

PART. FLOWS AND THE EU

Portugal

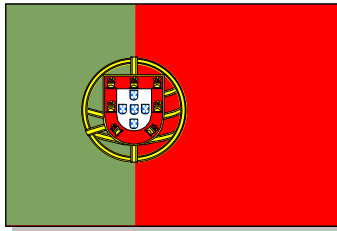


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Portugal

1. Highly Skilled Migration — Introduction¹

International migration of highly skilled labour in Portugal has been the object of scarce attention. The large volume of unskilled and low skilled movements that occurred since the 1960s – first emigration and recently immigration – perhaps explains the marginal efforts made to understand it. What is known is that since the 1960s, outflows of highly skilled persons have been taking place, including a fraction of scientists and researchers. Some of these left the country and some are known to be carrying on excellent work in their fields. Following the modernisation of the country, overall outflows increased since the mid-1970s, and targeted more diverse areas, including business. However, they never amounted to a significant number and they are not considered to be a problem. Flows related to multiple regions of work have also been occurring. Since the 1960s, movements occurring in the framework of multinational corporations have dominated these flows, along with other business-related flows. The former paralleled the trends of fdi, whilst the second resulted from specific migratory sources, including Brazil. In relative terms, highly skilled inflow has been substantial, gathering almost a third of all legal immigrants in recent decades. Despite its importance, this movement rarely has been understood as problematic.

Besides the lack of awareness of any social problem of this type, there are severe methodological difficulties to capture the flows phenomenon. International migration flows are generally difficult to evaluate. The difficulties multiply when we deal with a narrow professional segment such as scientists and engineers. The “invisibility” of highly skilled migrants has been referred to by Salt (1992), arguing on the basis of their social status character and on the temporary nature of many stays.

In Portugal, detailed statistics on occupation and education of emigrants existed until 1988, and thereafter were not collected. Currently, emigration is measured by a survey, and no specific variables on occupation and education are available. As a result, only limited indicators can be developed on recent highly skilled outflows and only at a general level.

Figures on the occupation of immigrants to Portugal, the foreign legal population (stock data) are available beginning with 1986, but again no information on education is collected. Data on annual inflows of foreigners has been produced since the late 1990s and they do contain some sparse information about skills. In both cases – emigration and immigration, even when statistics are available, the number of correlated variables (demographic and other socio-economic) is scant and the quality of data is of difficult assumption.

Despite the difficulties in measuring highly skilled migration in Portugal, its study is interesting for two contrasting reasons. Firstly, emigration is a flow that is most likely to occur in the European Union (EU) context, with the income levels of Portuguese professionals lower than in EU countries. This should engender, by push-pull mechanisms, a pressure on Portuguese highly skilled persons to emigrate (even accepting a lower wage than other nationals) and result in a brain drain. However, the “relative” income and the internal social status of these categories in Portugal and the relative saturation in other national labour markets lead to an unclear outcome. Second, concerning immigration, a significant inflow could be expected.

¹ The information on Portugal was prepared by João Peixoto, Research Centre on Economic Sociology and the Sociology of Organisations (SOCIUS), Institute of Economics and Business Administration (ISEG), Technical University of Lisbon. for CNR-IRPPS for the project *The Brain Drain — Emigration of Qualified Scientists*.

The proportion of skilled labour in Portugal is lower than in most other EU countries, a situation illustrated by the lower education of its labour force. In 1997 in Portugal, only some one in ten of adults had a tertiary level diploma (higher education), compared to almost 19% in the EU overall. Hence, an important flow of professionals could be expected to enter the country, attracted by frequent employment opportunities (due to the local shortage) and pushed by eventual redundancy (unemployment or under-use of their skills) in their own countries (Baganha, 1998). However, the low levels of income in Portugal challenge this prediction.

In the next sections we will review, first, the trends on highly skilled immigration and, second, emigration. In both cases we will use the (few) available statistical indicators together with some qualitative evidence gathered by some research on this field. Finally, we will conclude, examining the balance between the movements and trying to evaluate the existence or the potential for any form of brain drain in Portugal.

2. Immigration

From 1986 (the first year with occupation statistics) until 1998 (the most recent data available) the number of legal foreigners engaged in professional, managerial and technical occupations has represented around 30% of the total foreign labour force. In absolute numbers, the increase has been strong with the number doubling over the time period. This rate of increase is next to the one of all economically active foreigners. The idea of a relatively major under evaluation of the lower skilled segments, often affected by irregular situations (see Baganha, 1998), does not completely hold, since the highly skilled may also be said and under evaluated due to the temporary status of many stays. Within the occupations examined, the majority of the highly skilled group are engaged in professional and technical occupations (24.4% in 1998), whilst the remaining are managers and cadres (5.8% in 1998). Their relative weight has not changed significantly since 1986, although there is evidence of slightly greater growth of the second group (Table 1).

	Total				%				Change 1986 to 1998
	1986	1990	1994	1998	1986	1990	1994	1998	%
Occupation (a)									
Highly skilled	12,609	16,208	23,140	26,819	29.3	31.3	29.8	30.3	112.7
0/1	10,352	12,743	18,543	21,656	24.0	24.6	23.9	24.4	109.2
2	2,257	3,465	4,597	5,163	5.2	6.7	5.9	5.8	128.8
Medium and low skilled	30,494	35,573	54,459	61,786	70.7	68.7	70.2	69.7	102.6
3	2,125	2,592	3,222	3,473	4.9	5.0	4.2	3.9	63.4
4	3,461	4,100	6,176	7,421	8.0	7.9	8.0	8.4	114.4
5	2,287	1,824	5,332	7,555	5.3	3.5	6.9	8.5	230.3
6	1,109	910	1,015	1,096	2.6	1.8	1.3	1.2	-1.2
7/8/9	21,441	23,552	38,714	42,241	49.7	45.5	49.9	47.7	97.0
Other	71	2,595	0.2	5.0
Total	43,103	51,781	77,599	88,605	100	100	100	100	105.6

Note: (a) The list of occupations considered in the official statistics on foreign population is the following:
- 0/1: Professional and technical occupations; 2: Managers and cadres;
- 3: Employees; 4: Sales personnel; 5: Personnel services occupations;
- 6: Farmers; 7/8/9: Working class.
The aggregation on "highly skilled" and "medium and low skilled" was done by the author.

Generally speaking, the social polarisation of immigrants in Portugal, divided between a group of highly skilled agents and a majority of low skilled ones, seems to be a constant, at least since the moment when immigration became significant (late 1970s and early 1980s). This trend parallels another — the one of the over qualification of foreigners compared to the average Portuguese population. In fact, observing occupational data for the entire population in the country, we notice that professional, managerial and technical occupations account for only 13.2% of the employed labour force, in 1998 (see INE, Labour Force Surveys) whereas the share of foreigners in these occupations is more than twice the share at 30.3%. There seems to be an almost equivalent distribution among manual occupations (manufacturing, civil construction); the manual occupations account for around 45% of the Portuguese employed labour force, in 1998 (see INE), compared with 48% of the foreigners.

In 1998, EU citizens amounted to a little more than half the highly skilled segment (52%), followed by Brazilians (18.1%). Among the EU persons, the dominant single nationalities were the UK, Germany and Spain. Among the occupations, the predominance of Europeans is stronger among managers/cadres, where they represented 70.1% in 1998, against the professional and technical, where they amounted to slightly less than half (47.7%). Alternatively, Brazilians were much less in managerial occupations (8.1% of the total) and more abundant in the professional and technical ones (20.5%) (Table 2).

Occupations	1986	1990		1994		1998		Change 1986 to 1998
	%	Total	%	Total	%	Total	%	%
Total: professional, management, technical	100	16,208	100	23,140	100	26,819	100	113
EU (a)	46.0	9,110	56.2	10,826	46.8	13,954	52.0	141
Brazil	32.5	2,369	14.6	4,475	19.3	4,862	18.1	19
Other	21.5	4,729	29.2	7,839	33.9	8,003	29.8	195
Professional/technical	100	12,743	100	18,543	100	21,656	100	109
EU (a)	39.1	6,526	51.2	7,839	42.3	10,335	47.7	156
Brazil	38.8	2,190	17.2	4,076	22.0	4,443	20.5	11
Other	22.2	4,027	31.6	6,628	35.7	6,878	31.8	200
Managers and cadres	100	3,465	100	4,597	100	5,163	100	129
EU (a)	77.8	2,584	74.6	2,987	65.0	3,619	70.1	106
Brazil	3.5	179	5.2	399	8.7	419	8.1	424
Other	18.7	702	20.3	1,211	26.3	1,125	21.8	167

Note: (a) In 1986 and 1990, all Europe.
Source: INE

These figures represent, as we will see ahead, a predominance of “organisational” flows amongst Europeans and “independent” ones amongst Brazilians. The quantitative evolution of the flows of these nationalities between 1986 and 1998 may be slightly misleading, since data available in 1986 are of an uncertain quality: this is mainly the case of the figure for Brazilians, which seems to be over estimated. If we consider the period 1990-1998, apparently more precise, it is clear that there is a stronger growth of Brazilians at all highly skilled occupational levels (they double or more than double their absolute volume in this period), compared to Europeans.

The skill profile of the different foreign nationalities living in Portugal is revealed in Table 3. Europeans and Brazilians are clearly a very skilled migration, since half or more of its nationals retain a highly skilled occupation in Portugal, in 1998. As stated above, the managerial categories are more frequent among Europeans, although they only represent circa 14% of their total at that date. The unskilled occupations were, in 1998, an almost exclusive situation of African nationals, namely the ones that came from the Portuguese ex-colonies (mainly Cape Verde, Angola and Guinea-Bissau). Only 4.7% of their nationals could then be considered highly skilled or, at least, they were allowed to perform in that position. In fact, some processes of “brain waste” are known to exist, although no systematic knowledge of its volume is available. They mostly seemed to affect, in that date, the Africans – although, after 2000, this situation has been more typical of the fast growing Eastern European community in Portugal (see Peixoto, 2002).

	1999					2000				
	Total labour force	Highly skilled occupations (b)				Total labour force	Highly skilled occupations (b)			
	Total	%	Profess /techn.	Managers cadres	Total	%	Profess /techn.	Managers cadres		
Total	4058	1341	33.0	970	371	7835	1745	22.3	1267	478
EU	1958	1098	56.1	798	300	2056	1203	58.5	890	313
Brazil	339	104	30.7	71	33	688	200	29.1	152	48
Other	1761	139	7.9	101	38	5091	342	6.7	225	117

Notes: (a)
 (b) The list of occupations includes: 1 - Managers and cadres; 2 - Professional and technical occupation is not the same as the one used for the foreign legal stocks, it can be considered comparable at the

Occupation (a)	Total					%				
	EU	Brazil	PALOP (b)	Other	Total	EU	Brazil	PALOP (b)	Other	Total
Highly skilled	13,954	4,862	1,945	6,058	26,819	54.8	50.8	4.7	48.9	30.3
Professional/technical	10,335	4,443	1,835	5,043	21,656	40.6	46.4	4.5	40.7	24.4
Managers/cadres	3,619	419	110	1,015	5,163	14.2	4.4	0.3	8.2	5.8
Medium and low skilled	11,529	4,708	39,223	6,326	61,786	45.2	49.2	95.3	51.1	69.7
Employees	1,336	655	1,208	274	3,473	5.2	6.8	2.9	2.2	3.9
Sales personnel	3,391	1,157	1,066	1,807	7,421	13.3	12.1	2.6	14.6	8.4
Personnel services	1,588	685	4,253	1,029	7,555	6.2	7.2	10.3	8.3	8.5
Farmers	480	65	270	281	1,096	1.9	0.7	0.7	2.3	1.2
Working class	4,734	2,146	32,426	2,935	42,241	18.6	22.4	78.8	23.7	47.7
Total	25,483	9,570	41,168	12,384	88,605	100	100	100	100	100

Note: (a) The list of occupations considered in the official statistics on foreign population is the following:
 - 0/1: Professional and technical occupations; 2: Managers and cadres;
 - 3: Employees; 4: Sales personnel; 5: Personnel services occupations;
 - 6: Farmers; 7/8/9: Working class.
 The aggregation on "highly skilled" and "medium and low skilled" was done by the author.
 (b) Portuguese-speaking African countries.

Statistics on legal foreigners have changed in the final years of the 1990s. The occupational series on the legal foreign stock was interrupted, whilst a new series was launched for annual inflows of foreigners (based on annual requests for legal residence). This latter included new occupational and educational series.

Table 4 shows the number of foreigners entering the country in 1999 and 2000. These data confirm that a large proportion of the immigrants is highly skilled: they represent between 22% and 33% of all inflows. The more skilled groups continue to be Europeans (between 56% and 59%) and Brazilians (around 30%) – although the latter seems to become globally less skilled. This new series does not support the higher managerial component of the Europeans (but the decrease in FDI in recent years may explain this trend).

Table 5 includes some figures on the educational level of foreigners, which broadly confirm what was stated earlier. Between 18% and 19% of all foreigners applying for legal residence possess a higher education diploma (corresponding to the tertiary level of international

statistics). Around 45% of the Europeans have higher education qualifications followed by Brazilians (18% to 23%).

	1999				2000			
	Total	Educational level			Total	Educational level		
		Higher education (b)	%	Other(c)		Higher education (b)	%	Other(c)
Total	14476	2729	18.9	11747	18412	3361	18.3	15051
EU	4568	2019	44.2	2549	4715	2158	45.8	2557
Brazil	1351	242	17.9	1109	1786	410	23.0	1376
Other	8557	468	5.5	8089	11911	793	6.7	11118

Notes: (a) Foreign population that applied for a legal resident status each year.

Taking into account some of the recent research on these issues (see Peixoto, 1998 and 1999), additional observations about the main lines of highly skilled immigration can be made (some of the following notes are based in Peixoto, 2001a). Looking into its origins, the first significant presence of highly skilled foreigners in Portugal dates from the 1960s. The adhesion to EFTA and the increase in tourism represented a progressive opening of the country.

Most of the flows occurred in the framework of multinational corporations. The entrance of professional and managerial labour to exert technical and control functions in the organisations paralleled the increase in FDI. In the beginning, the individuals concerned numbered few, due to the limited dimension of the Portuguese market and the prolonged stays then dominant among expatriates. Progressively, the flows became frequent, due to wider activities and more staff rotation, often linked to career development policies. A large part of foreign highly skilled presence in the country proceeds by this type of framework, despite the counter tendency to substitute foreign expatriates in local cadres, which also occurs in Portugal. Following the trend of FDI in Portugal, which was augmented after 1986 with the adhesion to the (then) European Economic Community, we will have an indirect sign of the increase of flows. It is mainly Europeans (and EU ones) that have been involved in this type of flow, following the picture of key foreign investors such as the UK and France, and Spain, amongst others, in recent years.

A different type of inflow – “independent” ones - became frequent since the 1980s. The most important one was among Brazilians. Brazil is responsible for a large increase in recent foreign immigration to Portugal. Some cases were non-problematic — activities such as marketing benefited largely from Brazilian presence, due to local shortages and their talent in the area. Other cases were of difficult insertion particularly in sectors where professional regulations and recognition of diplomas’ procedures are complex. This affected Brazilian dentists, which had a prolonged conflict with Portuguese national and professional authorities. Besides Brazilians, although in a much lesser volume, other “independent” flows entered the country. A few individuals coming from Eastern Europe, mainly targeting the scientific system, demonstrated that the Eastern brain drain of the 1990s was, at least partially, a reality. Medical doctors and nurses came from Spain and nurses came from Brazil filling shortages of skilled persons in certain areas. European professionals had greater ease of establishment, following the EU regulations on free circulation (they are numerous, for example, in language institutes). African students continue to enter, benefiting from

scholarships from their country or Portuguese-sponsored education programmes. A significant proportion of these students do not return.

These latter flows have in common an “independent” nature, i.e., the fact of being exterior to any organisational framework. As such, these migrants must compete in the national labour market, facing particular constraints compared to organisational ones. First, they are more dependent on the local dynamics of labour markets. They typically benefit from the existence of specific shortages, and will face resistance if shortages do not occur. As a result, their presence is evident either in sectors where the total Portuguese labour force is scarce or in regions abandoned by Portuguese professionals. This occurred, for instance, in peripheral rural regions of the country.

Second, they cannot avoid procedures on recognition of diplomas. The case of Brazilian dentists is exemplary of the tensions that can arise in a highly skilled labour market. Finally, these migrants represent for Portugal the hosting of a brain drain. This skilled personnel from less developed countries takes a similar decision than others since the 1960s, although targeting a new country than before. In general, this group seemed to have fulfilled a positive role in the country, and they are usually exempt from public opinion concerns about immigration.

Official data on the stock or flows of foreign population does not discriminate by demographic characteristics (gender and age). A study was carried out on the highly skilled migration (Peixoto, 1998), although based on the 1991 Census, partially solves this problem. In Table 6 the demographic structure of all foreigners with economic activity in Portugal is compared with the one of a specific segment, the “highly skilled core group”. This latter includes individuals that possessed simultaneously a professional, managerial or technical occupation and a tertiary level occupation (a similar definition can be found in OECD, when talking about the “human resources in science and technology” – see OECD, 1995). The proportion of this “core group” in the foreign labour force was around 10%, a lesser share than we found before (Table 7). The inclusion of both occupational and educational data explains this variation, since not all the highly skilled occupations that we initially considered are formally highly educated. Europeans (from EU) were still the more represented, followed by Brazilians (44.6% and 29.2%, respectively).

Looking at the demographic data, we observe that the highly skilled “core group” is consistently composed of more men than women and displays more mature ages than the overall economically active foreign population (Table 6).

Table 6. Demographic structure of foreign population - labour force and highly skilled core group (a), Portugal, 1991.				
	Foreign labour force	Foreign HSCG(a)	Foreign HSCG migrants/85 (b)	Foreign HSCG migrants/89 (c)
Total	44,639	4,546	2,334	942
%	100	10.2		
Gender distribution				
% male	62.0	69.0	69.7	70.7
% female	38.0	31.0	30.3	29.3
Age structure				
% 0-14	0.6	-	-	-
% 15-39	75.3	57.4	63.6	65.8
% 40-64	22.9	40.5	35.7	33.5
% 65 and more	1.2	2.1	0.6	0.6
Average age	32.6	39.1	37.4	36.7
Median age	31	37	36	35
Modal age	27	30	30	30
Standard deviation	11.9	10.5	9.3	9.7
Note: (a) The "highly skilled core group" (HSCG) include those who have simultaneously a professional, managerial and technical occupation and a tertiary level education.				
(b) "Highly skilled core group" having migrated to Portugal between 1985 and 1991.				
(c) "Highly skilled core group" having migrated to Portugal between 1989 and 1991.				
Source: Peixoto, 1998, based on INE, 1991 Census				

Sixty nine percent of the highly skilled were men compared with their 62% share in the whole foreign labour force.

Men were relatively more represented in the 40-64 age group, with 40.5%, against 22.9% on the whole (although the majority, in both cases, belong to the 15-39 age group – 57.4% in the highly skilled case). Migrations of the highly skilled “core group” since 1985 and 1989 (until 1991) were bringing more youth to the group. This demographic profile is consistent with the presence of male dominated occupations (managers of multinational firms, for example), the higher education of the group (they start their activity in later ages) and their professional careers (some organisational movements may only occur at mature ages). As expected, this profile corresponds mainly to the European fraction of the group, where the “organisational” migration is prominent and the migratory inflow to Portugal began earlier.

The Brazilians displayed a more balanced gender ratio (60.9%, against 72.9% on the Europeans) and much more youth (74.3% in the 15-39 age group, against 43.5% in the case of Europeans), a situation typical of an “independent” migration (see Table 7).

	Total HSCG (a)	Nationality HSCG (a)		
		EU	Brazil	Other
Total	4546	2027	1326	1193
%	100	44.6	29.2	26.2
Gender distribution				
% male	69.0	72.9	60.9	71.5
% female	31.0	27.1	39.1	28.5
Age structure				
% 0-14	-	-	-	-
% 15-39	57.4	43.5	74.3	62.4
% 40-64	40.5	53.2	25.2	35.9
% 65 and more	2.1	3.3	0.5	1.8

Note: (a) The "highly skilled core group" (HSCG) include those who have simultaneously a professional, managerial and technical occupation and a tertiary level education.
Source: Peixoto, 1998, based on INE, 1991 Census

Some information on scientific flows is also available. The number of foreign researchers working in Portugal is low: in full-time equivalent, they amounted to 4.7% of the total in 1999 (Table 8).

<i>Nationality</i>	Total	FTE (a)	% (FTE)
European Union	446	263.5	42.8
Other European countries	98	58.6	9.5
South America	154	86	14.0
Africa	143	90.8	14.7
North America	51	29.1	4.7
Asia	82	57.5	9.3
Oceania	2	1.7	0.3
Non stated	56	29.1	4.7
Total foreign researchers	1,032	616.3	100.0%
Total of researchers (FTE)		13,165	
% foreign researchers (FTE)		4.7	

Note: (a) Full time equivalent.
Source: OCT, National Survey on Science and Technology, 1999

The majority were EU nationals (42.8%), followed by Africans (mainly ex-colonies) and South Americans (mainly Brazil), with between 14% and 15% each. They were mostly men (more than 70%) and they had a mean age of 39 years. The majority of them were engaged in higher education (circa 75%) and mainly in public universities – a situation that is also common to Portuguese researchers. Slightly more than half hold stable or semi-stable career positions in Portugal, whilst circa 40% were scholarship holders (OCT, National Survey on Science and Technology, 1999). Other figures on scholarships confirm that the number of foreigners in Portugal is growing quickly. Between 1994 and 1999, Portugal increased the number of scholarships for incoming foreign researchers by 50% - although the figures

remain quantitatively very low. Considering the 624 scholarships attributed to foreign researchers between 1994-1999 by the Ministry for Science and Technology, the majority were for invited scientists (35.4%), followed by postdoctoral and doctoral scholarships (OCT, unpublished data). In sum, scientific inflows are growing in volume, often being an explicit target of the Portuguese scientific policy, but its amount remains low.

3. Emigration

There is little general statistical data available on emigration of highly skilled persons. Portugal maintained relatively good emigration statistics until 1988, which included information on occupation and educational level. The fact that a significant proportion of the emigrants did not officially register (and hence were not captured by the statistics) is the basic problem of this source. The highly skilled segment was no exception, once many of their departures were intended as temporary or they were caused by political motives. For the purpose of this paper, this source also lacks relevance due to the period concerned (more recent years). More recently, after 1988, emigration statistics are available in a survey basis. However, no information has ever been displayed on occupations and education in this source, and the aggregation of the data eliminates any possibility of characterising small segments of the population.

What about available research on emigration? Some considerations can be presented about the general trends of highly skilled outflows (see Peixoto, 1998 and 1999; some of the following notes are based in Peixoto, 2001a). In the “golden” age of Portuguese emigration towards Europe, from the mid-1960s to the mid-1970s, highly skilled emigrants were scarce. The available data point to the very low volume of this flow. Considering emigrants with “intellectual and managerial” occupations, they never surpassed 0.4% of total flows from 1955 until 1973. In quantitative terms, they number just some one hundred individuals in 1966 and 1967. It is known, from other sources, that some movements of Portuguese highly skilled were indeed verified in this period, targeting Europe and the USA. Some of them resulted from professional motives, such as advanced academic training in those countries. Other flows resulted from political motives, namely the opposition to the then existing authoritarian regime. Some of these flows – the academic or the politically motivated ones – may have been kept out the official data. Nevertheless, there are good reasons to believe that a significant highly skilled emigration was unlikely. As was stated by some authors, highly skilled Portuguese individuals had no motives to emigrate, if we compare their situation with their foreign counterparts. Relative income and social status was rather good and they left the choice to depart to the lower skilled ranks of the labour force (Baganha, 1994).

The 1970s introduced some modifications in this panorama, as larger movements were witnessed. Some figures about professional, technical and managerial occupations available from 1974 to 1988 indicate a significant increase in movements. They attained two peaks, one in 1975-76 and the other in the first half of the 1980s. These periods comprised a few hundred emigrants per year and attained 6% to 8% of total flows, respectively. Although representing a growth in a period where overall emigration strongly declined, those figures are nonetheless significant. The first peak represents a flow, never adequately studied or quantified (the official figures are certainly under-evaluated), grouping “top” social agents after the political revolution of 1974. Besides elitists linked to the former regime, entrepreneurs, cadres and technicians left the country due to political disturbance or deterioration in their life styles. Many of them revived a former Portuguese destiny, Brazil, which had lost its

predominance to Europe since the early 1960s. A large part of these flows seemed to have been temporary. In fact, just after the “normalisation” of the political life, the direct plea of governments, processes of privatisation (many of the economic activity became state owned in 1974-75) and the overall economic dynamics led to the “return” of many of these skilled (or other socially privileged) groups.

The second peak of skilled outward movements was longer and had a different character. In fact, since the late 1970s, two distinct outflows started to occur, both representing organisational flows: (1) There was a short – but significant – demand from large investments and public works in the Middle East led to the movement of more skilled labour than the usual standard in the country. This flow paralleled others going from European countries to the Middle East - flows which helped to change the picture of highly skilled research in Europe (Findlay, 1990, for example). These flows, strictly temporary, represented an important qualitative change in Portuguese out-migration; (2) The beginning of a process of development assistance with the ex-colonies of Africa led to the movement of skilled Portuguese personnel with this destination. This flow occurred in the framework of state agencies and non-governmental organisations. The continuous turbulence that many of the ex-colonies knew after the independence was one of the motives explaining the decrease of flows. From then on, it was mainly the international activity of Portuguese firms in the ex-colonies that led to the persistence of flows in this direction, although with an unknown magnitude.

From the mid-1980s, other forms of skilled outflows became significant. The first one is related to business. Portuguese cadres and technicians became increasingly involved in the international internal labour markets of Portuguese and foreign-owned international firms. The first movements of this kind are related to foreign firms operating in Portugal, a process that was more visible since the 1960s. Those firms were responsible for a larger inflow of skilled personnel than a corresponding outflow, but some Portuguese staff have gained position in the international company circuits. From the 1980s, sustained processes of internationalisation of Portuguese-owned firms became evident, targeting destinations as the ex-colonies, Latin America (mainly Brazil) and some European countries (western or eastern ones). A new flow of Portuguese cadres, symmetrical to the one occurring in foreign firms, arose, targeting technical and control functions in their organisations.

A second recent outflow involves undergraduate and graduate students. As we saw, movements related to academic careers are known since the 1960s, and seem to be recurrent. Although comparable figures are difficult to obtain, a surge in flows concerning younger students seemed to occur from the mid-1980s. This is related to EU student programs, such as Erasmus and, later, Socrates. Portugal seems to have a relatively secondary position, in quantitative terms, among European sending and host countries, but significant numbers of Portuguese and foreign students are using these schema. (Interestingly, some of the foreign students that search Portugal are descendants from former Portuguese - low skilled - out-migration, revealing an interesting effect of network.) Studies in foreign countries became a means of upward social mobility, since some foreign diplomas (including postgraduate ones) are highly valued in the country. It is mainly upper or middle-upper social classes that seek this path. It is possible that a “social” selection of this type also applies to Erasmus outflows, although little evidence is available on this issue. The membership of the EU favours this kind of circulation and the correspondent recognition of diplomas.

The Portuguese government has also engaged itself in a strong policy of “advanced training of human resources”, mainly since the 1990s. This involved the granting of scholarships to

obtain postgraduate degrees, namely masters and PhDs, and to carry on postdoctoral research in Portugal or in foreign countries. The scholarships were granted by the Ministry for Science and Technology to Portuguese and non-Portuguese students (although the former constituted the large majority of the applicants). Some figures are displayed on Table 9.

	1990-1993 (a)			1994-1999 (a)			2000 (a)			Total	
	Total	Foreign countries (b)	%	Total	Foreign countries (b)	%	Total	Foreign countries (b)	%	Total	Foreign countries (b)
Post-Doctoral	0	0	...	683	280	41.0	216	61	28.2	899	341
Doctoral	1,572	700	44.5	3,528	1,894	53.7	668	365	54.6	5,768	2,959
Masters	1,632	161	9.9	2,339	202	8.6	140	31	22.1	4,111	394
Others	0	0	...	1,867	55	2.9	8	8	100.0	1,875	63
Total	3,204	861	26.9	8,417	2,431	28.9	1,032	465	45.1	12,653	3,757

Notes:
 (a) The scholarships were granted under different official programs: CIENCIA (1990-1993), PRAXIS XXI (1994-1999)
 (b) Including scholarships for total or partial stays in foreign countries ("foreign" or "mixt" scholarships).
 Source: OCT

During the period 1990-2000, the proportion of scholarships directed to foreign countries (including total and partial stays in these countries) reached almost 30% for the whole scholarships, a figure that has acquired a growing volume during the decade. By type of scholarship, the bulk of the "foreign" ones were at the doctoral level. Considering the whole scholarships, the doctoral ones reached almost 80% of all the scholarships in foreign countries. Amongst them, slightly more than half (51.3%) was in this situation. Postdoctoral scholarships were also important in this regard (37.9% were directed to foreign countries), but their absolute number was lower.

Concerning scientific mobility, including academic careers and student flows, there are reasons to believe that a large part of the outflows are temporary. Observing data on the PhDs awarded in Portugal or awarded in foreign countries and recognised in Portugal some conclusions can be made (Table 10).

	1970-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	Total
Total	436	452	844	1444	2184	3516	8876
PhDs in Portugal (a)	178	159	465	989	1597	2666	6054
PhDs in foreign countries (b)	258	293	379	455	587	850	2822
Total	100	100	100	100	100	100	100
PhDs in Portugal (a)	40.8	35.2	55.1	68.5	73.1	75.8	68.2
PhDs in foreign countries (b)	59.2	64.8	44.9	31.5	26.9	24.2	31.8

Notes:
 (a) PhDs awarded by Portuguese universities.
 (b) PhDs awarded by foreign universities and recognised in Portugal.
 Source: OCT

The number of PhDs has been growing strongly since the 1980s. They went from less than 500 in each 5-years period before 1980 to the current 3,516 in 1996-2000. In the 1990s, the

number of PhDs grew by more than 10% per year – this represents one of the largest growth rates in Europe. Considering the “national” and the “foreign” dimension of these degrees, both have strongly increased after 1980. However, if we take the relative proportion, national PhDs are becoming increasingly prevalent. They diminished slightly during the 1970s, but afterwards they increased gradually, attaining today 75.8% of the total PhDs. Foreign PhDs, although decreasing, are still substantial. It is only since the early 1980s they ceased to account for more than half. The Portuguese scientific system became mature and capable of replenishing its ranks. Foreign PhDs still constitute almost a quarter of all PhDs.

We can take for granted that most of these PhDs are targeted to exert activity in Portugal: this explains why their holders have sought to obtain the diploma or its recognition in the country. We can also believe that most of the holders of the “foreign” PhDs are Portuguese individuals. Evidence gathered in another context revealed that obtaining foreign degrees at this level is a common strategy amongst Portuguese scientists (see Peixoto, 1998 and 2001b). This results from the shortcomings of some scientific domains at the national level, the excellence of given scientific research centres abroad or strategies of upward mobility. Although there is no evidence about how many Portuguese that completed PhDs abroad remained in their host countries and how many returned, this second component is certainly substantial - and very probably the largest one. For example, a recently constituted network called International Forum of Portuguese Researchers (*Forum Internacional de Investigadores Portugueses*), intending to link researchers in Portugal and abroad (its first encounter dates back from 1995), has shown that if some scientists remain persistently abroad, others have only temporary experiences of this type.

Observing the evolution during the last decades, returns may have been significant first in the mid-1970s - although no empirical evidence exists to quantify them. Scientists and intellectuals that left the country for political reasons returned, for the most part, in 1974 or immediately afterwards, following the process of democratisation. The boom in higher education that occurred from that date on explained both an easy integration of these foreign-trained (or exiled) individuals and the continuous incorporation of further ones. Many of the foreign degrees obtained since the mid-1970s are also related to the higher education expansion, since they reflected the schools’ strategy on the training of human resources and the individuals’ flows engaged in academic careers. In the 90s, academic training in foreign countries was an explicit aim of the Portuguese scientific policy, which supported a large proportion of total outflows. The rationale seems to be that the training will enrich the national scientific system via return of these researchers. The “openness” of the legal framework in Portugal towards PhDs degrees obtained abroad – since 1997 it is easy to obtain a recognition – is maybe best explained by the will on removing obstacles at this level. As such, this data confirm the temporary character of many highly skilled outflows – particularly in the field of science - in Portugal.

As a result, Portugal seems to be, at least, a partial exception to several brain drain sources. It is true that as seen among other European countries, there seems to exist a significant group of Portuguese scientists abroad. The rationale for a Portuguese to move to a scientifically developed country, such as within the EU or to the USA seems to be unquestionable, since the working conditions and the available funding are often compensating. Probably, those who remain there are amongst the more talented, since they are able to obtain success. However, a significant fraction of those who have ever worked (or benefited from training) in foreign countries do return. This is a different picture from the one of advanced students and

scientists from other sources, where the probability of permanence is higher. The social polarity that we have mentioned in this paper may partially explain the situation. Highly ranked social groups – and scientists, although not at the top, are well located – have little rationale for moving. The easy access to academic careers existing until recently is another explanation. However, the picture is starting to change, as many of the traditional paths for upward professional mobility are becoming harsher to go through.

4. Conclusions

Taking into account all highly skilled movements, the panorama in Portugal seems to be one of a net migration gain. Concerning emigration, the scarce information available points to a residual volume of flows. These respect to individuals engaged in multinational corporations and international activities of Portuguese and foreign-owned companies; agents inserted in development assistance programmes of governmental and non-governmental agencies; academics going abroad and students following undergraduate and graduate education in foreign countries. A large part of these outflows seems to be temporary, being followed by returns.

Immigration volume seems to be higher than the one of exits, attaining almost a third of all inflows of foreign labour force. It comprises individuals working for multinational and international corporations; independent professionals coming from Brazil and other origins, such as Western and Eastern Europe; and students coming mainly from the ex-colonies of Africa.

The characteristics and causal factors acting over those flows are different. Outflows seem relatively more temporary and less company-related than inflows. Concerning causalities, the reduced potential for emigration results from the low competitive capacity of Portuguese professionals in skilled labour markets abroad (the average qualification of the population is still low), their overall good social status in the country and the (until recently) good local job opportunities. Inflows present diverse characteristics. Among them, the ones from the EU are the more company-related and, probably, the more temporary. In general, immigration results from the need of accompanying FDI for control and technical functions, and from shortages existing in the skilled national labour market – facts that became more visible with the adherence to the EU. “Independent” inflows, such as the ones coming from Brazil and resulting from the permanence of African students, represent a sort of brain drain benefiting Portugal.

In the future, everything points to an increase of flows. The overall growth in the skill level of population, the growing need for skilled labour, specific skill shortages, processes of regional and political integration (in the framework of the EU), local restructuring processes – all are basis for a potential increase of both inflows and outflows. The policy of free circulation inside the EU, paralleled by a gradually more consistent process of recognition of diplomas – vital to highly skilled migration -, will probably intensify flows in the medium-term (although we can argue that it has not had a strong impact on movements until today – Peixoto, 2001b). Schemas of student and academic exchange are also facilitators of both current and future movements, given the process of institutional integration and the networking effect that accompanies them.

There are several areas of concern for Portugal. First, the country may lack competitive capacity to attract the best world-wide talents, a question that is increasingly occupying the debate on highly skilled (Findlay, 2001). Second, it may prove to be difficult to assure the

return of the more capable of the Portuguese that left the country and remained in their destination. These situations may result from the persistence of a relatively less central status in the European context. This applies either to the general socio-economic condition of the country or to the difficulty in consolidating local scientific centres of excellence. Third, and maybe the most important, a growing difficulty can emerge to retain the best local talents. This may result from the greater abundance of qualifications in the Portuguese labour market; from the difficulty of pursuing local careers (as already happens in the academic field); and from the wider international experience of Portuguese students and scientists, and the facilitating process over migration that this creates. In sum, Portugal may experience in the near future a brain drain directed to the economic and scientific centres of Europe or elsewhere.

A final note must be added concerning the current situation of Portuguese students and young scientists abroad. As already stated, besides numerous independent initiatives, Portuguese government is actively supporting advanced training in foreign countries, particularly the attainment of PhD degrees. Young Portuguese researchers may now face the possibility of staying abroad if the opportunities there emerge or the difficulties for return arise. The Portuguese government launched in the late 1990s a program to support the return and integration in the national scientific system of PhD holders residing abroad. This programme, which also applies to Portuguese scientists residing there for a longer time, illustrates the above-mentioned concern. We may state that the residential criterion is no longer the main one to grant results for the national scientific system. The benefits of the networking effect, for example, may overdo it. However, there remains an open question of how to attract, by residence or by common work, the activities of talented citizens.

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