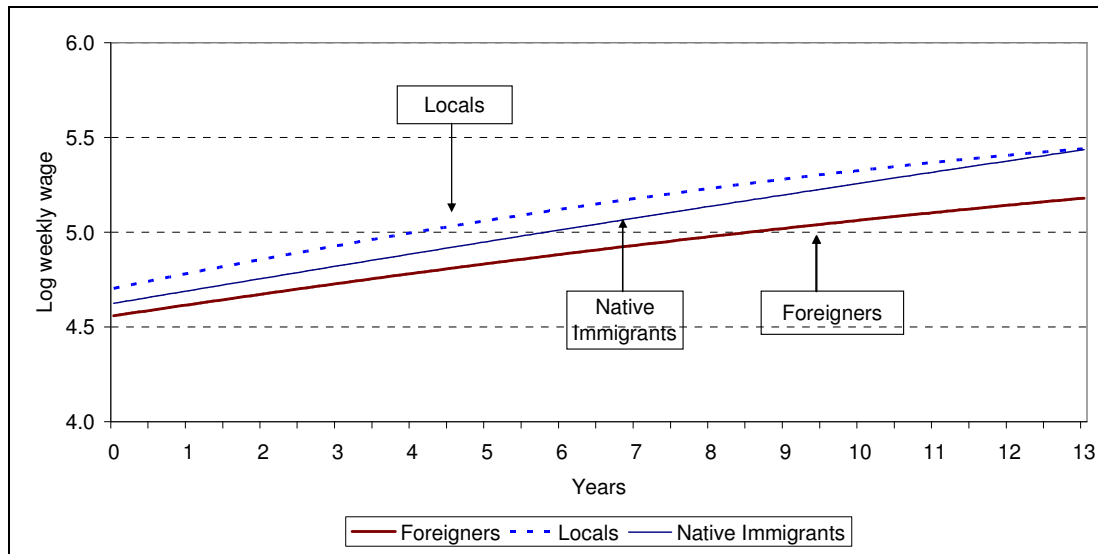
Figure 4. Experience- log wage profiles for foreign migrants, internal native migrants and locals, blue collar males in manufacturing in the North West entering in the labour market at age 16.



Source: WHIP, own calculations.

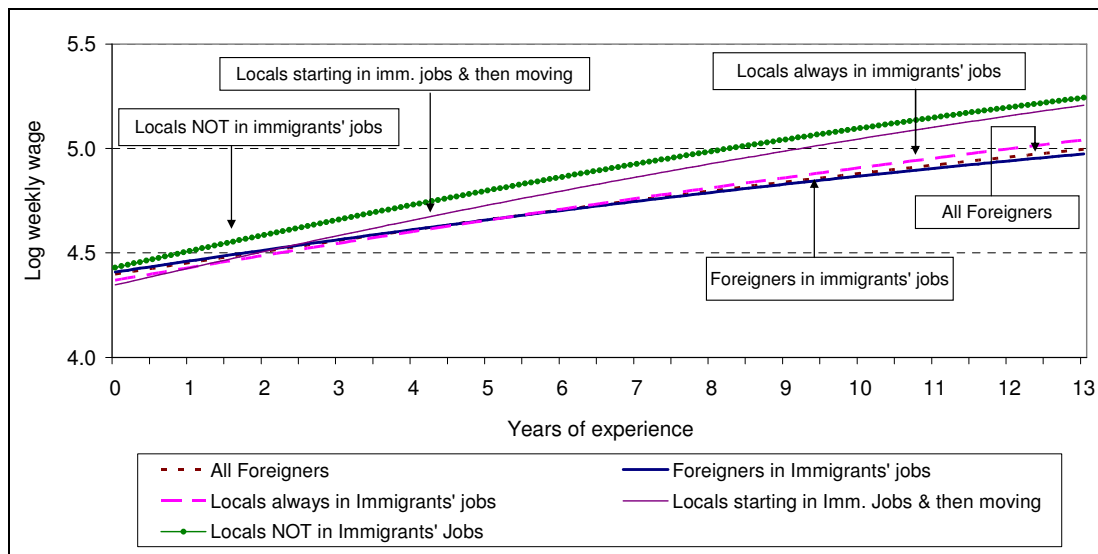
Note: Foreigners (I): Correction for return migration used = Inverse Mills ratio;  
 Foreigners (II): Correction for return migration used = Hazard Rate

Figure 5. Experience- log wage profiles for foreign migrants, internal native migrants and locals, blue collar males in manufacturing in North West entering in the labour market at age 16 in 1991 and 1992.



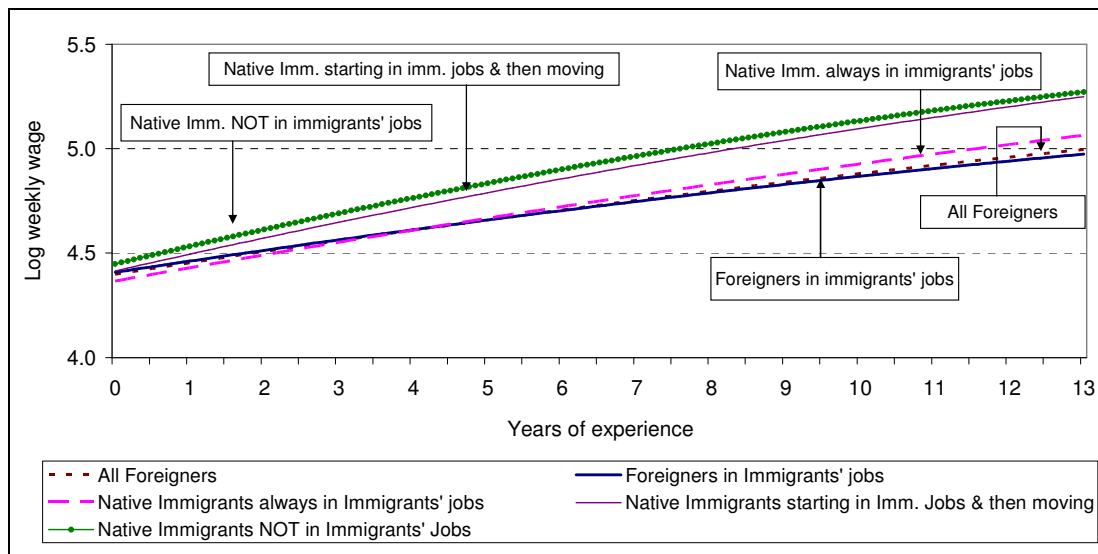
Source: WHIP, own calculations.

Figure 6. Experience- log wage profiles for foreign migrants, and locals, blue collar males in manufacturing in North West entering in the labour market at age 16 by type of jobs



Source: WHIP, own calculations.

Figure 7. Experience- log wage profiles for foreign migrants and internal native migrants, blue collars males in manufacturing in north west entering in the labour market at age 16 by type of jobs



Source: WHIP, own calculations.

*Table 1. Descriptive statistics 1990-2003 for foreign immigrants, internal native migrants and locals.*

Variable	Foreign immigrants		Internal native migrants		Locals	
	Mean	(Std. Err.)	Mean	(Std. Err.)	Mean	(Std. Err.)
Weekly wage	290.9	(119.6)	358.2	(202.2)	329.5	(182.4)
Age	31.79	(6.1)	31.79	(6.0)	30.85	(6.1)
Age at entrance	27.93	(5.5)	23.75	(4.4)	22.79	(4.1)
Months of employment	42.88	(38.4)	85.14	(57.4)	90.01	(58.4)
Months out of employment	10.27	(19.2)	19.65	(31.6)	15.13	(26.9)
Blue collar	0.93	(0.3)	0.68	(0.5)	0.64	(0.5)
White collar	0.03	(0.2)	0.30	(0.5)	0.32	(0.5)
Apprentices	0.03	(0.2)	0.02	(0.1)	0.04	(0.2)
Atypical	0.14	(0.3)	0.11	(0.3)	0.11	(0.3)
Firm size 0_20	0.58	(0.5)	0.40	(0.5)	0.45	(0.5)
Firm size 20_200	0.30	(0.5)	0.29	(0.5)	0.28	(0.4)
Firm size 200_1000	0.08	(0.3)	0.15	(0.4)	0.12	(0.3)
Firm size _over1000	0.05	(0.2)	0.17	(0.4)	0.14	(0.3)
North West	0.39	(0.5)	0.48	(0.5)	0.31	(0.5)
North East	0.37	(0.5)	0.25	(0.4)	0.23	(0.4)
Centre	0.18	(0.4)	0.21	(0.4)	0.19	(0.4)
South	0.05	(0.2)	0.06	(0.2)	0.28	(0.4)
Manufacturing	0.52	(0.5)	0.47	(0.5)	0.50	(0.5)
Construction	0.21	(0.4)	0.16	(0.4)	0.13	(0.3)
Services	0.27	(0.4)	0.38	(0.5)	0.38	(0.5)
Mediterranean Africa	0.26	(0.4)				
Africa other	0.25	(0.4)				
Latin America	0.03	(0.2)				
Asia	0.17	(0.4)				
East Europe	0.29	(0.5)				
Avg. community size by region	0.63%	(0.6%)	2.4%	(1.6%)		
N. observations	44447		62484		371481	

*Source:* WHIP, own calculations.



Table 2. Results of a duration model on the probability of leaving the WHIP dataset

	Hazard Ratio
Foreign immigrants	1.5129 *** (0.0384)
Internal native migrants	1.0256 (0.0173)
Locals	benchmark
N. obs	78157
Log likelihood	-45419.11
Chi2	49959.44
Prob>chi2	0

Dependent variable: Presence in the WHIP dataset in years.

Further covariates: age, age<sup>2</sup>, weekly wage, occupation, tenure, firm size, sector, year of entry.

Robust standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations

Table 3. Results of the selection equation.

	(i) Probit Random Effect model	(ii) Weibull Hazard Rate model
	Coefficient	Hazard Ratio
Growth rate of Real GDP p.c. in origin country	0.0093 *** (0.0022)	1.1084 *** (0.0104)
Growth rate of weighted average Real GDP p.c. in potential destination country	0.0446 *** (0.0079)	1.1251 *** (0.0140)
Months of employment	0.0103 *** (0.0015)	
Months out of employment	0.0104 *** (0.0010)	
Age at entry		1.0227 *** (0.0035)
p (shape parameter)		1.6658 (0.0243)
1/p		0.6003 (0.0088)
Predicted hazard rate (std. dev.)		0.2529 (0.4282)
N. obs	36663	8439
Log likelihood	-12579.15	-3182.37
Chi2	3700.22	4420.36
Prob>chi2	0	0

Dependent variable: probability of leaving (i) and duration of staying in years (ii)

(i) Includes in addition all variables in wage equation (see table 4).

(ii) Further controls: year of entrance, firm size, sector and region dummies

Robust standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations.

Table 4. Fixed effect estimates of log weekly wage in nominal terms, males aged 18-45.

	Foreign immigrants (i) Correction= Inv. Mills Ratio		Foreign immigrants (ii) Correction= Hazard .Rate		Internal native migrants		Locals	
	Coefficient		Coefficient		Coefficient		Coefficient	
Intercept	4.1203	***	4.4905	***	4.4935	***	4.5044	***
	(0.2282)		(0.2268)		(0.128)		(0.034)	
Age	0.0287	***	0.0302	***	0.0421	***	0.0527	***
	(0.0090)		(0.0089)		(0.008)		(0.003)	
Age ^2	-0.0002	***	-0.0002	*	-0.0002	***	-0.0003	***
	(0.0001)		(0.0001)		(0.00004)		(0.00001)	
Months of employment	0.0026	***	0.0022	***	0.0032	***	0.0022	***
	(0.0007)		(0.0007)		(0.0006)		(0.0003)	
Months of employment ^2	-0.000005	***	-0.000004	***	-0.000009	***	-0.000007	***
	(0.0000)		(0.0000)		(0.0000)		(0.0000)	
Months out of employment	0.0011		0.0008		-0.0004		-0.0006	**
	(0.0007)		(0.0007)		(0.0006)		(0.0003)	
Log Value Added	0.1587	***	0.0810	***	0.0616	***	0.0752	***
	(0.0285)		(0.0209)		(0.011)		(0.004)	
Regional unemployment rate	-0.0011		-0.0011		-0.0007		-0.0022	***
	(0.0009)		(0.0009)		(0.001)		(0.000)	
Share of regional foreign employm.	-6.0484	***	-2.9723	**	-1.6862	***		
	(1.5805)		(1.5191)		(0.577)			
Share of regional foreign empl. ^2	1.5879	**	0.5891		0.0953			
	(0.5408)		(0.5307)		(0.063)			
Correction for return migration	0.0291	***	0.0026	***				
	(0.0066)		(0.0008)					
N obs	27,933		27,933		60,678		359,527	
F	139.95		138.75		701.73		7193.68	
corr(u_i, Xb) =	-0.4546		-0.4307		-0.2465		-0.3909	
Prob > F =	0		0		0		0	
R-sq: within =	0.3631		0.3626		0.5261		0.604	
between =	0.0703		0.0719		0.1988		0.1751	
overall =	0.1468		0.1505		0.2720		0.2665	

Dependent variable: log weekly wage.

Further controls: type of contract, firm size, sector and region dummies. Robust Standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations.

Table 5. Log wage profiles with increasing experience in the labour market.  
Entrants in 1991 and 1992

	Foreign migrants		Native int. migrants		Locals	
	MEAN	(Std. err.)	MEAN	(Std. err.)	MEAN	(Std. err.)
Average N obs	3554		4878		27083	
Weekly wage in euros at entrance	213.5	(68.5)	253.4	(121.2)	226.9	(100.2)
Average weekly wage in euros in the 1991-2003 period	276.2	(102.6)	351.4	(185.2)	322.0	(154.3)
Age at entrance	28.8	(5.8)	27.6	(7.1)	25.4	(6.6)
Average number of months of employment in the 1991-2003 period	54.0	(42.4)	56.5	(43.0)	61.0	(46.2)
Average number of months out of employment in the 1991-2003 period	14.0	(21.2)	21.1	(28.3)	16.0	(24.7)

Source: WHIP, own calculations.

Table 6. Fixed effect estimates of log weekly wage in nominal terms for males aged 18-45, entrants in 1991 and 1992.

	Foreign migrants	Native int. migrants	Locals
Intercept	4.821 *** (0.1679)	4.509 *** (0.3300)	4.786 *** (0.1277)
Age	0.044 *** (0.0057)	0.063 *** (0.0050)	0.066 *** (0.0017)
Age ^2	-0.0005 *** (0.0001)	-0.0004 ** (0.0001)	-0.0003 *** (0.0001)
Months of employment	0.0009 ** (0.0004)	0.0016 *** (0.0004)	0.0012 *** (0.0001)
Months of employment ^2	0.00000 (0.0000)	-0.00001 *** (0.0000)	-0.00001 *** (0.0000)
Months out of employment	0.00000 (0.0000)	-0.002 *** (0.0006)	-0.001 *** (0.0002)
Log VA	0.061 *** (0.0186)	0.146 *** (0.0361)	0.053 *** (0.0140)
Regional unemployment rate	0.000 (0.0038)	-0.122 (0.0855)	-0.003 *** (0.0009)
Share of regional foreign employm.	-3.089 ** (1.3174)	0.495 (1.1834)	
Corr. for return migr. (Hazard Rate)	0.011 ** (0.0051)		
N obs	3554	4878	27083
F	78.26	34.33	507.59
corr(u_i, Xb) =	-0.3933	-0.1954	-0.3438
Prob > F =	0	0	0
R-sq: within =	0.4407	0.5222	0.589
between =	0.1219	0.1498	0.2466
overall =	0.2233	0.2484	0.3603

Dependent variable: log weekly wage.

Further controls: type of contract, firm size, sector and region dummies. Robust Standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations.

Table 7. Average wage by sectors. Average 1990-2003

		Sectors with high incidence of foreign employment (immigrants' jobs)	Others	Share of workers never moving to other sectors
Foreign immigrants	Wage (std. err)	275.94 (82.9)	303.10 (129.0)	0.58
	Share of employment	0.72	0.28	
Locals	Wage (std. err)	295.53 (107.7)	369.19 (174.6)	0.19
	Share of employment	0.30	0.70	
Internal native migrants	Wage (std. err)	304.87 (108.6)	410.05 (203.3)	0.26
	Share of employment	0.39	0.61	
Average share of foreign workers on total sector employment		0.22	0.05	

*Note:*

**Immigrants' jobs** are defined on the basis of the NACE 1970 3-digit definitions of sectors and include: Construction of flats, office blocks, hospitals and other buildings, both residential and non-residential; Hotels and catering, Manufacture of structural metal products; Building completion work; Processing of plastics; Secondary transformation, treatment and coating of metals; Travel agents, freight brokers and other agents facilitating the transport of passengers or goods; storage and warehousing; Tanning and dressing of leather; Foundries; Manufacture of mass-produced footwear; Manufacture of ready-made clothing and accessories; Working of stone and of non-metallic mineral products; Manufacture of concrete, cement or plaster products for constructional purposes; Manufacture of rubber products; Manufacture of ceramic goods; Slaughtering, preparing and preserving of meat; Textile finishing; Manufacture of products from leather and leather substitutes; Forging; drop forging, closed die-forging, pressing and stamping; Miscellaneous textile industries; Knitting industry; Manufacture of agricultural machinery and tractors; Cleaning services; Manufacture of household textiles and other made-up textile goods; Sawing and processing of wood; Manufacture of clay products for constructional purposes; Manufacture of wooden containers; Dealing in scrap and waste materials; Bespoke tailoring, dressmaking and hatmaking; Manufacture of articles of cork and articles of straw and other plaiting materials; manufacture of brushes and brooms; Preparation, spinning and weaving of flax, hemp and ramie; Production of hand-made footwear; Silk industry; Other wood manufactures (except furniture); Laundries, dyers and cleaners and similar services; Processing and preserving of fruit and vegetables; Civil engineering: construction of roads, bridges, railways, etc.; Recreational services and other cultural services; Other metal workshops not elsewhere specified; Boilermaking, manufacture of reservoirs, tanks and other sheet-metal containers; Manufacture of tools and finished metal goods, except electrical equipment; Supporting services to transport; Cotton industry; Manufacture of carpentry and joinery components and of parquet flooring.

Table 8.a. Fixed effect estimates of log weekly wage in nominal terms for males aged 18-45, by sectors. Foreign immigrants and Locals

	Foreign migrants in Immigrants' jobs	Locals always in Immigrants jobs	Locals starting in Imm. Jobs & then moving	Locals never in Immigrants jobs
Intercept	4.4834 *** (0.2391)	4.443 *** (0.0863)	4.4704 *** (0.0811)	4.5036 *** (0.0408)
Age	0.0463 *** (0.0033)	0.0473 *** (0.0017)	0.0539 *** (0.0024)	0.0454 *** (0.0012)
Age ^2	-0.0003 *** (0.00008)	-0.0003 *** (0.00003)	-0.0006 *** (0.00005)	-0.0002 *** (0.00002)
Months of employment	0.0007 *** (0.0001)	0.0011 *** (0.0002)	0.0024 *** (0.0002)	0.0029 *** (0.0001)
Months of employment ^2	0.00000 (0.00000)	0.00000 *** (0.00000)	0.00000 *** (0.00000)	-0.00001 *** (0.00000)
Months out of employment	0.0004 (0.00065)	-0.0002 *** (0.00003)	-0.0003 *** (0.00004)	-0.0001 *** (0.00002)
Corr. for return migr.	0.0018 ** (0.00104)			
N obs	16101	68101	39517	251909
F	87.01 ***	1243.14 ***	786.55 ***	6196.87 ***
corr(u_i, Xb) =	-0.5959	-0.4578	-0.3973	-0.2875
Prob > F =	0	0	0	0
R-sq: within =	0.3243	0.5115	0.5604	0.6377
between =	0.022	0.0447	0.1172	0.3365
overall =	0.0671	0.1552	0.2824	0.4017

Dependent variable: log weekly wage.

Further controls: type of contract, firm size, sector and region dummies. Robust Standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations.

Table 8.b. Fixed effect estimates of log weekly wage in nominal terms for males aged 18-45, by sectors. Foreign immigrants and internal native migrants

	Foreign migrants in Immigrants' jobs	Internal native migrants always in Immigrants jobs	Internal native migrants starting in immigrants jobs & then moving	Internal native migrants never in Immigrants jobs
Intercept	4.4834 *** (0.2391)	4.440 *** (0.2266)	4.480 *** (0.2086)	4.522 *** (0.1201)
Age	0.0463 *** (0.0033)	0.0542 *** (0.0044)	0.0349 *** (0.0060)	0.0423 *** (0.0038)
Age ^2	-0.0003 *** (0.00008)	-0.0004 *** (0.00008)	-0.0004 *** (0.0004)	-0.00009 *** (0.00006)
Months of employment	0.0007 *** (0.0001)	0.0008 *** (0.0004)	0.0039 *** (0.0005)	0.0036 *** (0.0003)
Months of employment ^2	0.00000 (0.00000)	0.00000 (0.00000)	0.00000 (0.00000)	-0.00001 (0.00000)
Months out of employment	0.0004 (0.00065)	-0.0004 (0.00008)	-0.0002 (0.0001)	-0.0001 (0.00005)
Corr. for return migr.	0.0018 ** (0.00104)			
N obs	16101	15912	7523	37243
F	87.01 ***	21608.7 ***	118.15 ***	594.58 ***
corr(u_i, Xb) =	-0.5959	-0.4971	-0.3512	-0.2707
Prob > F =	0	0	0	0
R-sq: within =	0.3243	0.4398	0.517	0.5745
between =	0.022	0.04	0.1263	0.238
overall =	0.0671	0.1204	0.305	0.2821

Dependent variable: log weekly wage.

Further controls: type of contract, firm size, sector and region dummies. Robust Standard errors in parentheses. \* Statistically significant at the .10 level; \*\* at the .05 level; \*\*\* at the 0.01 level.

Source: WHIP, own calculations.