

IMMIGRANTS IN THE PORTUGUESE LABOUR MARKET*

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ABSTRACT

Using matched employer-employee data, we examine the main characteristics of immigrants in the Portuguese labour market in the 2002-2008 period. We find substantial differences in labour market outcomes between native and immigrant workers and among different nationality groups, in terms of age, gender, tenure, worker flows, geographical and sectoral concentration and education levels. As in other countries, the average wages of immigrants are lower than the wages of natives, even controlling for worker, firm and match characteristics, although growing at a higher pace in the period analysed.

1. Introduction

Portugal has traditionally been a country of emigration and significant immigration flows began more recently. Until the mid-nineties, immigration in Portugal was relatively modest in international terms, comprising mainly nationals from Portuguese speaking countries. In the late nineties, immigration accelerated, driven by high and unmet labour demand resulting from the strong dynamics in the construction sector, linked with major infrastructure projects, and in some services sectors. Most of these recent immigration flows in Portugal were of irregular nature, as evinced by the series of regularisations that occurred since 2000. There was also a change in the composition of the flow of immigrants, with a substantial share of this recent immigration originating from Central and Eastern European countries, with no apparent link with Portugal, and also from Brazil.

In international terms, the share of immigrants in total population in Portugal is relatively low. Nevertheless, as in other Southern European countries, like Spain and Italy, and in other new immigration countries in Europe, such as Ireland and Greece, immigration in Portugal is a recent phenomenon. Since recent immigrant flows in Portugal were linked with employment opportunities, they tend to have a high labour market attachment. Portugal has one of the highest employment rates of immigrants among OECD countries, higher than that of natives for both men and women. However, immigrants in Portugal also seem to be more affected than natives by downturns in economic activity. The unemployment rate of immigrants is always higher than that of natives since 1998 and it increases faster in periods of economic recession.

At present, empirical evidence on immigration in the Portuguese labour market is relatively scarce, probably also reflecting the novelty of the phenomenon. Some exceptions are Carneiro *et al.* (2010) who study the determinants of earnings of immigrants in 2003-2004 using a longitudinal database and OECD (2008) that provides a comprehensive analysis of the main features of recent immigration in Portugal.

* The authors thank Nuno Alves, João Amador, Mário Centeno, Paulo Esteves, Ana Cristina Leal, José Ferreira Machado and Pedro Portugal for their comments and suggestions. We also thank Lucena Vieira for excellent computational assistance. The opinions expressed in the article are those of the authors and do not necessarily coincide with those of Banco de Portugal or the Eurosystem. Any errors and omissions are the sole responsibility of the authors.

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This article aims at contributing to this literature, by providing a detailed portrait of recent immigration in the Portuguese labour market. It adopts a fully empirical approach, describing and examining the main characteristics of immigrant workers in Portugal, with an emphasis on wages. As foreign-born individuals with Portuguese nationality should not be considered as migrants, since they share most of the relevant characteristics with the native population, our definition of immigrants throughout this article follows a nationality criterion. We use matched employer-employee data from a longitudinal dataset (*Quadros de Pessoal*) from 2002 to 2008, focusing the analysis in the full-time employees segment and differentiating the results by main nationality groups within immigrant workers. All workers in illegal and irregular situations are, by definition, excluded from the analysis leading to an underestimation of immigrants in the Portuguese labour market. A comparative analysis of wage developments (levels and growth) for natives and major immigrant groups over the period is included, with a breakdown by main sectors of activity of immigrant employment.

The article is organized as follows. Section 2 describes the database and the main features of immigrants relative to those of native workers. Section 3 focuses on comparing the wages of immigrants and natives. Finally, section 4 presents some concluding remarks.

2. Main characteristics of employed immigrants in Portugal

The database used in this article is *Quadros de Pessoal (QP)*, a longitudinal dataset matching workers and firms based in Portugal. The worker-level data covers all years since 1982, except for 1990 and 2001, but information on the nationality of the worker only starts in 2000, so our sample period starts in 2002 and ends in 2008. The exact nationality at the country level of the worker is the only information available that helps to identify migrant workers in *QP*, since neither the place of birth nor the year of arrival in Portugal are recorded. Nevertheless, given the nature of recent immigration in Portugal and the low naturalisation rate, this seems a reasonable approximation of the target population.

OECD data based on residence permits estimates that the foreign population in Portugal amounts to around 440 thousand individuals in 2008, while immigrant workers in the *QP* database used here are about 170 thousands (Table 1). The *QP* dataset does not cover domestic work. This fact can have some impact on the results since many foreign women in Portugal are linked to this sector. In addition, all workers in illegal and irregular situations are excluded from the analysis given the lack of information on these individuals in the *QP* database, leading to an underestimation of immigrants in the Portuguese labour market. Nevertheless, the detailed characteristics of the *QP* database make it especially suitable to study the evolution of immigration in the Portuguese labour market. Peixoto (2008) and Carneiro *et al.* (2010) also use the *QP* to examine different aspects of recent immigration flows in Portugal. Peixoto (2008) provides a descriptive analysis of employed immigrants in 2004 and Carneiro *et al.* (2010) study the assimilation of immigrants in the Portuguese labour market in 2003-2004. In addition, OECD (2008) provides a very comprehensive study of the main features of immigration in the Portuguese labour market using different databases including the *QP*.

Dependent employment constitutes the main contractual form in the Portuguese labour market, representing 92 per cent of total employment for natives and 94.7 per cent for immigrants in 2008 (Table 1).¹ Full-time contracts have a similar incidence between natives and immigrants but immigrants have a higher proportion of part-time jobs. In 2008, a higher percentage of natives appears as employers, 7.4 per cent compared to 4.8 per cent for immigrants. The lower share of immigrants in self-employment in Portugal contrasts with evidence found in other countries where immigrants tend to be over-represented among the self-employed (see, for instance, Andersson and Wadensjö (2004)). In the Portuguese

¹ Table 1 includes only information for 2008, but the employment structure is similar over the 2002-2008 period. All yearly data is available from the authors upon request.

Table 1

EMPLOYMENT STATUS OF NATIVES AND IMMIGRANTS, 2008 LEVELS AND SHARES							
	Immigrants	Total		Natives		Immigrants	
	Share in total	Level	Share	Level	Share	Level	Share
Employer	4.1	200 226	7.3	191 965	7.4	8 261	4.8
Unpaid family worker	5.1	1 039	0.0	986	0.0	53	0.0
Employee	6.4	2 540 078	92.2	2 376 675	92.0	163 403	94.7
Full-time	6.3	2 409 333	87.5	2 258 521	87.5	150 812	87.4
Part-time	9.6	130 745	4.7	118 154	4.6	12 591	7.3
Other	6.6	13 597	0.5	12 705	0.5	892	0.5
Total	6.3	2 754 940	100	2 582 331	100	172 609	100

Sources: *Quadros de Pessoal* and authors' calculations.

Note: In the case of full-time employees, we only considered those that reported a base wage above 80 per cent of the minimum legal wage.

labour market, the most notable difference between immigrants and natives relates to the nature of the contract, *i.e.*, permanent versus fixed-term (Chart 1). Considering only full-time employees, 51.7 per cent of immigrant workers had fixed-term contracts, which are typically associated with jobs with lower wages, compared to 24.6 per cent for native employees in 2008. However, fixed-term contracts have been steadily gaining importance in the employment structure of native workers over this period, which can be seen as a consequence of the relative rigidity of permanent contracts in Portugal (see, for instance, Portugal (1999)). By main nationality groups, the proportion of workers with fixed-term contracts in 2008 is the highest for Brazilians (63.6 per cent) and it increased since 2006. An increasing incidence of temporary contracts is also evident in workers from China though less markedly. Immigrants from Central and Eastern European countries (CEEC) have also a significant share of fixed-term contracts but it declined over this period from 67.1 per cent in 2002 to 56.9 per cent in 2008.² Immigrants from Portuguese speaking countries in Africa (*PALOP*) have a below average percentage of fixed-term contracts but it rose since 2005, from 40 per cent to 45.4 per cent in 2008.³ Finally, immigrants from the other 14 initial Member-States of European Union (EU15) have a much lower proportion of temporary contracts over the whole period (around 30 per cent).

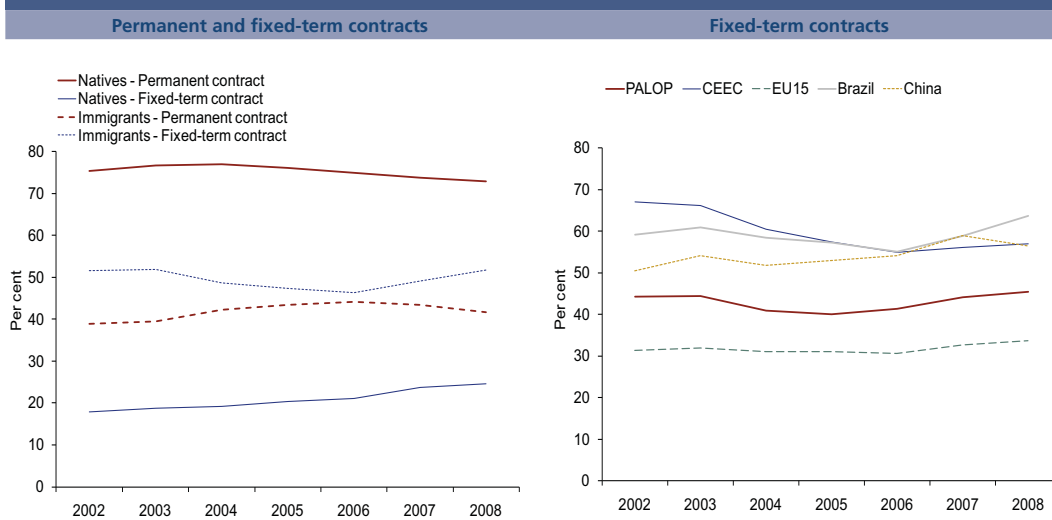
The remainder of the analysis of this article will focus on the full-time employees segment. In this case, we only considered the workers that reported a base wage above 80 per cent of the minimum legal wage. Full-time employed immigrants in Portugal increased by 46.2 per cent in cumulative terms from 2002 to 2008, an average annual growth rate of 6.5 per cent. Hence, the share of immigrants in full-time employees in Portugal increased from 5.2 per cent in 2002 to 6.3 per cent in 2008. Immigrants from Brazil had an impressive growth of 161 per cent in cumulative terms over this period (average annual rate of 17.3 per cent), which translated into an increase of their share in total immigrant employees from 15.1 per cent in 2002 to 26.9 per cent in 2008 and made them the major single nationality group in Portuguese dependent employment (Chart 2). Immigrants from China also grew steadily over this period, but still represent a small proportion of total immigrants in Portugal (less than 2 per cent in 2008). On the contrary, the number of immigrants from the CEEC remained almost stable over this period, showing even negative rates of change since 2006, in line with the slowdown of economic activity in some sectors. The strong inflows from the CEEC at the end of the nineties were largely driven by labour market opportunities, especially in the construction sector. Immigrants from Ukraine, the major nationality within the CEEC, declined by 18.1 per cent in cumulative terms over the 2002-2008

² CEEC (Central and Eastern European countries) in the *QP* database includes Slovakia, Poland, Czech Republic, Hungary, Estonia, Slovenia, Latvia, Lithuania, Romania, Russian Federation, Moldova, Ukraine and Serbia.

³ *PALOP* (*Países Africanos de Língua Oficial Portuguesa*) refers to the former Portuguese colonies in Africa (Angola, Cape Verde, Guinea Bissau, Mozambique, and São Tomé and Príncipe).

Chart 1

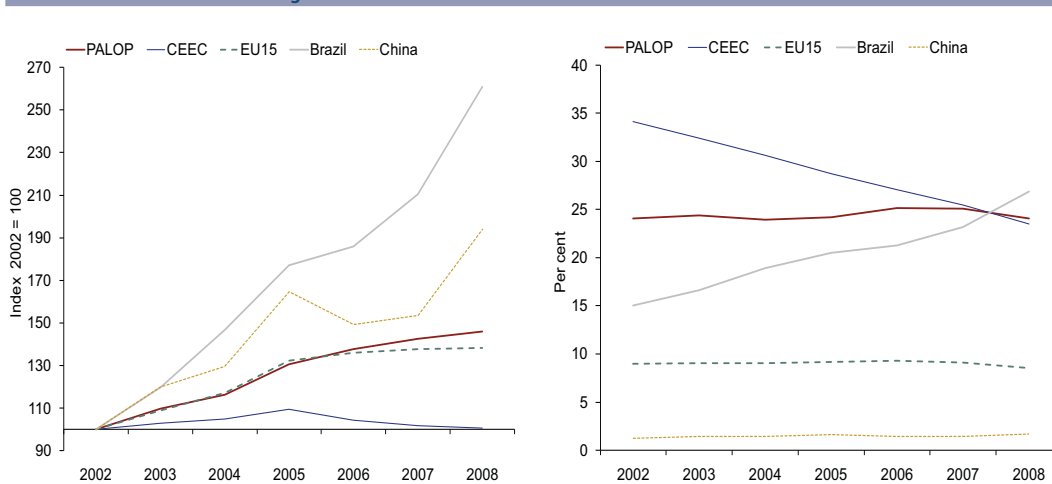
PERMANENT AND FIXED-TERM CONTRACTS OF NATIVES AND IMMIGRANTS IN PORTUGAL | SHARES IN TOTAL FULL-TIME EMPLOYMENT



Sources: Quadros de Pessoal and authors' calculations.

Chart 2

MAIN NATIONALITIES OF IMMIGRANT EMPLOYMENT IN PORTUGAL



Sources: Quadros de Pessoal and authors' calculations.

period, accounting for 13.1 per cent of total immigrants in 2008 (23.3 per cent in 2002). In contrast, inflows from Romania, the second major CEEC origin, continued to grow over this period, with its share in total full-time immigrant workers increasing from 3.9 per cent in 2002 to 4.5 per cent in 2008. Immigrants from the PALOP maintained their share in total around 24 per cent over this period, but there was a decline in the share of employees from Angola (to 7.6 per cent in 2008) and an increase in the percentage of immigrants from Cape Verde (to 8.1 per cent in 2008). Finally, immigration from the EU15 grew slightly below average, in particular since 2007, resulting in a small decline of its share in total from 9 per cent in 2002 to 8.5 per cent in 2008. Within the EU15, the main countries of origin of immigrants are France, Spain, Germany and the United Kingdom. Summing up, immigration in Portugal is currently rather concentrated in three main geographical origins, Brazil, PALOP and CEEC, each with a share above 20 per cent of total and representing together 74.5 per cent of total full-time immigrant employees in 2008 (73.3 per cent in 2002).

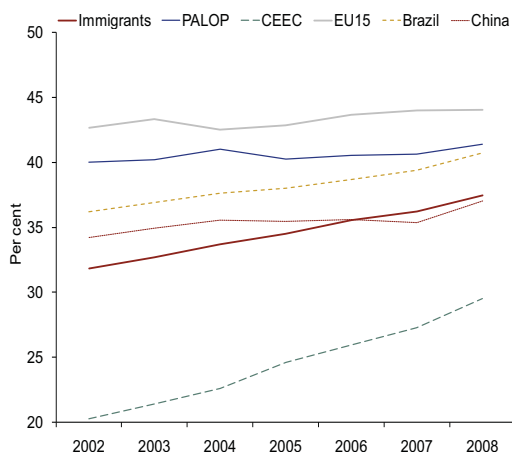
As mentioned in other studies, immigrant workers in Portugal are slightly younger than natives (Table 2). Full-time employees with less than 35 years account for 44 per cent of total natives but represent 50.5 per cent of immigrants in the period 2002-2008. This difference is higher in the case of workers from China and, especially, from Brazil. In the case of Brazilian workers, 62.5 per cent of them have less than 35 years and almost 50 per cent is aged between 25 and 34 years. The percentage of females in immigrant employment is lower than in native employment, representing 34.8 and 43.1 per cent of total in this period, respectively. However, the exclusion of domestic work from the analysis tends to underestimate female employment in Portugal. For instance, OECD data based on residence permits of the foreign population in Portugal shows a percentage of females of 40.6 per cent on average in the period 2002-2008 (47.3 per cent in 2008). Looking at the main origins of immigrants, the share of female workers is higher in the case of the EU15 and Cape Verde (43.3 per cent in both cases) and lower in the case of the CEEC and, particularly, Ukraine (23.6 per cent). However, from 2002 to 2008 there was an increase in the proportion of females in dependent employment in Portugal, common to all main nationalities but particularly sharp in the case of immigrants from the CEEC (Chart 3). The share of female workers from the CEEC increased from 20.3 per cent in 2002 to 29.5 per cent in 2008.

As could be expected given the recent nature of most immigrant flows in Portugal, the tenure of immigrant workers is much lower than that of natives, average of 2.4 and 7.4 years in the same job over the period 2002-2008, respectively (Table 3). Within immigrants, tenure is higher for workers from the EU15 and, to a lesser extent, from Cape Verde, which are the immigrant groups that have been longer in the country. The average tenure for other nationality groups is less than 2 years in this period. The proportion of immigrants with tenure less than 1 year is 37.7 per cent, which is more than double the share of natives in the same situation (15.9 per cent on average in this period). In the period 2002-2008, 44 per cent of native workers have tenure up to 3 years, but that proportion increases to 78.7 per cent in the case of immigrants. This result is in line with the higher incidence of temporary contracts, mostly with a length of 3 years, in immigrant employment. The share of immigrants with tenure up to 3 years is especially high in workers from China and Brazil, 89.7 and 88.2 per cent on average for the period 2002-2008, respectively. A high percentage of workers from the CEEC also shows a tenure less than or equal to 3 years on average, but that proportion declined steadily over the period, from 98.7 per cent in 2002 to 76 per cent in 2008 (Chart 4). For workers from Brazil and China, the percentage of individuals with tenure up to 3 years declined until 2006, but remained stable afterwards at above 84 per cent. In 2008, 52.1 per cent of Brazilian workers had tenure inferior to 1 year and that share increased strongly in the last two years, while in the case of Ukraine that share decreased over the period to 35.5 per cent

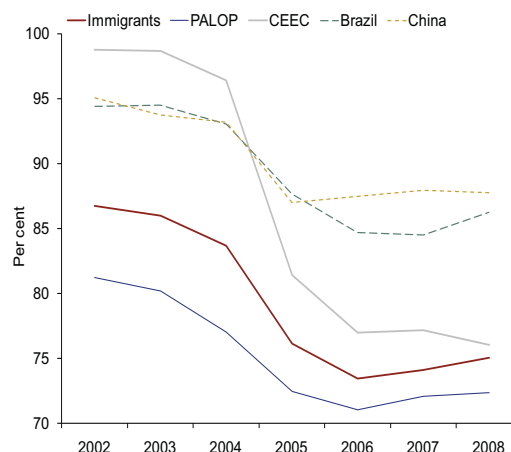
Table 2

AGE AND GENDER OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, AVERAGE 2002-2008 SHARES, PER CENT									
	Natives	Immigrants	EU15	PALOP		CEEC	Ukraine	Brazil	China
					Cape Verde				
AGE									
Average	37.8	35.7	36.4	36.5	37.5	36.3	37.2	33.0	34.3
15-24	10.7	10.2	8.3	9.6	12.6	7.6	5.6	15.2	12.3
25-34	33.3	40.3	43.0	36.0	29.1	39.7	37.8	47.3	41.5
35-44	28.2	30.7	27.9	34.0	31.1	31.6	33.2	26.6	34.0
45-54	19.3	15.4	13.8	16.7	21.8	18.7	20.7	9.4	10.8
55+	8.6	3.4	7.1	3.7	5.5	2.3	2.7	1.5	1.5
	100	100	100	100	100	100	100	100	100
GENDER									
Men	56.9	65.2	56.7	59.4	56.7	75.5	76.4	61.4	64.4
Women	43.1	34.8	43.3	40.6	43.3	24.5	23.6	38.6	35.6
	100	100	100	100	100	100	100	100	100

Sources: Quadros de Pessoal and authors' calculations.

Chart 3
PROPORTION OF FEMALES IN IMMIGRANT EMPLOYMENT BY MAIN NATIONALITIES | SHARES IN TOTAL


Sources: Quadros de Pessoal and authors' calculations.

Chart 4
IMMIGRANT EMPLOYEES WITH TENURE UP TO 3 YEARS BY MAIN NATIONALITIES | SHARES IN TOTAL


Sources: Quadros de Pessoal and authors' calculations.

Table 3
TENURE OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, AVERAGE 2002-2008 | SHARES, PER CENT

	Natives	Immigrants							
		EU15	PALOP	CEEC		Brazil	China		
				Cape Verde	Ukraine				
[0, 3]	44.0	78.7	61.7	74.7	73.5	86.4	85.0	88.2	89.7
of which: 0	15.9	37.7	24.1	37.6	34.9	38.7	36.0	47.1	44.1
[4, 6]	16.9	12.1	17.8	13.1	13.2	11.2	12.2	8.5	7.8
[7, 9]	10.8	3.9	8.8	5.2	5.2	1.4	1.5	1.7	1.5
[10, 19]	18.9	4.1	9.6	5.6	5.8	0.4	0.5	1.3	0.8
≥20	9.4	1.3	2.1	1.3	2.3	0.5	0.8	0.3	0.1
	100	100	100	100	100	100	100	100	100
Average years	7.4	2.4	4.1	2.8	3.1	1.6	1.8	1.4	1.3

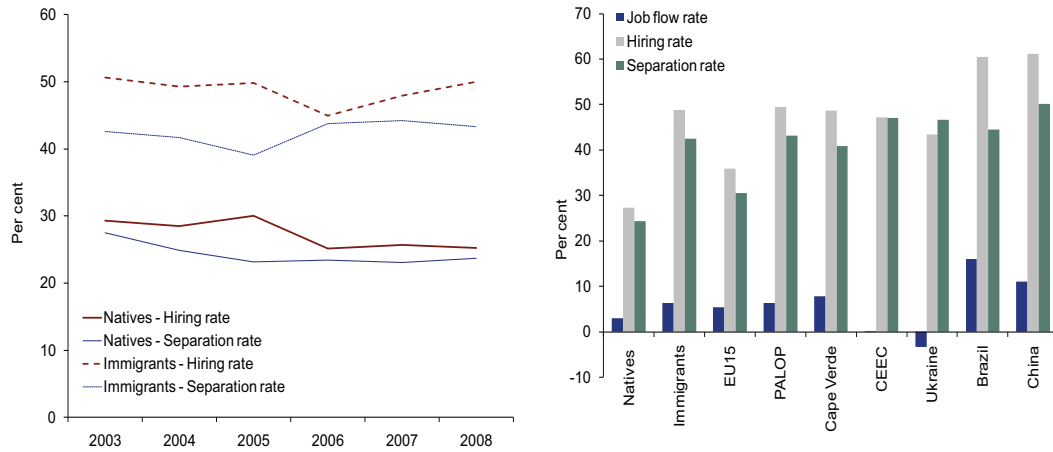
Sources: Quadros de Pessoal and authors' calculations.

in 2008. Although this evolution can suggest that migrants from the CEEC have a higher probability of maintaining a job once they get it, it also reflects the very strong growth of recent migration flows from Brazil in the last two years. A precise analysis of the differences in labour market outcomes of the various nationality groups requires controlling for a broad range of characteristics that differentiate them. As no such control for heterogeneity is made here, these descriptive statistics should be interpreted with caution.

An analysis of worker flows offers a complementary perspective of immigrant employment, examining the allocation of workers through hires and separations. Even when aggregate employment does not change, workers move between jobs or enter/exit the labour force, so worker rotation rates exceed the rates of job creation and destruction (see Centeno *et al.* (2008) for a detailed analysis of worker and job flows in the Portuguese labour market). Following Burgess *et al.* (2000), total worker flows or turnover refer to all movements of workers into and out of jobs, *i.e.*, the sum of hires and separations occurring between two years, and job flows are computed as net job changes, *i.e.*, the difference between hires and separations. To obtain the corresponding rates, flows are divided by total average employment in the two years. In the 2003-2008 period, worker rotation rates in Portugal are higher for immigrants than for natives, with both hiring and separation rates showing higher values (Chart 5). This result is in line with

Chart 5

HIRING AND SEPARATION RATES OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL
 Natives and immigrants By nationalities, average 2003-2008



Sources: Quadros de Pessoal and authors' calculations.

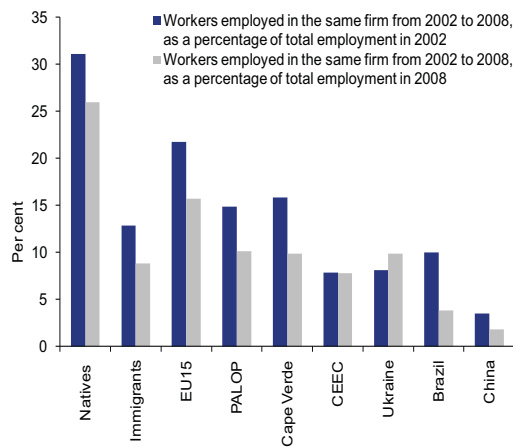
the evidence in Centeno *et al.* (2008) that worker flows are higher among younger worker and workers with fixed-term contracts. By main nationality, Chinese immigrants have particularly high rotation rates, with the highest hiring and separation rates over the period. The hiring rate of immigrants from Brazil is also above 60 per cent, which partly translates into an important net job creation. In contrast, the hiring rates of workers from Ukraine are smaller than their separation rates, leading to a net job destruction over this period. Among immigrants, workers from the EU15 have the lowest rates of worker flows, but still above those of natives.

As discussed in Burgess *et al.* (2000), strong worker flows can coexist with a stable core of workers that remain in the same firm throughout the whole period. Chart 6 depicts the retention rates by main nationalities, defined as the percentage of workers who were employed at the beginning of the period, and remain in the same firm at the end of the period. It shows that around 30 per cent of natives that were employed in 2002 remained in the same firm until 2008, but that share decreases sharply to 12.9 per cent for immigrants, not controlling for other factors that differentiate them. Within immigrants, the retention rate is the highest for workers from the EU15 and the lowest for workers from China, in line with the magnitude of worker flows for these immigrant groups. The percentage of immigrants from the CEEC and Brazil that were still employed by the same employer after 7 years amounts to 7.8 and 10 per cent, respectively. Given the higher worker flows of Brazilian employees it could be expected that the retention rate would be lower for them than for workers from the CEEC. However, from 2002 to 2008, the number of Brazilian employees in Portugal grew strongly, while workers from the CEEC remained stable and these different trends affect the comparison of their retention rates. The extent of this influence becomes clearer if the group of workers that remained in the same firm over the whole period is divided by total employees in 2008, instead of in 2002. In this case, only 3.8 per cent of Brazilians that are employed in 2008 were already working in the same firm in 2002, compared to 7.8 per cent for workers from the CEEC.

Table 4 shows the regional distribution of immigrants within the country in comparison with native workers in the 2002-2008 period. The top 3 districts for each nationality group are highlighted in table 4, with Lisboa being the main location for all nationality groups considered. In the case of immigrants, the main three locations in Portugal are Lisboa, Faro and Porto, but Setúbal is also an important location. This regional distribution is different from that of natives which are more widespread across the

Chart 6

WORKERS EMPLOYED IN THE SAME FIRM FROM 2002 TO 2008 | SHARES IN TOTAL



Sources: *Quadros de Pessoal* and authors' calculations.

Table 4

GEOGRAPHICAL LOCATION OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, AVERAGE 2002-2008 | SHARES, PER CENT

	Employment (rate of change)	Natives	Immigrants							
			EU15	PALOP	Cape Verde	CEEC	Ukraine	Brazil	China	
Aveiro	1.8	7.4	4.2	4.2	1.8	0.6	5.4	6.7	3.1	3.0
Braga	2.6	8.9	3.3	4.5	1.5	0.5	3.6	4.6	2.1	2.7
Faro	6.0	3.2	11.7	18.6	6.0	7.5	18.0	15.9	9.4	13.1
Leiria	3.0	4.5	4.5	5.2	1.8	1.9	7.9	10.2	3.5	2.8
Lisboa	3.6	31.7	45.3	34.2	67.5	69.9	32.4	28.6	53.0	37.3
Porto	3.2	18.8	9.5	12.2	6.2	4.9	7.1	8.2	8.4	16.9
Santarém	2.5	3.5	3.3	2.8	1.5	0.9	5.8	6.8	2.9	4.9
Setúbal	2.2	4.6	7.3	3.9	8.8	10.2	6.7	4.9	8.9	7.0
Other	3.6	17.4	11.0	14.4	4.8	3.6	13.0	14.1	8.6	12.3
Total	3.3	100	100	100	100	100	100	100	100	100

Sources: *Quadros de Pessoal* and authors' calculations.

Note: The rate of change of employment refers to the annual average rate of change of total employment (natives and immigrants) over the period 2002-2008, in per cent.

country and relatively more concentrated in the North of the country, with Porto and Braga being major locations for native employment. Immigrants are relatively more concentrated than natives in the Lisboa district, a district whose total employment grew above average in this period. The second major location of immigrant workers, Faro, had also a strong increase in total employment, the highest of the districts included in table 4. Immigrants from the *PALOP* are heavily concentrated in the Lisboa and Setúbal districts, especially in the case of Cape Verde (80.1 per cent of immigrant workers from Cape Verde are located in these two districts). Workers from Brazil are also very concentrated in Lisbon (53 per cent of total), with Faro, Setúbal and Porto appearing also as important locations in this period. Porto is the second major location for Chinese immigrants, with an above-average share of 16.9 per cent, followed by Faro with 13.1 per cent. Workers from the CEEC are relatively more concentrated in Faro, with Leiria appearing as the third major district for these workers. Faro is also an important location for immigrants from the EU15, accounting for 18.6 per cent of total workers from these countries in the period 2002-2008.

Immigrant employment in Portugal is concentrated in a few sectors, namely construction and some services activities. In contrast, the share of the manufacturing industry in total immigrant employment is much lower than that in native employment (15.9 and 28.8 per cent on average in the 2002-2008 period, respectively) and declined from 2002 to 2008 (Table 5 and Chart 7). The main sector of immigrant employment in Portugal is the construction sector, accounting for 23.9 per cent of the total employment of immigrants in this period (11.5 per cent for natives). The construction sector is especially relevant for male immigrants as 35.5 per cent of them are employed in this sector (18.4 per cent for native males) and for immigrants of the *PALOP* and, mostly, the CEEC. The high concentration of immigrants in the construction sector reflects the fact that recent immigration flows in Portugal were partly driven by strong demand in this sector. However, the proportion of immigrants employed in construction declined over the 2002-2008 period, in line with the deceleration of activity in this sector, but the share of native employment remained virtually stable. This fact points to a higher sensitivity of immigrants employment to the evolution of activity in this sector.

In the period 2002-2008, the employment share of the services sector as a whole is very similar for natives and immigrants, representing almost 60 per cent of total in both cases, and has been increasing over time reflecting the shift to services observed in most advanced economies since the eighties. However, the breakdown within services is very different for natives and immigrants in Portugal. Immigrants are especially concentrated in three sub-sectors: hotels and restaurants, real estate and business services, and wholesale and retail trade. The first two sub-sectors represent individually around 15 per cent of total immigrant employment in this period, a share much higher than that of natives. Both sub-sectors recorded also an increase of immigrant employment from 2002 to 2008. These two sub-sectors are particularly significant for female immigrants, with shares in total female immigrant employment of 27.7 per cent for hotels and restaurants and 17.4 per cent for real estate and business services in this period. Within the real estate and business services, the major sub-sectors of immigrant employment are industrial cleaning and labour recruitment and provision of personnel, which includes temporary work agencies. This sub-sector employs an especially high share of immigrants from the *PALOP* (22.9 per cent on average in the period), in particular in cleaning services. Around 15 per cent of immigrants from Brazil also work in real estate and business services, but particularly in temporary work agencies. Immigrants from China and, to a lesser extent, Brazil are relatively more concentrated in hotels and restaurants (average shares of 46 per cent and 23.7 per cent, respectively). A significant percentage of immigrants works in wholesale and retail trade (13.5 per cent compared to 20 per cent for natives in the period 2002-2008) and this share remained almost stable over this period. Female immigrants are relatively more concentrated in this sub-sector than male immigrants (shares in total of 17 and 11.7 per cent, respectively), while for native workers the proportions between men and women are similar (around 20 per cent). Immigrants from China are predominantly employed in wholesale and retail trade, accounting for 50 per cent of total on average in this period. A higher than average share of employment in this sub-sector is also found for immigrants from the EU15 (19.7 per cent). Workers from the EU15 are also more concentrated in education and health than immigrants from other origins.

Table 6 compares the educational attainment of natives and immigrants in the Portuguese labour market using the International Standard Classification of Education (ISCED) categories. The differences between the levels of formal education of natives and immigrants as a whole are small. The percentage of immigrant workers with very low education levels is lower than the corresponding figure for native workers (44.1 and 46.9 per cent, respectively), but the share of illiterates is higher for immigrants. Immigrants with a high education level (tertiary education) represent also a smaller proportion of total than that of natives, while the percentage of immigrants with low and medium education levels is higher than that of native workers. However, these aggregate education levels conceal important differences between the main immigrant groups. Immigrants from Cape Verde and China stand out as having an extremely low educational attainment. 71.3 per cent of immigrants from Cape Verde have a very low education level (primary education or less), with 8.7 per cent of illiterates, and only 2.3 per cent of them have tertiary

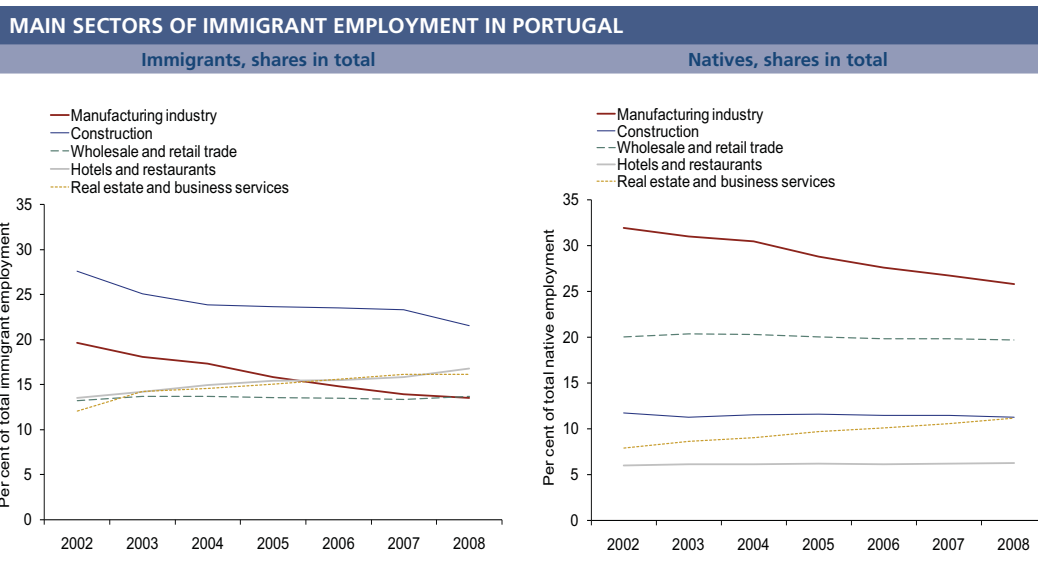
Table 5

MAIN SECTORS OF ACTIVITY OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, AVERAGE 2002-2008 SHARES, PER CENT															
ISIC code	Natives			Immigrants			EU15	PALOP	CEEC	Brazil	China	Males		Females	
	Natives	Immigrants	EU15	Immigrants	Natives	Immigrants						Natives	Immigrants	Natives	Immigrants
1+2+5	1.6	2.6	1.9	0.6	5.2	1.7	0.3	0.3	1.8	2.7	1.3	2.3	1.3	2.3	
10-14	0.5	0.4	0.4	0.2	0.9	0.1	0.0	0.0	0.8	0.7	0.1	0.1	0.1	0.1	
15-37	28.8	15.9	20.8	8.9	22.0	10.8	1.0	1.0	28.5	17.0	29.1	13.8	29.1	13.8	
15-16	3.6	2.8	2.2	1.8	3.7	2.8	0.0	0.0	3.4	2.3	3.9	3.8	3.9	3.8	
17-19	8.6	2.4	4.0	0.6	2.4	0.7	0.5	0.5	4.4	1.6	14.1	3.9	14.1	3.9	
20-22	3.1	1.5	1.9	0.9	1.9	1.0	0.1	0.1	3.8	1.7	2.2	1.0	2.2	1.0	
23-25	1.9	1.1	1.6	0.7	1.5	0.8	0.1	0.1	2.2	1.2	1.5	0.9	1.5	0.9	
26-28	5.1	4.3	4.2	2.3	7.7	2.5	0.0	0.0	7.0	5.7	2.7	1.7	2.7	1.7	
29-33	3.0	1.7	3.0	1.2	1.9	1.5	0.1	0.1	3.5	2.1	2.2	1.1	2.2	1.1	
34+35	1.6	1.2	2.5	0.9	1.5	0.9	0.0	0.0	1.9	1.3	1.1	0.9	1.1	0.9	
36+37	1.8	0.9	1.4	0.5	1.4	0.6	0.2	0.2	2.3	1.1	1.3	0.6	1.3	0.6	
40+41	0.6	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.9	0.1	0.2	0.1	0.2	0.1	
45	11.5	23.9	8.1	29.1	32.3	19.4	0.5	0.5	18.4	35.5	2.3	2.2	2.3	2.2	
50-99	57.1	57.1	68.7	61.1	39.5	68.0	98.2	98.2	49.6	44.1	67.0	81.5	67.0	81.5	
50-52	20.0	13.5	19.7	11.1	9.0	15.8	50.0	50.0	19.5	11.7	20.7	17.0	20.7	17.0	
55	6.1	15.3	11.4	14.6	10.7	23.7	46.0	46.0	4.2	8.7	8.7	27.7	8.7	27.7	
60 a 64	5.9	4.3	5.5	2.5	5.3	4.6	0.2	0.2	8.1	5.6	3.0	1.7	3.0	1.7	
65-67	3.2	0.8	2.2	1.4	0.1	0.5	0.0	0.0	3.2	0.6	3.2	1.1	3.2	1.1	
70-74	9.6	15.0	12.9	22.9	10.3	14.7	0.9	0.9	9.4	13.7	10.0	17.4	10.0	17.4	
75	0.9	0.3	0.4	0.4	0.1	0.2	0.0	0.0	0.8	0.2	1.1	0.4	1.1	0.4	
80	1.9	1.1	4.9	0.8	0.3	0.5	0.2	0.2	0.8	0.5	3.4	2.2	3.4	2.2	
85	5.8	3.6	7.1	4.6	1.4	3.3	0.1	0.1	1.2	0.9	11.9	8.7	11.9	8.7	
90-99	3.6	3.3	4.6	2.9	2.4	4.6	0.8	0.8	2.4	2.2	5.1	5.2	5.1	5.2	
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	

Sources: *Quadros de Pessoal* and authors' calculations.

Note: ISIC refers to the International Standard Industrial Classification of All Economic Activities.

Chart 7



Sources: *Quadros de Pessoal* and authors' calculations.

Table 6

EDUCATION ATTAINMENT OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, AVERAGE 2002-2008 SHARES, PER CENT									
	Natives	Immigrants							
			EU15	PALOP	CEEC		Brazil	China	
				Cape Verde	Ukraine				
Very low	46.9	44.1	19.5	55.8	71.3	43.8	45.1	37.0	70.0
of which: illiterate	1.2	4.1	0.5	4.9	8.7	6.3	6.7	1.7	15.3
Low	21.4	24.2	19.7	21.7	16.4	26.8	26.7	27.9	20.1
Medium	20.2	23.1	29.8	16.7	10.0	23.6	22.6	29.5	7.2
High	11.5	8.7	31.0	5.9	2.3	5.8	5.6	5.7	2.7
	100	100	100	100	100	100	100	100	100

Sources: *Quadros de Pessoal* and authors' calculations.

Note: Very low education level refers to ISCED 0-1 (primary, up to 6 years), low refers to ISCED 2 (lower secondary, up to 9 years), medium refers to ISCED 3-4 (upper-secondary, up to 12 years) and high refers to ISCED 5-6 (tertiary).

education in the 2002-2008 period. These education levels are much lower than in the case of immigrants from other *PALOP* and are comparable to those of workers from China, even though the Chinese have a higher percentage of illiterates (15.3 per cent). The proportion of highly-educated workers is very similar in immigrants from the *PALOP*, CEEC and Brazil (between 5.7 and 5.9 per cent of total), but the Brazilians have a smaller share of individuals with very low education levels and a higher percentage of workers with medium education. In contrast, the educational attainment of immigrants from the EU15 is significantly higher than that of all other nationality groups, including the natives, with more than 30 per cent of them having tertiary education.

3. The wages of immigrants in Portugal

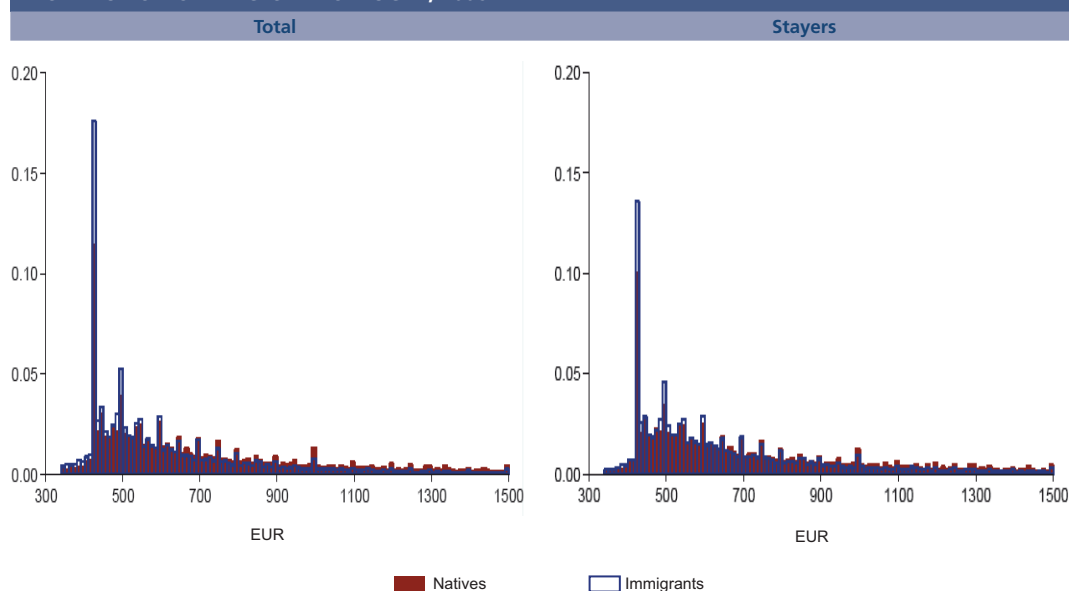
The wage-setting procedure in Portugal is mainly determined by three thresholds: first, the lower limit is defined, at the national level, through the legal mechanism of the minimum wage; second, nominal wage cuts in the private sector are forbidden by law (Labour code, art. 129); finally, in the context of wage bargaining, the vast majority of the lower limits of wages for each professional group are defined

by sectoral agreements, as firm agreements are the exception. Hence, there is not an automatic wage indexation mechanism. This framework is common to both native and immigrant workers.

As expected, the distribution of wages for the total economy shows a mode in wages equal to, or very close to, the minimum wage. Furthermore, looking to this distribution one can see that the concentration of immigrants in lower wages was higher (Chart 8).⁴ This was true for both total employees and employees who stayed at least for two consecutive years in the same firm. As workers who entered or exited a given firm in a given year, either natives or immigrants, earned lower wages, the concentration in the bottom-end of the wage distribution was higher for total employees than for stayers.

Not controlling for any differentiating factors, immigrants in Portugal are, on average, paid below the wages of native workers over the 2002-2008 period (Chart 9). In addition, the proportion of workers that are paid below the minimum wage is substantially higher for immigrants than for natives. In 2002, the average wages of native workers were 18.2 per cent above the average wages of immigrants, but this wage gap decreased to 13.3 per cent in 2008. Having started from lower wage levels, the average growth of wages in the period 2002-2008 was higher for immigrants than natives (annual average change of 4.4 and 3.7 per cent, respectively).

There are also important differences in average wages within immigrant workers in Portugal (Chart 10). Over the period analysed, the average wage of workers from the EU15 was almost twice as high as the average wage of natives and immigrants as a whole, growing at an annual rate of change of 4.6 per cent.⁵ Immigrants from the *PALOP* earn less than the average immigrant but the difference is particularly stark in the case of workers from Cape Verde, which earn on average about 15 per cent less than the average *PALOP* worker. In 2002, the average wage of CEEC immigrants was lower than the one of

Chart 8
DISTRIBUTION OF WAGES IN PORTUGAL, 2008


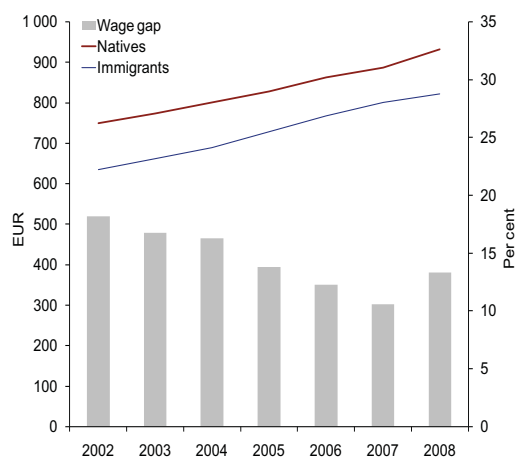
Sources: *Quadros de Pessoal* and authors' calculations.

Note: Stayers only include employees who stayed for at least two consecutive years in the same firm.

- 4 The distributions of wages are similar throughout the period analysed. These distributions are available from the authors upon request.
- 5 As wage distributions exhibit a higher concentration in the left tail, the average wage is higher than the median wage. However, the results remain qualitatively unchanged if the median was used instead.

Chart 9

WAGE LEVELS OF NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL

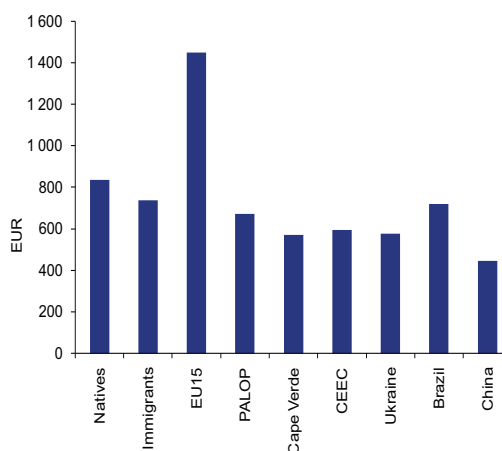


Sources: *Quadros de Pessoal* and authors' calculations.

Note: The percentual wage gap is defined as the difference between the average wages of native and immigrant workers expressed as a percentage of natives wages.

Chart 10

WAGE LEVELS BY MAIN NATIONALITIES, AVERAGE 2002-2008



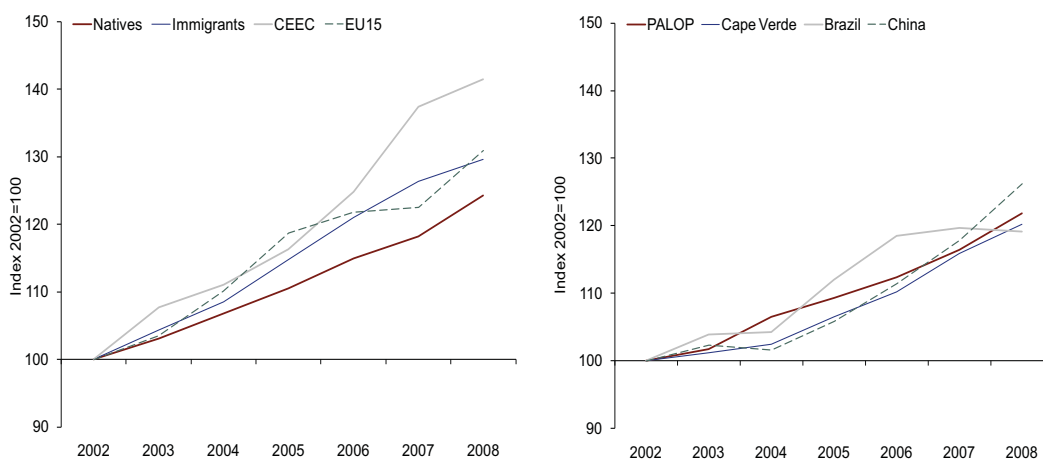
Sources: *Quadros de Pessoal* and authors' calculations.

workers from Cape Verde. However, the wages of CEEC workers grew significantly from 2002 to 2008 (41.4 per cent over the whole period, *i.e.*, an annual change of 5.9 per cent) (Chart 11). The average wage of Brazilian workers in 2002 was similar to the average wage of immigrants as a whole. However, particularly in the last few years, the rate of change of wages of Brazilian workers was the lowest of all migrant groups considered, being slightly negative in 2008. Chinese immigrants earn wages significantly lower than other migrant groups, on average, reflecting their strong concentration in some low-skilled sectors, like wholesale and retail trade, and hotels and restaurants, and also the extremely high share of minimum wage earners, which we will examine in more detail below. Nevertheless, the high percentage of minimum wage earners may be one of the reasons why the wages of Chinese workers increased at a higher pace than total immigrants' wages in the last two years. Summing up, apart from EU15 workers, the other migrant groups earn lower wages than natives, and the higher average wage growth of immigrants compared to natives over the period analysed was mainly driven by developments in the wages of CEEC workers, whose tenure also rose steadily, and, to a lesser extent, of workers from the EU15.

Several factors may contribute to the wage gap between natives and immigrants observed throughout the 2002-2008 period. This gap is linked with a broad range of variables that can have an impact on wages, such as age, gender, education, type of contract, tenure, sector and region, as we will discuss in further detail below. However, these variables do not seem to fully explain the observed wage gap between native and immigrant workers. For the whole sample period, we estimated a simple wage regression including variables controlling for the age, gender, education, type of contract, tenure, sector and region, and also nationality and time dummies. The results in table 7 show that the wage gap between natives and immigrants persists even after taking into account these regressors (OECD (2008) found a similar result using data for 2005). From about 15 per cent, the average wage gap between natives and immigrants as a whole remains at 8.5 per cent even after controlling for worker, firm and match characteristics. Within immigrants, these characteristics account for around 40 and 30 per cent of the negative wage gap for *PALOP* and CEEC immigrants, respectively. This percentage is significantly higher in the case of Brazilians (almost 60 per cent) and Chinese workers (about 70 per cent). About half of the positive gap between the wages of EU15 and native workers is related with the selected regressors.

Chart 11

EVOLUTION OF AVERAGE WAGES BY MAIN NATIONALITIES | CUMULATIVE GROWTH



Sources: *Quadros de Pessoal* and authors' calculations.

Table 7

LOG WAGES FOR IMMIGRANTS COMPARED TO THE NATIVES, AVERAGE 2002-2008

	Immigrants							
		EU15	PALOP	Cape Verde	CEEC	Ukraine	Brazil	China
Coefficient of the nationality dummy								
Without controls	-0.149	0.329	-0.176	-0.265	-0.239	-0.251	-0.190	-0.484
With controls	-0.085	0.156	-0.106	-0.117	-0.164	-0.179	-0.077	-0.149
Explained gap (% of total gap)	42.9	52.6	39.5	56.0	31.7	28.6	59.3	69.2

Sources: *Quadros de Pessoal* and authors' calculations.

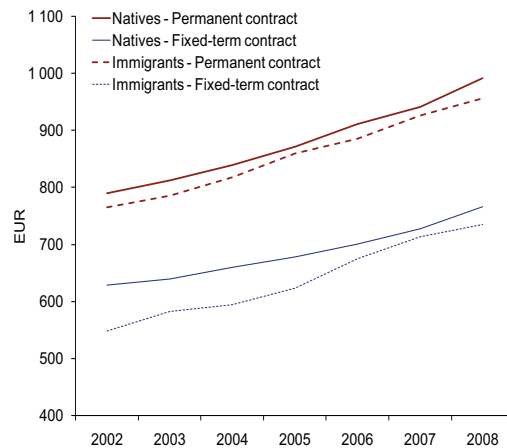
Note: All regressions include time dummies. The control variables are age, gender, education, region, sector, tenure and type of contract.

Apart from information on tenure, our regression does not control for the duration of stay of immigrants in Portugal. Among other factors, longer periods of residence are associated with better language skills and more experience acquired in the destination country, which can contribute to partly offset the remaining wage gap between natives and immigrants (see, for instance, Carneiro *et al.* (2010)). A more in-depth analysis of the process of economic assimilation of immigrants in Portugal is an interesting topic for future research.

Worker, firm and match characteristics included in the wage regression presented above account for around 40 per cent of the overall wage gap between natives and immigrants. In the following analysis, we will examine some of these variables in more detail. Regarding the type of contract, results from the regression presented above point to the existence of a 3.7 per cent penalty on wages of similar workers but with fixed-term contracts. In the period 2002-2008, the positive wage gap between natives and immigrants is common to workers with permanent and fixed-term contracts (Chart 12). Considering workers with permanent contracts, the wage gap between natives and immigrants remained almost stable over this period, while the difference in wage levels of natives and immigrants with fixed-term contracts declined from 2002 to 2008. Moreover, workers with permanent contracts earn higher average wages than those with fixed-term contracts, both in native and in immigrant employment. In the period 2002-2008, natives with permanent contract earned approximately 27 per cent more than natives with fixed-term contract. In the case of immigrants this percentage gap was even higher, reaching 34 per

Chart 12

WAGE GAP BETWEEN NATIVES AND IMMIGRANTS IN PORTUGAL BY TYPE OF CONTRACT



Sources: *Quadros de Pessoal* and authors' calculations.

cent. Throughout the period, the difference in wage gaps between permanent and fixed-term contracts - of native and immigrant workers - dwindled away, being very similar in the most recent period (about 30 per cent). Hence, as the percentage of native workers with permanent contracts is higher than for immigrants and higher than the percentage of natives with fixed-term contracts, the wage gap between permanent and fixed-term contracts contributed positively to the higher average wages of natives when compared to immigrants.

The pattern of differences in wage levels between natives and immigrants does not change substantially across the main sectors of activity of immigrant employment. Apart from EU15 workers, immigrants have lower average wages than natives in construction, hotels and restaurants, real estate and business services, and wholesale and retail trade. Nevertheless, there are some differences in the evolution of average wages of natives and immigrants over time in these sectors.

In wholesale and retail trade, the wages of immigrant workers increased at a lower rate than the wages of natives (annual rates of 2.6 and 3.6 per cent, respectively) (Table 8). On the one hand, the wages of Brazilian (the most significant group of immigrants in this sector), CEEC and Chinese workers increased at a higher pace than the wages of natives. On the other hand, changes in the wages of *PALOP* workers were below those of natives. Furthermore, the wages of workers from the EU15 decreased significantly in 2007 and 2008. Given the higher level of their wages, this evolution in wages of EU15 workers had a strong negative contribution to the developments in total immigrants' wages.

In contrast, in the construction sector, immigrants' wages grew more than those of native workers from 2002 to 2008 (annual average rates of 5.8 and 4.8 per cent, respectively). Wages from *PALOP* workers increased almost the same as natives, but the average wages of CEEC workers - the other dominant group of immigrants in the construction sector - grew significantly (54.2 per cent in cumulative terms, *i.e.*, an annual rate of change of 7.5 per cent). In spite of having started at a similar point in 2002, the wages of workers from Cape Verde in the construction sector increased by far less than overall *PALOP* workers, resulting in a gap in average wage of about 70 euros in 2008.

In the real estate and business services, workers from Cape Verde also earned lower wages, on average, over this period. Yet, the developments in their wages were significant, with an average wage growth higher than for total immigrants and natives working in this sector. Immigrants from other *PALOP* had feeble wage developments, as the cumulative average wage growth of total *PALOP* workers in this

Table 8

EVOLUTION OF AVERAGE WAGES BY MAIN NATIONALITIES AND SECTORS OF ACTIVITY OF IMMIGRANT EMPLOYMENT ANNUAL AVERAGE RATE OF CHANGE OVER THE PERIOD 2002-2008, PER CENT											
ISIC code		Natives	Immigrants	Immigrants							
				EU15	PALOP	Cape Verde	CEEC	Ukraine	Brazil	China	
45	Construction	4.8	5.8	2.8	4.9	2.9	7.5	7.4	2.7	-6.1	
50-52	Wholesale and retail trade	3.6	2.6	2.4	3.1	3.2	4.7	4.5	4.0	4.2	
55	Hotels and restaurants	3.9	3.8	4.2	3.3	3.6	4.7	5.0	4.1	3.7	
70-74	Real estate and business services	2.1	2.1	2.1	1.4	2.8	5.0	5.3	0.6	4.8	
	Total	3.7	4.4	4.6	3.3	3.1	5.9	6.4	3.0	4.0	

Sources: *Quadros de Pessoal* and authors' calculations.

sector was about 4 percentage points below natives in the period 2002-2008. The average wage of Brazilians increased only by 3.7 per cent in 6 years, *i.e.*, an annual change of 0.6 per cent, with negative rates of change in 2007 and 2008. So, in spite of the sharp increase in the average wages earned by CEEC workers, the wages of total immigrants grew virtually the same as those of natives in this sector.

In hotels and restaurants, the wages of immigrants and natives also increased roughly the same over this period, with an annual average rate of change of around 4 per cent. Wages of CEEC and Brazilian immigrants grew above average over this period, while the wages of *PALOP* workers increased by 3.3 per cent on average each year. Chinese workers in this sector have a cumulative wage growth close to the average over the period, but show a strong wage increase in the last two years, in line with the higher incidence of minimum wage earners in Chinese immigrants.

Indeed, the percentage of minimum wage earners is higher for immigrants than natives. In the period from 2002 to 2008, 12.5 per cent of workers reported wages close to the minimum wage (interval of +/- 10 euros centered on the minimum wage). Over this period, 12.1 per cent of native workers earned the minimum wage, while in the case of immigrants, the proportion of minimum wage earners reached 18.6 per cent, on average. After a period where it remained fairly stable, the percentage of minimum wage earners grew for natives and, even more markedly, for immigrant workers in 2007 and 2008, amidst significant increases of the legal minimum wage of 4.4 and 5.7 per cent, respectively (Chart 13).

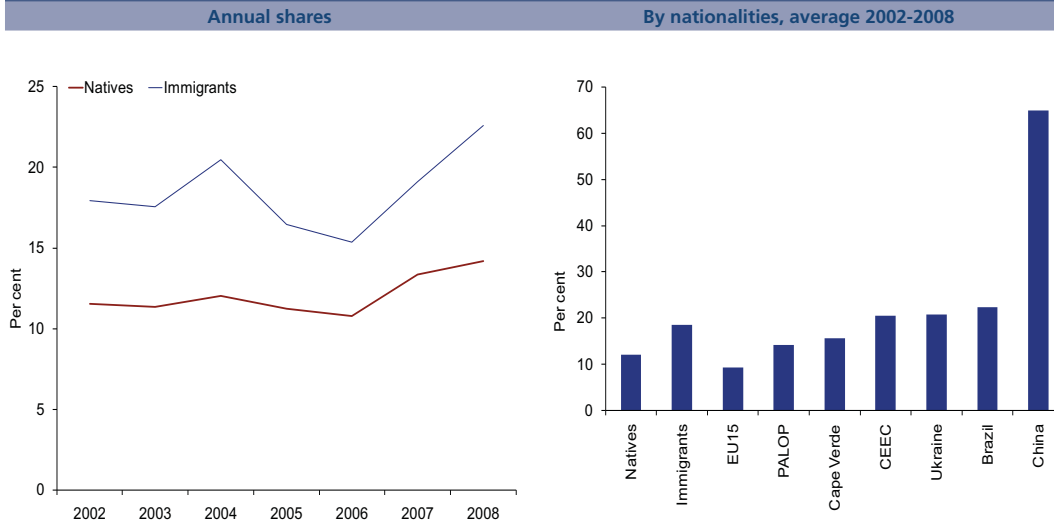
Immigrants from the EU15 have the lowest share of minimum wage earners, even lower than that of natives. In contrast, approximately every two out of three Chinese workers are reported as earning the minimum wage in this period. Minimum wage earners account for 14.3 per cent of total immigrants from *PALOP* but that proportion reaches 15.6 per cent if we consider workers from Cape Verde only. Immigrants from the CEEC and from Brazil have an average percentage of minimum wage earners of 20.5 and 22.3 per cent, respectively, over the period 2002-2008. In the case of immigrants from Brazil that share increased strongly in the last two years to 28.8 per cent in 2008, while in the case of the CEEC it remained mostly stable around 20 per cent.

The shapes of the distributions of wages across different education levels were broadly similar to the distributions for total workers. Again, immigrants tended to be more concentrated on lower wages. Without controlling for factors other than education, the wage gap between natives and immigrants was positive, rising steadily from the bottom to the top of the wage distribution (Chart 14).⁶ The gap is minimum at the very bottom of the wage distribution. As pointed out by Carneiro *et al.* (2010), the

⁶ Information displayed on chart 14 refers to 2008. The results are qualitatively similar throughout the period analysed and are available from the authors upon request.

Chart 13

PERCENTAGE OF WORKERS EARNING THE MINIMUM WAGE

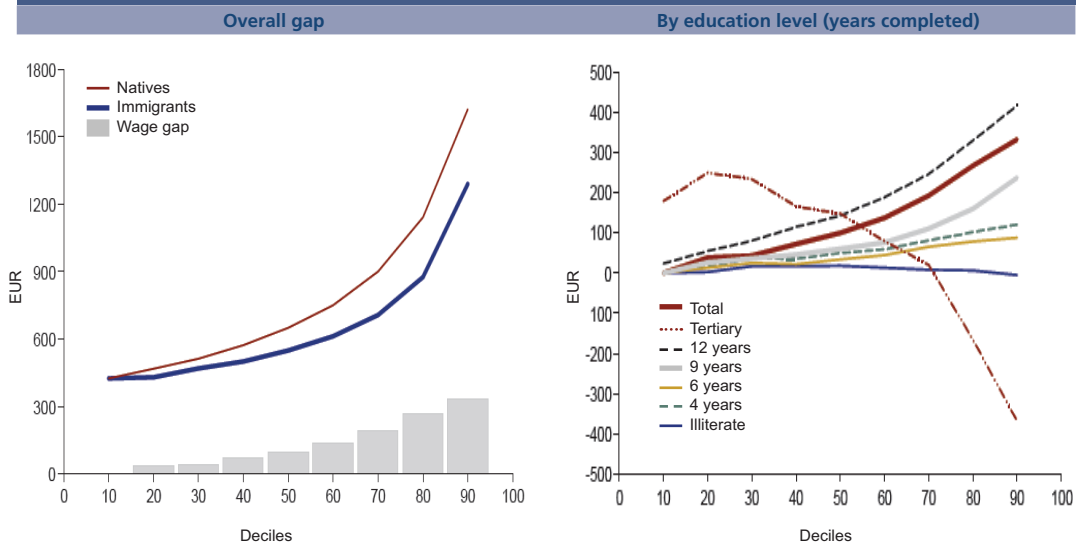


Sources: Quadros de Pessoa and authors' calculations.

Note: Consider as workers earning the minimum wage all those workers whose wage lies in an interval of ±10 euros centered on the minimum wage.

Chart 14

WAGE GAP BETWEEN NATIVE AND IMMIGRANT EMPLOYEES IN PORTUGAL, 2008



Sources: Quadros de Pessoa and authors' calculations.

existence of a mandatory minimum wage level may act as a forceful instrument to limit the wage gap between native and immigrant workers at the bottom-end of the wage distribution.

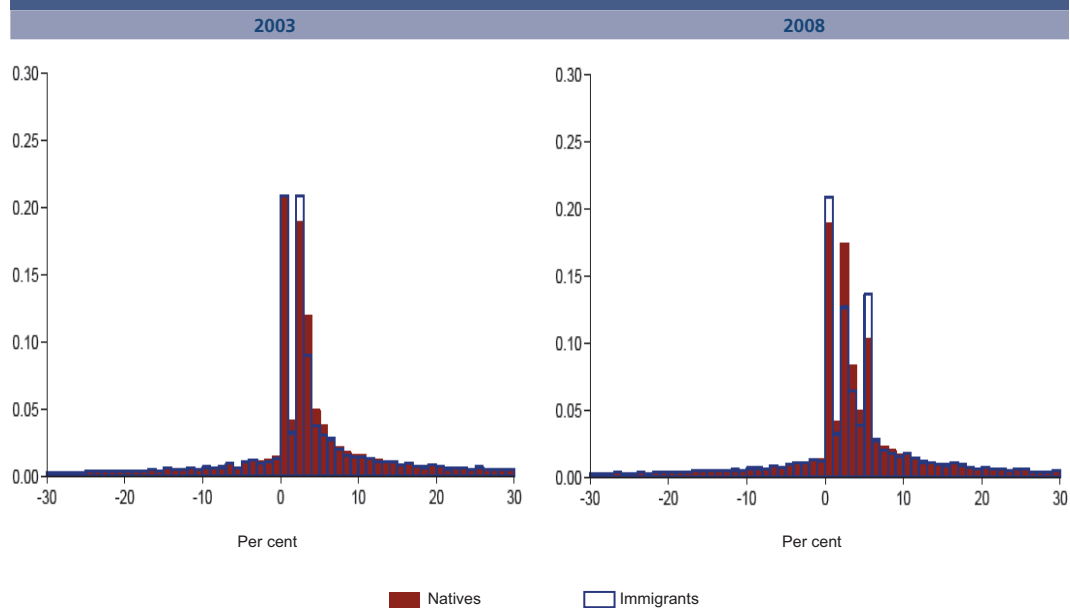
There are two interesting exceptions to this scenario. First, the wage gap between immigrants and natives was virtually nil in the case of illiterate workers. Within these workers, Ukraine and Cape Verde are the most important origin countries. The second refers to the group of workers in the top-end of the education distribution (tertiary education level), which in the case of immigrants are mostly from the EU15, namely Spain and France. In this case, immigrants were more concentrated on both tails of

the wage distribution, *i.e.*, very low and very high wages. In the left tail of the wage distribution the wage gap was again positive, *i.e.*, wages of immigrants were lower. Nevertheless, as one moves to the right, the positive wage gap progressively diminishes, reversing its sign as one approaches the top-end of the wage distribution. Thus, for example in 2008, immigrant workers with tertiary education and on the top 30 per cent of wage distribution were better paid than native workers with tertiary education on the top 30 per cent of wage distribution.

Regarding the distribution of wage changes, negative nominal changes almost do not exist (Chart 15).⁷ Moreover, there is very high concentration on the zero change, which can be interpreted as a sign of downward nominal wage rigidity and this feature is, in general, slightly higher in the case of immigrant workers.⁸ Between 2003 and 2006 the distribution of wage changes had a second mode near the expected inflation rate, bargaining and minimum wage reference value (evidence in favour of a mix of downward real and institutional wage rigidity), common to both natives and immigrants. In 2007 and 2008, the distribution of wage changes has three spikes - at zero, at the expected inflation rate value (and bargaining reference value) and at the rate of change of the minimum wage. The concentration in the rate of change of the minimum wage is higher for immigrant workers, reflecting the higher percentage of immigrants earning the minimum wage. Despite differences in the relative size of the spikes, the main features of the distribution of wage changes - near absence of negative changes and two- or three-spike distributions - were common to immigrants across nationalities, education levels and activity sectors.⁹

Chart 15

DISTRIBUTION OF WAGE CHANGES IN PORTUGAL



Sources: *Quadros de Pessoal* and authors' calculations.

- ⁷ Since wage changes were calculated at the individual level, this distribution only includes employees who stayed for at least two consecutive years in the same firm.
- ⁸ Cabral and Duarte (2010) computed measures of nominal and real downward wage rigidity using the International Wage Flexibility Project (IWFP) methodology and found evidence that wage rigidity is slightly higher for immigrants than for Portuguese workers in the 2003-2008 period.
- ⁹ All distributions are available from the authors upon request.

4. Conclusions

Historically, Portugal has been a country of emigration, but in the late nineties immigration flows grew strongly driven by high labour demand. A significant share of this new immigration flows came from Central and Eastern European countries (CEEC), *i.e.*, from countries with no evident cultural link with Portugal. More recently, there was a very significant increase in the arrivals of immigrants from Brazil. Immigration from China, although growing strongly in the last decade, still represents a small percentage of total immigrant workers. At present, three major groups make up the bulk of immigration in Portugal, representing around 75 per cent of total: Brazil, Portuguese speaking countries in Africa (*PALOP*) and CEEC. The increase in immigration flows and the substantial change in its composition makes it relevant to describe and analyse the characteristics of immigrant workers in Portugal, especially given that empirical evidence about immigration in the Portuguese labour market is still relatively scarce.

In this article, we used a longitudinal matched employer-employee database (*Quadros de Pessoa*) to examine the main characteristics of immigrants in the Portuguese labour market in the 2002-2008 period. We found substantial differences in labour market outcomes between native and immigrant workers and among different nationality groups, in terms of age, gender, tenure, worker flows, geographical and sectoral concentration and education levels. Given the recent nature of most immigrant flows in Portugal and the much higher incidence of fixed-term contracts among immigrants, their tenure is, on average, significantly lower than that of natives. In addition, worker rotation rates are higher for immigrants than for natives. Immigrant workers in Portugal are mostly concentrated in four sectors of activity, construction, hotels and restaurants, real estate and business services, and wholesale and retail trade.

Similarly to other countries, immigrants in Portugal are, on average, paid below the wages of native workers. Moreover, the percentage of minimum wage earners is higher for immigrants than natives. The differences between native and immigrant workers in terms of age, gender, education, type of contract, tenure, region and sector, contribute to the positive gap between the wages of native and immigrant workers. However, these variables do not seem to fully explain the observed wage gap between native and immigrant workers. The average difference between the wages of native and immigrant workers decreased throughout the period 2002-2008, as the cumulative growth of wages in this period was higher for immigrants than natives.

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