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COMMENT

Postgraduate medical training and migration in Europe: a survey of financial and labour conditions

Francesco Corea · Marco Bacigaluppi

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Abstract
Background and introduction Resident medical training following medical school is a period of great importance in the instruction and education of young physicians, but also the first step into the labour market for doctors. Unfortunately, the long educational curricula as well as the low economic remuneration render medical training attractive only in some European countries: often low salaries accompany endless weekly working hours with a wide range of differences among the European countries. The aim of this study was to analyse the different economic conditions for resident trainees by reporting the different salaries and the weekly burden of working hours, and also comparing the different costs of living in eight European countries and in Israel.
Materials and methods A questionnaire was sent to resident medical doctors working in large university hospitals in eight European countries (Denmark, France, Germany, Greece, Italy, Spain, Switzerland and the UK) and Israel, and data on the monthly salary, number of weekly working hours and general satisfaction were collected. Purchase power parity (PPP) in US dollar (USD) adjustment was calculated according to the latest Organisation for Economic Co-operation and Development (OECD) tables.
Results Among the different countries, working hours per week ranged from 37 to 56. The net pay report had a median value of 2,000€ per month. The net monthly wage ranged between 1,000 and 3,000€. Power purchase parity in USD-corrected salaries varied from 1,388.80 (Greece) to 5,788.30 (UK), mean 2,562.30.
Conclusions Taking into account PPP-adjusted wages, France, Greece and Italy are below the median continental values. The trend of migration of medical trainees to countries where the economic situation is more favourable seems reasonable. Because of both the high salary and the language, the UK represents the most attractive training destination.

Keywords Salary · Medical trainees · Survey

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Introduction

In the growing pan-European labour market, young doctors are likely to find heterogeneous economic benefits, but clear data are not available from official sources. Many surveys focusing on residents' medical work and training demonstrated a low level of job satisfaction (Hooker et al. 2003; Corea et al. 2006). In the last year, repeated strikes took place all over Europe to demand more resources and attention for medical training. At present, one of the main aspects responsible for residents' discontent in many European countries is still the economic issue. Huge differences between the national health-care systems and curricula of the trainees render comparison among different European countries difficult.

In recent decades the internal migration of doctors in Europe has demonstrated a south to north trend (Parsi 2008). Further, the surplus of doctors in the Mediterranean area and in eastern countries caused by governmental job policies has caused migration to other areas of the continent (Bartos et al. 2001).

According to the typical economic approach (Clark et al. 2002), the wish to migrate can be expressed as a mathematical formula:

$$W_f - W_d - C > Z$$

where C is the direct financial cost of migration, W_f and W_d are the foreign and domestic wages, respectively, and Z is the compensating differential in favour of staying in the source country.

The compensating differential captures all non-wage factors that are important to the decision to migrate. Migration will be more convenient the higher the calculated variable Z. However, if the differential (Z) is small or even negative, individuals will prefer to remain in their home country instead of migrating. The financial costs for migration, C, within western and continental Europe are relatively low. The variable Z however cannot be calculated without considering an expansion of the mathematical model to include non-monetary job aspects (e.g., patriotism or crime rates) and thus is very difficult to standardise.

The aim of this survey was to collect and compare the different salaries of trainees in a sample of European countries and to highlight the general differences in salary and general working conditions corrected for and compared to OECD parameters (OECD 2009).

Methods

A questionnaire was sent to 36 resident medical doctors working in large university hospitals in Europe and Israel (n=5 in the UK; n=5 in France; n=8 in Italy; n=5 in Germany; n=5 in Switzerland; n=2 in Greece; n=4 in Spain; n=1 in Denmark; n=1 in Israel) to collect data on the wages of medical residents, their number of weekly working hours and more personal opinions on their general satisfaction with their educational programme and career. The questionnaire comprised a list of four questions (basic net monthly wage, basic hours per week of work, extra opportunities for income and general job satisfaction). Data were collected and converted into Euros (€) for those outside the monetary unit (DK, IL, UK) according to the latest exchange rate available at the European Central Bank (ECB) (2009) on 1 March 2009.

To compare the purchasing power of different currencies in their home countries for a given basket of goods, purchase power parity (PPP) was used. Purchase power parity (PPP) to private consumption in US dollar ($US) adjustment was calculated dividing the monthly wage in local currency units by PPP$US (values provided by the OECD).

For a better understanding of the local cost of living, monthly comparative price levels of the analysed countries are reported in Table 2. These values are defined as the ratios of PPPs for private final consumption expenditure to exchange rates. Each value shows the number of specified monetary units ($US) needed in each of the countries listed to buy the same representative basket of consumer goods and services. In each case the representative basket costs a hundred units in Germany, considered in this case as the benchmark country. We chose Germany as the reference country because it is the leading economy in Europe. Moreover, the salary of the German trainees falls around the median of the wage distribution. We calculated the ratio according to the Big Mac rule by dividing the wage by its value in the benchmark area (Germany) (Big Mac Index 1998).

Considering the countries with salaries below the median wage as potential sources of immigration, we calculated ratio wages from source to destination country. These ratios were calculated by simulating the countries with wages over the considered benchmark as the destination country (Fig. 2).

Results

All 35 interviewed medical trainees replied to the questionnaire; results are shown in Fig. 1 and Table 1. The range of working hours per week ranged between 37 and 56 h. In four countries (Switzerland, CH; France, F; Greece, GRE; Israel, IL), the number of working hours was variable according to local/regional contracts. The net pay report had a median value of 2,000€ and a mean value 1,944.40€ (range 1,000–3,000€). To the fixed monthly salary, additional extras (e.g., night shift, on call duties, etc.) may account for 5% of the basic annual pay (in Spain) up to the 50% (in the UK). In three countries (GRE; Italy, I; IL), extra activities are not allowed to complement the salary.

The overall satisfaction for the work and career perspective was low/poor in Greece and Italy, while high/good in the other countries.

The PPP$US adjusted net pay ranged between 1,000 and 3,000€. Purchase power parity in USD-corrected salaries varied from 1,388.80 (GRE) to 5,788.30 (UK); the mean value was 2,562.30. Data in detail are shown in Table 2 and Fig. 2.

Regarding differentials in purchasing power parity (PPP), four of the involved countries were between 10% and 100% (GRE, I, IL, F), while three were under, between 17% and 40% (UK, DK, CH). Spain's PPP ratio value was 1 to the German benchmark adopted.

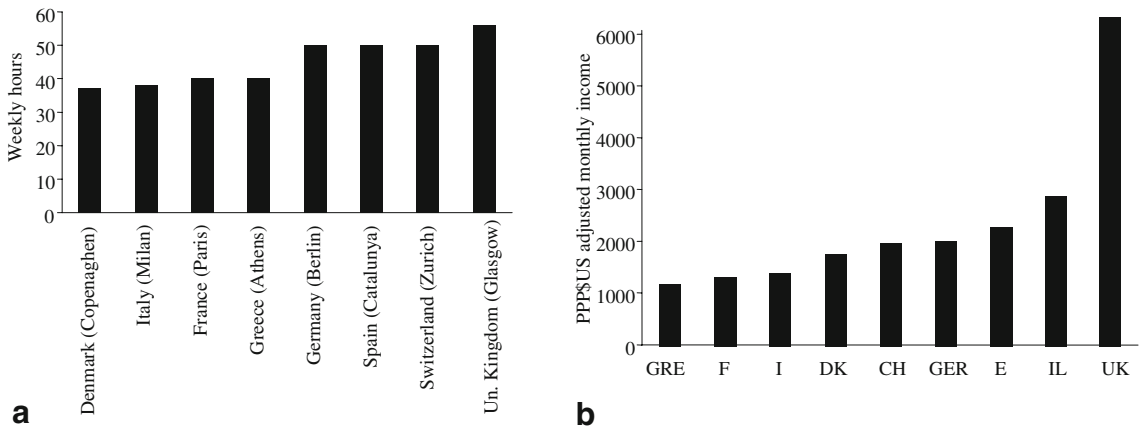

Fig. 1 Weekly hours (**a**) and net monthly income (**b**) of medical trainees in Europe

Discussion

According to our survey we observed a large variability in the salary rate within close European countries. Interestingly, German trainees seem to receive a salary that is very close to the median European range. Three countries (GRE, I, F) were below the median, and the other three countries (DK, UK, CH) were above. The differences among countries within the European monetary system seem to be smaller than the differences compared to European countries with their own currency. If we take into account the outliers, UK, CH and DK, they have different health-care systems, the former being closer to the North American model and the latter two unique ones because of their history, governmental policies and geographical position.

The more attractive residency positions are those offered in the UK, having the largest gap in PPP$US adjusted wages with the Mediterranean countries included in the survey (F, GRE, I). These countries are those supposed to represent a good source of health-care professionals. Salary differentials between DK and CH, other traditional destinations of migration, are less attractive because of their higher costs of living. Similarly correcting the net monthly wages to the cost of living for each country, it was interesting to see that some countries, such as Switzerland and Denmark with relatively high monthly salaries, were re-adjusted to the median, and vice versa for Germany, Israel and Greece.

Recent surveys studying the reasons underlying the migration of health-care professionals from sub-Saharan Africa to Western countries found that the increase in salary in the source country had only a minor impact on the migration. A survey demonstrated that the main item leading to migration of medical personnel was improvement of their working and living conditions in their home countries (Vujicic et al. 2004). Clearly intra-European migration trends have different parameters, and a large differential in wages may play an important role. The recent improvement in Italian postgraduate medical education (from 900 to 1,400€) may have some effect on the mobility of workers and "brains". Probably a smaller number of Italian junior doctors will move to be trained in northern Europe. Italy itself may more easily be a destination for other trainees.

Table 1 Monthly salary for medical trainees according to interviews done in March 2008

Country	Hours per week	Net pay in local currency	Net pay in €	Salary in € per hour	Extras
Denmark(Copenaghen)	37	17,893 Dkr	2,400	15.0	Yes
France (Paris)	40	1,400€	1,400	8.1	Yes
Germany (Berlin)	50	2,000€	2,000	9.3	Yes
Greece (Athens)	40	1,000€	1,000	5.8	No
Italy (Milan)	38	1,400€	1,400	8.6	No
Israel (Tel Aviv)	Na	9,713 ILS	1,800		No
UK (Glasgow)	56	3,473£	3,750	15.3	Yes
Spain (Barcelona)	50	2,000€	2,000	9.3	Yes
Switzerland (Zurich)	50	3,828 SwF	2,500	11.6	Yes

Abbreviations: Israeli new shekel (ILS), Danish crown (Dkr), Euro (€), British pound sterling (£) and Swiss franc (SwF).

Table 2 Adjusted wages of medical trainees and comparison to the German benchmark

Country	Ratio to GER[1]	Basket (OECD)[2]	Over or under %[3]	PPP$US (OECD)	PPP$US adjusted wages
Denmark (Copenaghen)	0.83	137	−17	8.7	2,056.70
France (Paris)	1.42	104	+40	0.91	1,538.50
Germany (Berlin)	1	100	0	0.85	2,352.90
Greece (Athens)	2	89	+100	0.72	1,388.90
Italy (Milan)	1.42	102	+40	0.86	1,627.90
Israel (Tel Aviv)	1.11	Na	+10	2.9	3,349.30
UK (Glasgow)	0.6	82	−40	0.6	6,250.00
Spain (Catalonia)	1	91	0	0.75	2,666.70
Switzerland (Zurich)	0.8	130	−20	1.67	2,292.20

[1] Ratio of wages to Germany (GER) according to the Big Mac rule. [2] Monthly comparative price levels in January 2009 defined as ratios of PPP for private final consumtion expenditure to exchange rates. The amount of monetary units needed in each of the countries listed to buy the same representative basket of consumer goods and services. In each case the representative basket cost 100 units in the benchmark country. [3] Differential from the benchmark wages expressed in percentage

A harmonisation of the labour market seems necessary anyway since no clear guidelines are available to provide the more appropriate wage for the trainees. For example, Italian laws state that the salary of the trainees should be "appropriate" without providing further specific details. The risk is to lose power of purchase since the wage is not automatically linked to regularly updated parameters. If we take into account the burden of inflation and how the 2002 Euro effect greatly diminished the potential of the basic grant of 900€, we can easily understand how vital parental/family support was for trainees. Only 6 years later, the financial coverage of the Ministry allowed the raise in pay to around 1,400€ per month, thereby moving the new class of 5,000 freshly admitted postgraduate medical trainees past the poverty threshold. Until the beginning of the 2007–2008 academic year, the large majority of Italian trainees with a family were below the above-mentioned poverty threshold (Istat 2006).

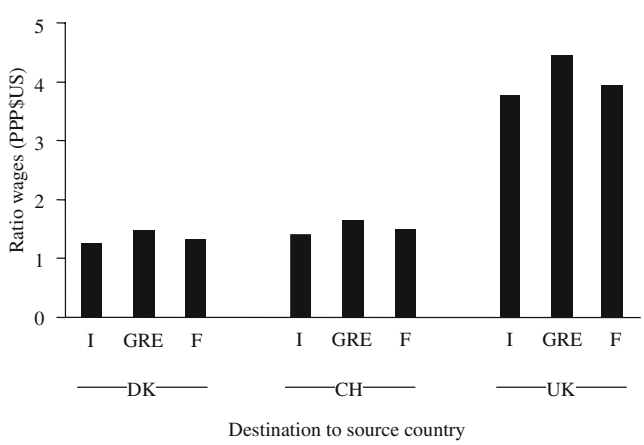

Fig. 2 Ratio of trainee wages (PPP$) in the destination country to source country

Another index of poverty usually taken into consideration is low mean family (of two individuals) monthly expenses; the threshold in 2005 was set at 936.58€ (Istat 2006). We succeeded in finding this figure only for Italy. According to these criteria, the only net wage close to this value was the Greek one (1,000 non-adjusted).

A strength of our study was that all the interviewed trainees showed complete intra-national agreement about their conditions. Their questionnaires are likely to be representative of a large part of the trainee category. The main weaknesses are the non-availability of the gross salary and the difficulty to calculate extra work. This may represent a good income; unfortunately, the countries with lower salaries were those in which extra work was forbidden or discouraged. Also, in our work no difference was considered between surgical specialties and medical trainees; probably those involved in interventions are likely to receive specific benefits.

In our survey we only measured the overall satisfaction of doctors in their training careers. It was not possible to have a more in depth overview of the curricula of the schools in different countries. On this point, different surveys (Clark et al. 2002; Bonifati et al. 2003; Capobianco et al. 2003; Facheris et al. 2005; Corea et al. 2006) have shown strengths and weaknesses in different areas; for example, neurology trainees in Portugal and Estonia spend more time in rehabilitation than anywhere else. Neurological trainees in Italy have no systematic psychiatry training, whereas Germans spend 1 year in psychiatric services. However, medical training will never be identical in every country, because qualified physicians have different roles in each country according to the overlap with other specialities (i.e., Italian or Greek specialists will not easily fit into other systems). Thus, a standardisation of financial as well as curricular aspects is likely to

facilitate sharing professional clinical and scientific experiences in the near future.

Conflict of interest The authors disclose any relevant association that might pose a conflict of interest.

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The data available were calculated on end of November 2008 thereby can't take into account of any further change in national wages.