SECTORIAL STRUCTURE, QUALIFICATION CHARACTERISTICS AND PATTERNS OF LABOUR MOBILITY IN THE EUROPEAN UNION.

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Abstract:

In the context of the process of construction of a single labour market in the Economic Union, one of the greatest problems is the existence of certain levels of structural unemployment. From this point of view, the imbalance between the qualification characteristics of work supply and demand as well as the determining factors of geographical mobility among jobs become a relevant explication factor. The aim of the paper will be to carry out a comparative analysis of some of the most important characteristics of employment in European countries. For this, how different employed population groups are distributed by sectors of activity and labour occupations will be analysed, how these structures have been modified over time, and the patterns of labour mobility that interconnect activities and occupations in the framework of labour mobility, in order to see whether these evolutions are leading to an assimilation of labour characteristics in the countries, or not.

Keywords: labour mobility, employment, service sector, European Union.

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1. Introduction and approach.

The aim proposed by the paper is to study the European labour markets in depth, concentrating on the analysis of job qualification requirements. To this effect, sectorial and labour occupational structures in EU countries are studied, as basic determining factors of the demand of jobs by qualifications, as well as the processes of labour mobility that connect (or separate) the different jobs, classified from both perspectives. Through comparison of countries, we try to find the differences and similarities existing in the European Union (EU) from the previous approach. Various arguments justify the interest of this approach and of the analyses proposed.

Firstly, it is obviously relevant to define the extent to which the process of European construction is leading to an increase in economic and social cohesion of the member states, through the verification of processes of convergence, so that we can affirm that we are heading towards the future existence of a European economic system.

Secondly, we highlight the importance that the analysis of the sectorial and occupational differences existing between countries has for the study and understanding of the processes of geographical mobility of the labour factor. In Europe, despite the existence of differences among countries in terms of wages or levels of unemployment which should induce processes of labour mobility, the latter do not seem to have stimulated processes of job mobility between countries (Fianni, Galli, Gennari and Rossi, 1997) (OCDE, 2001) (Fertig and Schmidt, 2003).

From previous literature (Shields and Shields, 1989), there are three most relevant theoretical models: models of imbalance, where mobility responds to the existence of regional differentials in terms of wage or unemployment, provided that these compensate for the costs associated to mobility; models where the processes of labour mobility constitute an investment in human capital, which is carried out if when comparing costs and benefits conditioned by the characteristics of the individual, a positive return is obtained; and the model of expected income model (Todaro, 1976), where income compared with costs are weighted by the probability of the individual finding work in the region or country of destination.[1]

The three previous models explicitly consider the advisability of introducing in the analysis some type of de-aggregation such as that we proposed in the study. In the first type of model, how wage differentials between countries or regions are measured should take into account the existence of certain regional specialisations as well as the fact that work is a heterogeneous factor, so that the analyses habitually consider sectorial wage or job differentials among regions. A similar implication is derived even more clearly from the approach of Todaro, in as much as the differential of expected income is weighted with the expected rates of unemployment (likelihood of being hired and thus having real access to the benefits associated to the differential) which could present different values in function the sectorial and occupational differences among the regions considered. Finally, and from the perspective of the models of mobility based

[1] Finally, although less related to the object of our research, explanatory models also exist for the geographical mobility or of labour considering individuals as maximisers of utility and demanders of regional amenities, and as producers of goods within the family unit.

on individuals who invest in the acquisition of human capital, the literature associates the returns on investment with the existence of complimentary qualifying factors possessed by the individual and those already existing in the region of destination, to the extent that the earnings associated to the qualification depend on the average qualification level of the workers in the region of destination (Giannetti, 2001).

Thirdly, there is no doubt that one of the most relevant structural changes that has occurred in most of the market economies is the intense tertiarization of their labour markets (Cuadrado *et al* ,19 99) (OCDE 2000) (European Commission, 2001). The relevance of tertiarization in the explanation of behaviour of the labour markets has been analysed from different perspectives. Tertiarization is shown as an important factor to explain the most relevant transformations that have occurred in the characteristics of employment and in the requirements of job qualifications (Cuadrado, Iglesias and Llorente, 2003). The presence of service industries also explains to a large extent the results (creation of employment) and the functioning (degree of flexibility) of the labour market (Cuadrado, Iglesias and Llorente, 2002), constituting in addition, a strong factor in the explanation of the changes in cyclical patterns of employment (Cuadrado and Ortíz, 2001).

Finally, the analysis of the differentials of unemployment existing among different countries of the EU often leads to the concept of structural unemployment, and therefore to the consideration as an explanatory factor of the existence of a certain degree of adjustment between work supply and demand in terms of qualification characteristics. Directly related to the previous postulate, the studies carried out highlight the responsibility that changes in the characteristics of the demand jobs have in this result.

To order to reach the objectives proposed, we have used as database the European Community Household Panel (ECHP)[2], and the paper is structured as follows. Section 2 analyses the patterns of specialisation of the total of the 10 European countries with regard to the structure of their employment by sectors of activity and labour occupations. Section 3 calculates labour flows for the same countries, de-aggregating them by sectors of activity and labour occupations. The aim is to find out if there are common patterns in work connections among the different categories of these variables, as well as the differences existing in national terms. The paper finishes with a summarise (section 4) of the relevant results.

2. The demand for work by sectors and labour occupation in the European Union.

The aim of this section is to approximate the qualification features of the demand for work in the EU, identifying the differences and similarities which exist among the different countries. For this purpose, we adopted a double perspective by sectors of activity and labour occupations. The methodology consists of determining the relative specialisation of employment of each country from both view points, as a way of quantifying and identifying the differences existing. For this purpose we calculated an index of specialisation (Krugman, 1991), defined in the following way:

[2] The gross data of the European Community Household Panel (ECHP) have been exploited under the contract ECHP/15/00 between Eurostat and the University of Alcalá.

$$SI_i^K = \sum_{j=1}^{m} \left| q_{ij} - \bar{q}_{ij} \right| \quad (1)$$

where $q_{ij} = \frac{x_{ij}}{\sum_{j=1}^{m} x_{ij}}$; $\bar{q}_{ij} = \frac{\sum_{k \neq I}^{m} x_{ij}}{\sum_{k \neq I}^{m} \sum_{j=1}^{m} x_{ij}}$, and x_{ij} is the employment into country i in sector j, so i=1,2, …, n and j=1,2,…, m.

The SI_i^K could be considerate as a measure of the divergence, because it compares the structure in any European country with the general structure in the EU as a whole. In case that $q_{ij} = \bar{q}_{ij}$, the SI_i^K the index will be zero, and in contrary situation when $q_{ij} \neq \bar{q}_{ij}$, the index will be 2. Therefore, the specialisation index will vary from 0 to 2. To the previous expression it is possible to obtain a measure of aggregated specialization in EU:

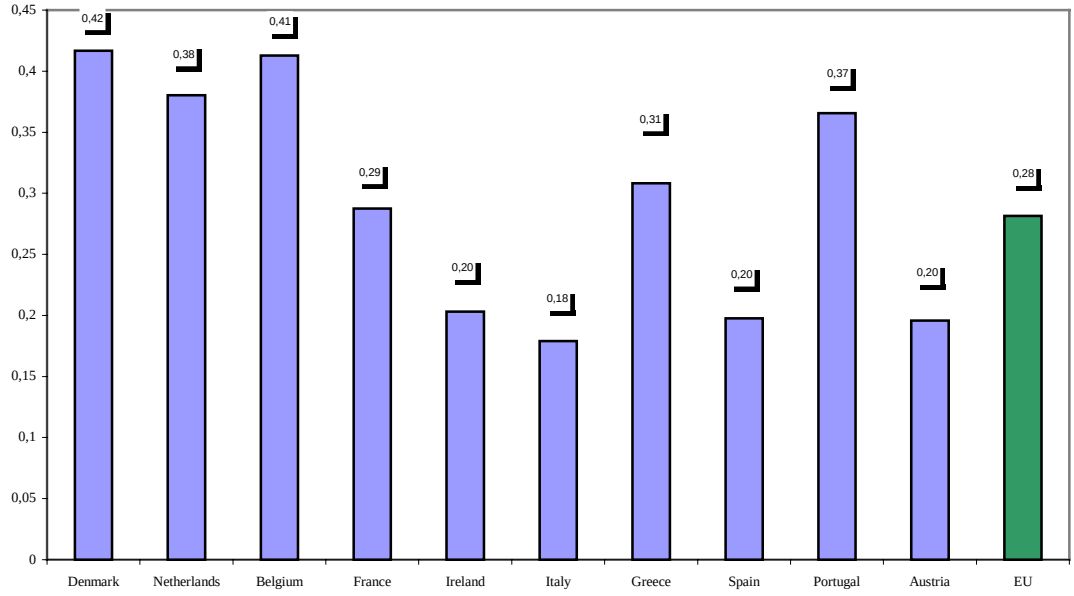
$$SI^K = \sum_{i=1}^{n} w_i SI_i^K \quad (2)$$

Where w_i is the weigh of the employment in any European country in relation to total European employment, so $\sum_{i=1}^{n} w_i = 1$.

2.1 The sectorial structure of employment in the EU.

Figure 1 shows the results of calculating the index of specialisation with respect to how employment is distributed by sectors of activity in the year 2000. In addition to the results by countries, the index is aggregated and weighted in order to know the degree of specialisation existing in all group of countries considered. It is demonstrated that Belgium and Denmark, with index above 0.4 are the countries where the sectorial structure of work diverges most from that observed in the rest of the EU. On the contrary, Italy, Ireland, Spain and Austria present the structures most similar to that of the aggregate, with values lower than the aggregates (0.28).

Figure 1. Index of specialisation of employment by sectors of activity for the countries of the EU. (Source: ECHP, 2000).



The figures in annex (A.1 to A.10)[3] shows the information by countries offering two types of data; the percentage which each sector of activity contributes to the index of sectorial specialisation of each country (specialisation) and the difference between the weight of each sector in total employment in each country and the EU as a whole (differences). In this way, we can establish in which sectors of activity the sectorial discrepancies of each country can be found and if these correspond with a greater or lesser presence to that observed in the rest of the countries. From this observation the following national characteristics are deduced:

a) Denmark bases the specialisation of its employment in the activities of Health and Social Work on the one hand, and on other types of Manufacturing, on the other. These sectors have a greater weighting than those observed in the rest of the EU. On the other hand, the employment in Agriculture and in the Wholesale and Trade services has a lesser weighting.

b) The greatest discrepancies in the sectorial structure of employment in Netherlands when compared with the rest of the countries, are in the activities of Health and social work, Mortgages, rentals and business activities (a positive contribution to specialisation in both cases) and Agriculture (negative contribution to specialisation).

[3] The graphed sections are as follows: 1= Agriculture hunting and fishing; 2= Mining, Electricity, Gas and Water; 3= Food Manufacturing, drink and tobacco; 4= Textile Manufacturing, clothes and leather; 5= Manufacturing of wood and paper. Publicity and printing; 6= Manufacturing of coal, petroleum, chemicals, rubber and plastic; 7= Manufacturing of Metal, machinery and equipment; 8= Other types of manufacturing; 9= Construction; 10= wholesale. Trade. Vehicle repair; 11= Hotels and restaurants; 12= Transport and communication; 13= Financial Mediation; 14= Mortgages, rent and business activity; 15= Public Administration and Defence; 16= Educational; 17= Health and Social Work; 18= Other services.

c) Belgium bases its specialisation in the group of Other Services and, to a lesser degree, agricultural employment.

d) The greatest factor of specialisation in French employment is the lesser weighting of agricultural employment. Together with this fact, there are notable contributions to specialisation in the smaller size of employment in the sectors of Textile Manufacturing and Construction, but there is greater weighting in service activities (mortgages, rentals and business activities, public administration, education, health and social work).

e) Ireland specialises positively in employment in the activities of Food, Drink and Tobacco; Transport and Communications; and Financial Institutions. On the other hand, relatively less employment is assigned to the sectors of Textile Manufacturing; Metal Industry; and Sales Activities.

f) Italy is quite different from Ireland in terms of specialisation of employment. The distribution is concentrated especially in the Textile Industry and that related to Metal. It also presents features of relevant specialisation in the lower presence of Agricultural employment and in that related to Health and Social Work.

g) Greece is an agricultural country in the EU context. It also has a greater proportion of employment in sales services. The greatest factor of specialisation which implies a relatively lower weighting is in the services of Health and Social Work. In the rest of the sectors the size in terms of employment is quite similar to those of the rest of the EU.

h) The distribution of employment in Spain is specialised in the activities of Construction, on the one hand, and in Mortgages, Rentals and business activities, on the other. The public services, Public Administration, Education and Health also have notably.

i) Portugal is notable for its strong specialisation in employment in Agricultural activities, Textile Manufacturing and Construction. On the other hand, the lower weighting contributions to specialisation are in service activities except those of Trade and Hotels and Restaurants.

j) Finally, Austria specialises its employment in a greater presence in the Metal Industry and Machinery with lower weighting in the services of Mortgages, Rental and Business Activities and Education.

Finally, the table 1 shows how the evolution of sectorial specialisation in employment in the EU. It is confirmed that no significant variation has occurred in aggregate terms. Within this result, however, very different national behaviour can be observed. For example; Denmark, Belgium and Italy have notably increased the value of their index of specialisation. On the contrary, the sectorial structure of employment in Greece, Portugal and Austria has to a certain degree become similar to that observed in the European Union as a whole.

Table 1. Evolution of the index of sectorial specialisation of employment by countries and the EU. as a whole. (Source: own elaboration from ECHP).

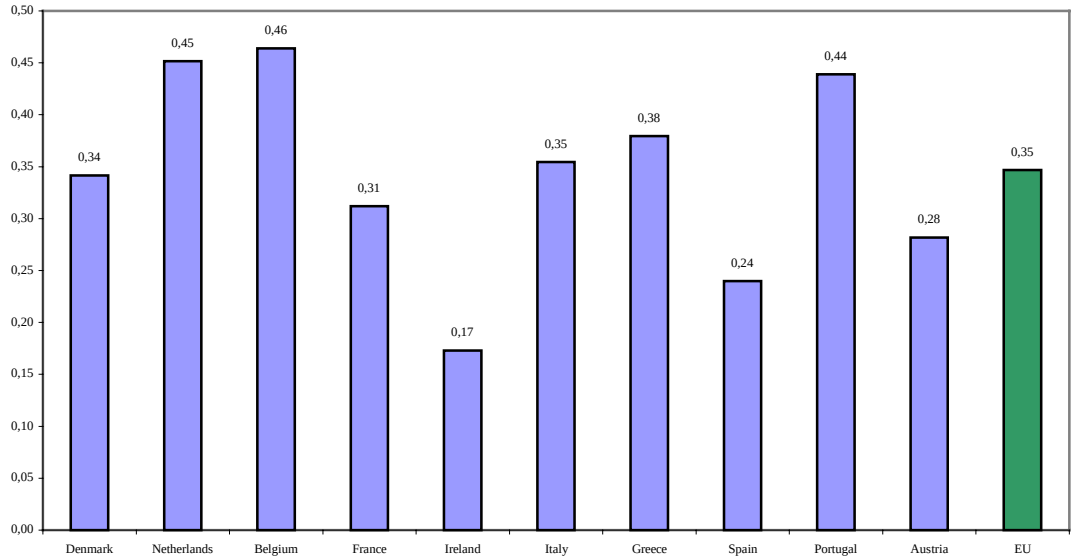
Countries	1994	2000	Relative Dif.
Denmark	0,33	0,42	27,53
Netherlands	0,37	0,38	2,99
Belgium	0,34	0,41	21,75
France	0,27	0,29	4,56
Ireland	0,19	0,20	7,83
Italy	0,16	0,18	10,01
Greece	0,38	0,31	-18,71
Spain	0,20	0,20	0,13
Portugal	0,39	0,37	-5,70
Austria *	0,22	0,20	-9,20
EU	**0,28**	**0,28**	**0,00**

N.B .Due to the lack of data for 1994, the index of specialisation for Austria is calculated for 1995.

2.2. The structure of employment by labour occupations in the EU.

The following figure 2 repeats the previous number 1 but for the distribution of employment of each country by labour occupations. From this view point, the degree of specialisation for the area as a whole is higher than that observed for the sectorial structure (0.35 as opposed to 0.28 respectively). Netherlands, Belgium, Portugal and Greece are the only cases where a degree of specialisation higher than the aggregate measurement is observed. On the contrary, Ireland, Spain and Austria are the countries with lowest specialisation in labour occupational structure in relation to all the other countries.

Figure 2. Index of specialisation of employment by labour occupations for the countries of the EU. (Source: ECHP. 2000).



The figures in annex A.11 to A.20 which show national characteristics of jobs by labour occupations[4] point to the following fundamental national patterns:

a) The greatest contributions to specialisation in Denmark is due to a relatively greater presence of professional people associated to teaching and on the lower weighting of, skilled workers in jobs of agriculture and fishing and workers in mining and construction.

b) Netherlands and Belgium share the previous patterns regarding labour occupations with a lower relative pressure. In the case of Netherlands, the largest positive contributions to specialisation are in the jobs of legislators and managers, other professionals and professionals associated to science, health and teaching. In the case of Belgium, this behaviour is to be seen in the case of elementary jobs in services and sales and in clerical personnel.

c) Job specialisation in France rests primarily on a greater presence of professionals associated to teaching. Together with these, the lower relative weighting of workers in agriculture and fishing is also a notable contribution as is the greater presence of operatives.

d) Ireland has a notably different job structure from the rest of the European countries considered. The greater weighting of operatives and workers in personal services is emphasised with a lower weighting of metalworkers, physicists and professionals associated to science and health.

e) In Italy there is a greater relative presence of clerical personnel and a lesser presence of SME[5] managers.

f) In Greece there is a greater relative presence of SME managers and skilled workers in agriculture and fishing, which is noteworthy in the explanation of the specialisation. On the other hand, the two categories of associated professionals show a lower relative weight.

g) Spain has a job structure where the greatest contributions to specialisation come from more SME managers, mining and construction workers and labourers. Together with these patterns, clerical personnel and professionals associated to science and health are less frequent in our country.

h) Portugal has a greater concentration of skilled workers in agriculture and those related to construction, as opposed to lower weightings in the categories of professionals associated to science, health and teaching as well as clerical personnel.

[4] The labour occupations in figures are the following: 1= legislators and managers; 2= managers of SMEs;3= physicists, mathematicians, professional workers of science and health; 4= teaching professionals;5= other professionals;6= physicists and professionals associated to science and health;7= professionals associated to teaching; 8= administrative personnel: 9= workers in personal service;10= sales personnel, demonstration and models;11= skilled workers in agriculture and fishing;12= workers in mining and construction;13= metal workers, machinery, precision and artisans;14= operatives;15= elemental jobs in services and sales;16= labourers

[5] Small and Medium Enterprise.

i) Finally, Austria bases its specialisation on a higher presence of medium skilled jobs (clerical personnel and workers in personal services) and a lower presence in occupations of higher qualification (SME managers, all professional categories).

To summarise, table 2 shows the evolution of the index of specialisation of the structure of employment by labour occupations, for each country as well as for the group as a whole. By contrast with that observed from the sectorial perpective, a certain process of reduction has occurred in the aggregate specialisation (a decrease of slightly more than 4%), although this result conceals different national behaviours. Whilst Netherlands and Austria have notably increased the specificities of their structure with respect to the rest of the countries, in Ireland Italy and Greece this has been reduced.

Table 2. Evolution of the index of job specialisation by countries and for the group of the EU. as a whole. (Source: own elaboration from ECHP. 1994 and 2000).

Countries	1994	2000	Relative difference
Denmark	0,31	0,34	10,55
Netherlands	0,37	0,45	20,90
Belgium	0,44	0,46	5,92
France	0,33	0,31	-5,02
Ireland	0,29	0,17	-40,79
Italy	0,44	0,35	-20,28
Greece	0,48	0,38	-21,57
Spain	0,22	0,24	10,98
Portugal	0,39	0,44	13,24
Austria (*)	0,22	0,28	28,90
EU	**0,36**	**0,35**	**-4,31**

N.B. calculated for 1995 due to lack of data

3. The flows of labour mobility in the EU countries.

From the analyses carried out in the first section, the conclusion is reached that the European countries considered in the analysis show relevant differences in terms of the characteristics in their work demand. Despite the use of an excessively short period of time, a slight reduction in the differences can also be observed, at least from the point of view of labour occupations. Although labour occupations shows a higher level of specialisation by countries than that from the sector of activity perspective. An additional question to complete our knowledge of these differences is to find out the degree of applicability of these qualification contents, defined in terms of sector of activity and labour occupations, as well as the patterns of connection observed. As usual, the aim will be to obtain the similarities or differences among the different countries considered.

For this purpose, based on the virtuality of the European Community Household Panel for longitudinal analyses, we have used the data from this statistical source to calculate the flows of labour mobility for each one of the 10 countries considered, de-aggregating them in terms of the main economic sectors and labour occupations. In this way, assuming that labour mobility requires qualification matching between jobs by origin and by destination we use as an index of the degree of sectorial and labour

occupation applicability of the different qualifications, the fact that an employee participates in a labour flow that implies change of position within the structure of sectors or labour occupations.

We will analyse the labour flows following the labour trajectory record of employed individuals between two consecutive waves of ECHP, distinguishing between flows of destination and origin and considering a certain de-aggregation by sectors and occupations.

a) Flows of destination by sector of activity (labour occupation): percentage of employment of a sector (labour occupation) in a wave where the individual is occupied in a sector (labour occupation) different from that of the following wave. This tells us the destination of the employment in one sector (labour occupation).
b) Flows of origin by sector of activity (labour occupation): percentage of employment in a sector (labour occupation) in a wave where the individual is occupied in a sector (labour occupation) different from the previous wave. This gives us the origin of the employment in one sector (labour occupation).

Insofar in addition to another sector (labour occupations), the origin and destination may be inactivity, unemployment or the sector itself (labour occupation), the work flows expressed in the following tables do not add up to 100%. The flows, although calculated annually, are expressed in Averages of the period as a whole (1994 -2000). Finally, the flows have been de-aggregated for four sectors (agriculture, industry, construction, services) and for four labour occupations (white-collar high skill, white-collar low skill, blue-collar high skill, blue-collar low skill).

3.1. The flows of labour mobility between sectors by countries in the EU.

Table 3 shows the labour flows of destination by sectors for the 10 countries considered and their average. The data show the degree to which employment in one sector is applicable to the rest of the activities. In average terms for the countries as a whole the sectorial labour flows of destination are more intense when originating in industry and construction, involving nearly 10% of their employment although they are also the most dispersed by countries.

If we use the flows of destination as a first approximation to the degree of applicability in the rest of the sectors of the qualifications proper to a sector, we observe the following:

a) Denmark and France are the only two countries where flows from agriculture are the most intense.
b) Netherlands, Belgium and Spain the same is true for industry.
c) In Ireland, Italy, Portugal and Austria the flows from construction predominate.
d) Flows from services industry do not present the highest percentages in any country, so this would be the activity with the least connections of labour mobility with other sectors.

Table 3. Flows of labour mobility between sectors of activity for the countries of the EU. Destination. (Source: own elaboration from data of ECHP. 1994 -2000. Average for the period).

Countries	Agricultura	Industry	Construction	Services
Denmark	7,76	4,4	5,3	1,1
Netherlands	9,04	10,9	8,11	2,12
Belgium	13,38	20,01	17,99	3,77
France	3,24	2,16	2,79	0,62
Ireland	7,99	15,04	15,25	4,44
Italy	4,15	5,82	7,15	2,21
Greece	3,32	5,35	6,06	1,53
Spain	9,95	13,45	12,54	4,37
Portugal	5,64	7,67	8,38	3,17
Austria	3,92	10,3	10,68	3,62
Average	6,96	9,51	9,6	2,7
Standart desviation,	*3,4*	*5,5*	*4,7*	*1,4*

Table 4. Flows of labour mobility between sectors of activity for countries of the EU. Origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Agriculture	Industry	Construction	Services
Denmark	4,36	4,11	7,24	1,17
Netherlands	9,65	9,6	10,07	2,14
Belgium	16,81	16,59	16,29	3,75
France	2,88	2,02	2,59	0,69
Ireland	5,02	14,58	15,09	4,62
Italy	4,36	5,56	5,7	2,46
Greece	2,65	3,81	6,09	2,11
Spain	8,04	13,26	13,58	3,95
Portugal	4,25	7,43	8,95	3,4
Austria	4,69	8,33	10,52	4,3
Average	6,43	8,53	9,73	2,85
Standart desviation	*4,3*	*4,9*	*4,4*	*1,3*

Table 4 shows information with respect to job flows by sectors from the origin perspective. The data approximate the degree in which employment in the rest of the sectors is applicable in one particular sector. In this way, they provide a supplementary perspective of how one sector is joined to the rest. From the aggregate point of view, the conclusions are similar to the previous ones: industry and construction have the highest average percentages although with the highest degree of dispersion by countries. When we observe the data for each country some of these patterns change:

a) Although the values are very similar for agriculture, industry and construction, in Belgium and France the flows that end up in agriculture show the highest percentages.
b) Flows towards industry or services are the least intense in all the countries.

c) Most frequent situation (Denmark, Netherlands, Ireland, Italy, Greece, Spain, Portugal and Austria) is the predominance of flows from other sectors towards activities in construction.

For further study of the previous results, we proceed to de-aggregate this information of sectorial flows by destination and origin. In this way, we can find out the specific sectors of activity that produce links that support the previous aggregate results.

Tables A.1 to A.4 show the labour flows produced between each one of the four main sectors to a different activity of destination (agriculture, industry, construction and services). In the cases of agriculture, industry and construction, the labour flows are preferably towards activities in the service industry. In average terms for the countries as a whole these movements represent 57, 75 and 56% of the total movements from agriculture, industry and construction respectively. In the case of tertiary employment, labour flows are predominantly to industry, before construction, and finally agriculture.

All countries conform to this aggregate pattern, and no exception is observed. However, notable differences in intensity of the results can be seen. For example, Austria and Denmark have the highest percentages of mobility between agriculture and services (75 and 71 per cent respectively), and the lowest values come from Denmark (36%). Netherlands and Italy have the highest percentages of mobility between industry and services (84 and 83% respectively), whereas in Portugal it is less than 65%. Labour movement between construction and the services is particularly intense in Netherlands (70%), but in the case of Spain, this represents a minimum (46%). Finally, the labour connection between services and industry represents 75% of total movements from the tertiary sector in Belgium but only 40% in Greece.

Tables A.5 to A.8 perform the same tasks for flows of origin, i.e. how the percentage flows are made up that lead to each one of the four large sectors on the basis of the activity of origin. The conclusions are similar to those obtained for flows of destination: predominance of labour flows from services to agriculture, industry and construction on the one hand, and from industry to services on the other. The average terms for each of the 10 countries are given with maximums for Austria (agriculture), Netherlands (industry), Netherlands (construction) and Belgium (services) and with minimums in the case of Belgium (agriculture), Greece (industry), Denmark (construction) and Portugal (services).

3.2 Labour mobility flows between labour occupations for countries of the EU.

The following table 5 shows labour flows of destination by labour occupations in the 10 countries considered and the average for them. The data give information of the degree to which employment in a particular occupation is applicable to the rest of the activities, reflecting the percentage of each labour occupation 1 year later when employment was in a job different from that initially undertaken. In average terms for the countries as a whole, the labour flows among occupations are more intense when the origin are in the blue collar low skilled (14% - BCLS) than blue collar high skilled (11% - BCHS), blue collar low skilled (10% - WCHS) and white-collar low skilled (8.5% - WCLS). The dispersion by countries has fairly similar levels in the four cases.

Table 5. Flows of labour mobility between labour occupations for countries in the EU. Destination. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCHS	BCLS
Denmark	5,19	5,61	8,73	13,96
Netherlands	12,34	10,36	13,72	16,52
Belgium	17,67	13,34	22,44	21,69
France	1,59	1,86	2,33	3,67
Ireland	11,45	12,13	10,38	16,47
Italy	7,4	4,42	8,15	11,11
Greece	5,69	5,26	3,77	7,02
Spain	13,63	12,27	15,26	17,32
Portugal	14,58	11,61	9,88	15,44
Austria	20,02	8,53	8,35	16,89
Average	10,95	8,53	10,30	14,00
Standart desviation	*5,9*	*4,0*	*5,8*	*5,3*

If we use the destination flows as a first approximation to the degree of applicability in the rest of labour occupations of the qualifications proper to each occupation we can observe the following patterns:

a) Austria is the only country where the flows from white collar high skilled jobs are the strongest.
b) None of the countries gives this result for white collar low skilled jobs.
c) Labour flows with origin in blue-collar high skilled jobs predominate only in Belgium.
d) For the rest of the countries, most of labour mobility has its origin in blue collar low skilled jobs.

Table 6 shows information of labour flows by occupations from the origin perspective. The data approximate the degree to which employment in the rest of the labour occupations is applicable to a specific occupation. From the aggregate point of view, the conclusions are similar to the previous ones: blue collar low skilled (12.3%) and white collar high skilled (11.9%) give the highest average percentages although in the latter, the dispersion by countries is slightly higher. When we observe the data for each country some patterns change:

a) In Netherlands, Ireland and Austria the highest percentages are in white-collar high skilled jobs.
b) The movements from white-collar low skilled jobs are not a majority in any country.
c) Belgium and Spain are the only countries where most intense movements are from blue collar high skilled workers.
d) In the rest of the cases (Denmark, France, Italy, Greece and Portugal) it is the blue collar low skilled jobs that share highest percentages.

Table 6. Labour mobility flows between types of job for the countries of the EU. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCHS	BCLS
Denmark	7,37	6,49	8,79	9,58
Netherlands	14,38	10,18	11,19	13,69
Belgium	16,99	13,37	21,91	17,5
France	3,01	1,52	2,42	3,08
Ireland	14,15	10,23	12,39	12,57
Italy	7,76	4,92	7,35	10,76
Greece	5,14	5,37	3,28	8,02
Spain	14,64	11,09	15,53	15,07
Portugal	15,84	9,05	9,68	17,08
Austria	20,24	8,76	8,35	16,14
Average	11,95	8,10	10,09	12,35
Standard deviation	*5,7*	*3,5*	*5,7*	*4,6*

Finally, following a structure of analysis identical to that used in the case of sectors of activity, tables A.9 to A.12 de-aggregate the labour flows among labour occupations by destination and tables A.13 to A.16 show the flows by origin.

From the labour flows by occupations perspective (composition of the labour flows produced from each of the four labour occupations considered to the rest of the occupations) it can be seen how the labour flows connect with each other with greater frequency in those jobs that share the definition of occupation (blue-collar or white collar) than those labour occupation that show a similar qualification level (skilled or unskilled). The coherence of contents seems thus more relevant than qualification level. This result is very clear in white collar jobs, both high and low skilled , and in blue collar high skilled jobs. In average terms the connection between white collar high skilled jobs and white collar low skilled jobs is more than 77%; between white-collar low skilled and high skilled qualifications the percentage is 54 and in blue collar high skilled and low skilled, 56%. In all these cases, all the countries clearly follow the general patterns. The only exception is Portugal for the flows towards low skilled white-collar jobs.

The general pattern is interrupted when we observe the flows among occupations from the blue collar low skilled jobs (table A.12). In this case, and in average terms, the job connections are equally frequent in relation to white-collar low skilled jobs (46 ,6%) and blue-collar high skilled jobs (45 ,9%). Also, the countries form two groups based on the predominance of the first or second of these connections. In Denmark, Netherlands, Belgium, France and Ireland the flows from BCLS jobs have a more frequent connection to white-collar low skilled jobs. On the contrary, in Italy, Greece, Spain, Portugal and Austria the most frequent connection is towards blue-collar high skilled jobs.

From the flows by origin perspective, i.e. the processes of labour mobility to each of the occupations based on the labour occupation by origin, the conclusions turn out to be quite similar, with the only exception of the patterns observed for white collar low skilled. In this sense, and in average terms for countries as a whole, the greatest work connections continue to be in WCLS in the case of the WCHS (78.5%), with the WCHS

in the case of the WCLS (47%), and of the BCLS in the case of the BCHS (61%). Also in the case of blue collar low skilled, the result previously noted occurs for flows by destination: equality in average terms of the importance of the connections with WCLS jobs (45%) and BCHS (48%) and differences of the countries with respect to these connections.

The exception with respect to the previous conclusions about the patterns of flows by destination is produced in the flows of origin towards white collar high skilled jobs. Although the connection for criteria for labour occupations is maintained in average terms (flows between white collar jobs), there is no homogeneous behaviour by countries. While this connection is fundamental in Netherlands, Belgium, Greece, Spain and Austria, it is the contrary, in France, Ireland, Italy and Portugal. The flows to white collar low skilled jobs with origin in low skilled blue collar jobs are more frequent.

3. Summary of results

The work carried out aims to extend our knowledge of the sectorial and job characteristics in a group of 10 countries of the European Union. Two tools were used for this analysis: the calculation of index of relative specialisation and the analysis of labour flows. The most important results point in the following directions:

- The EU countries differ notably in how their employment is distributed by sectors and labour occupation, each country having different specialization factors.
- There are greater differences among labour occupation than sectors of activity, according to the aggregate indexes of specialisation calculated (0.28 in the case of the sectors, 0.354 for job structure).
- While the degree of specialisation has remained constant as far as the sectors of activity are concerned, it has fallen slightly from the point of view of labour occupations.
- Employment in industry and construction has the greatest labour flows both in destination and in origin, with rates of mobility around 9% in both cases and in both aspects. On the contrary, only 1.4 - 1.3 percent of tertiary employment participates in flows leading to another sector of activity or has reached the services industry through a labour flow from a different activity.
- This however, does not preclude the services sector being the most frequent origin and destination of labour flows related to agriculture, construction and the services, whilst the labour mobility from services is connected fundamentally with the industrial sector.
- From the labour occupation approach, labour flows, connect more quickly to labour occupations that share similar characteristics (blue-collar to white-collar) than to the level of their qualifications (high skilled to low skilled).
- The previous pattern only shows an exception in the case of blue collar low skilled jobs, linked in a certain number of countries to white collar low skilled jobs.

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ANNEX.

Figure A.1. Relative Characteristics of the Distribution of Employment by Sectors of Activity. Denmark. (Source: ECHP 2000).

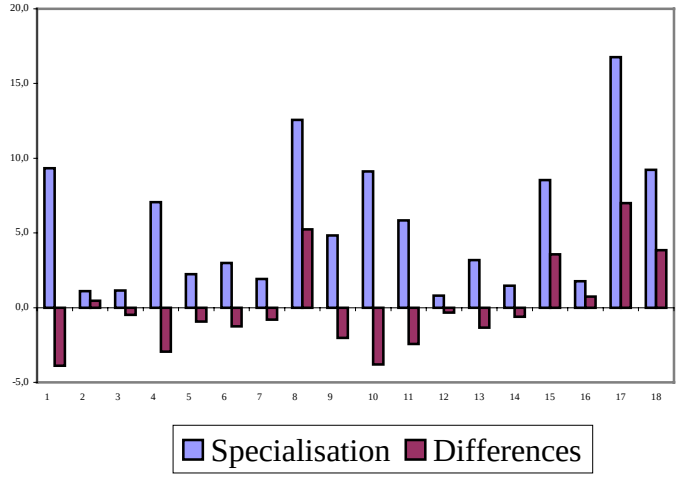

Figure A.2. Relative characteristics of the distribution of employment for sectors of activity. Netherlands. (Source: ECHP, 2000).

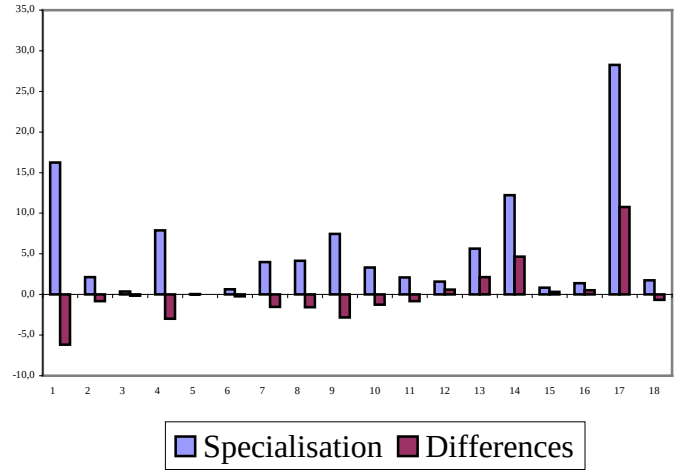

Figure A.3. Relative characteristics of the distribution of employment by sectors of activity. Belgium. (Source: ECHP. 2000).

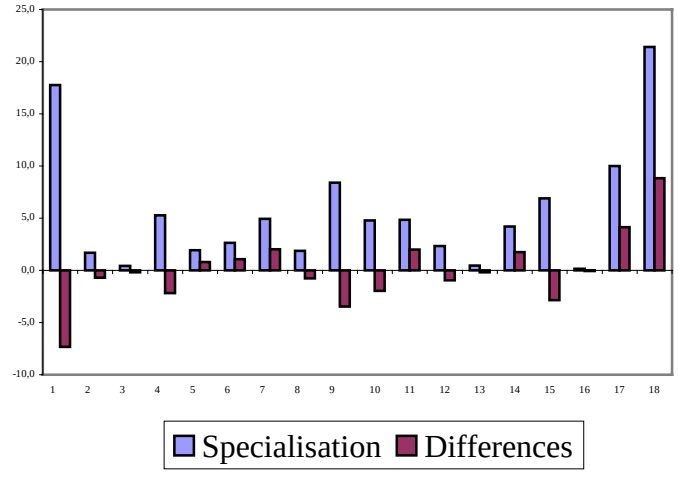

Figure A.4. Relative characteristics of the distribution of employment by sectors of activity. France. (Source: ECHP. 2000).

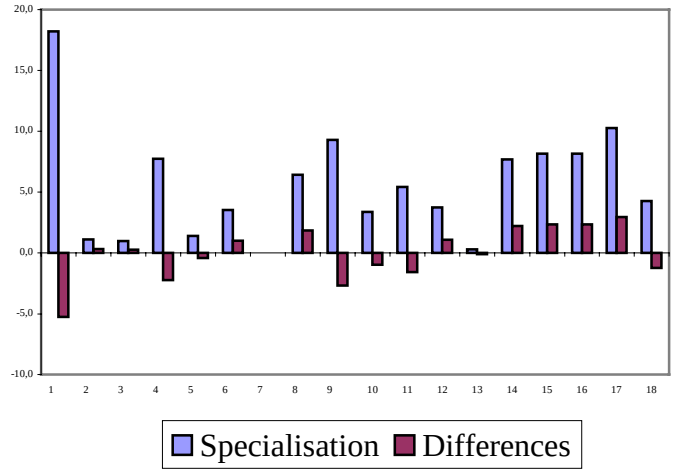

Figure A.5. Relative characteristics of the distribution of employment by sectors of activity. Ireland. (Source: ECHP. 2000).

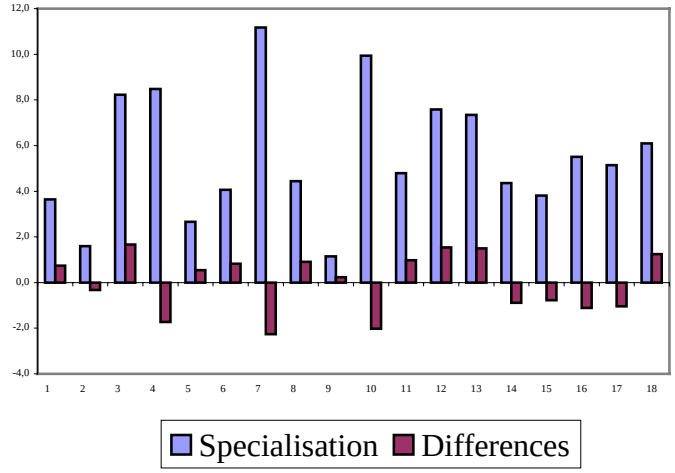

Figure A.6. Relative characteristics of the distribution of employment by sectors of activity. Italy. (Source:ECHP. 2000).

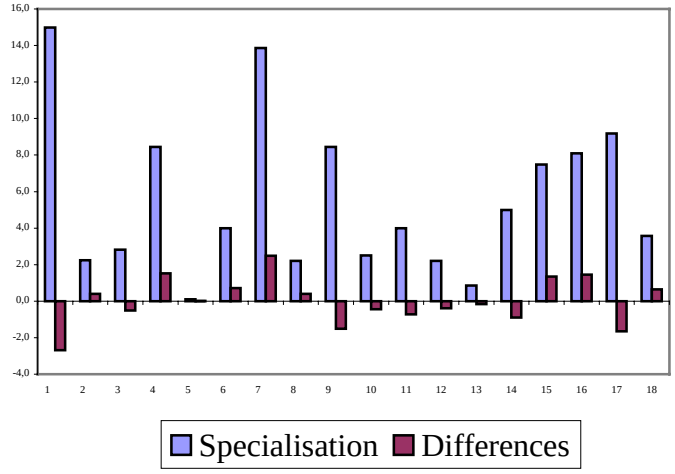

Figure A.7. Relative characteristics of the distribution of employment by sectors of activity. Greece. (Source: ECHP. 2000).

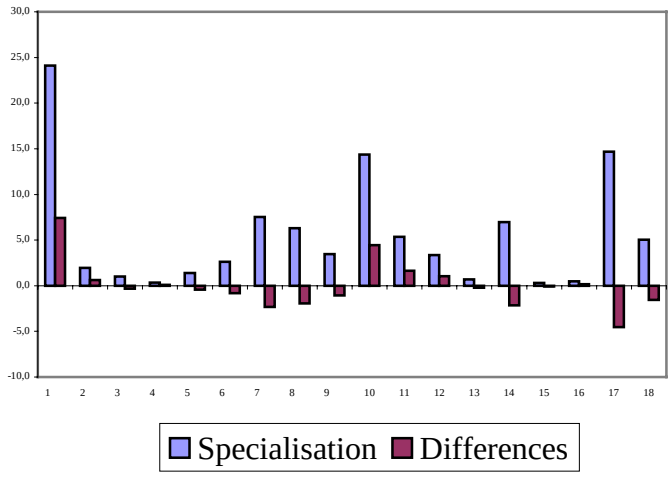

Figure A.8. Relative characteristics of the distribution of employment by sectors of activity. Spain. (Source: ECHP. 2000).

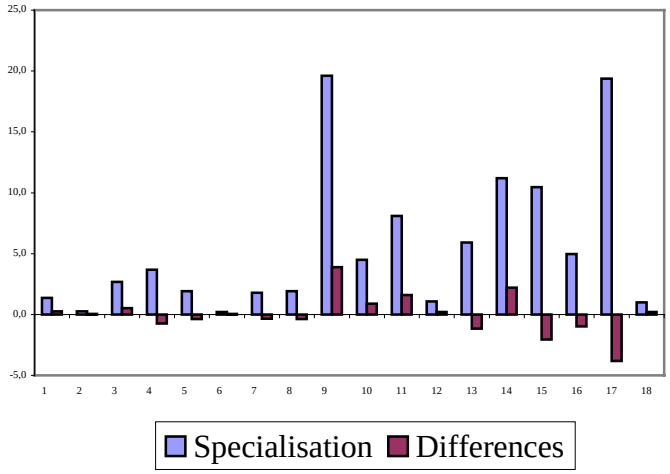

Figure A.9. Relative characteristics of the distribution of employment by sectors of activity. Portugal. (Source:ECHP. 2000).

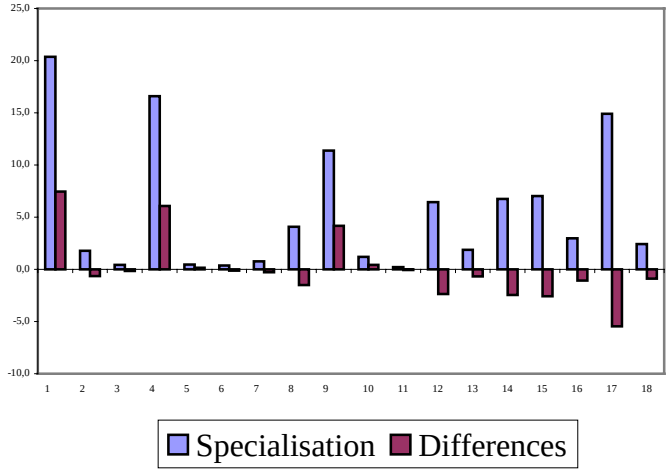

Figure A.10. Relative characteristics of the distribution of employment by sectors of activity. Austria. (Source: ECHP. 2000).

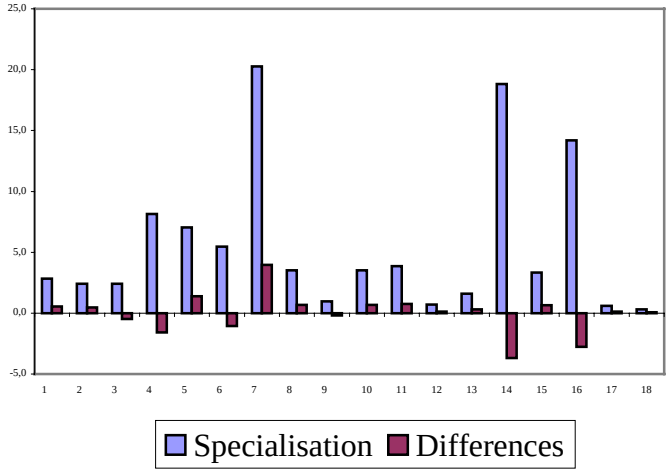

Figure A.11. Relative characteristics of the distribution of employment by labour occupations. Denmark. (Source: ECHP. 2000).

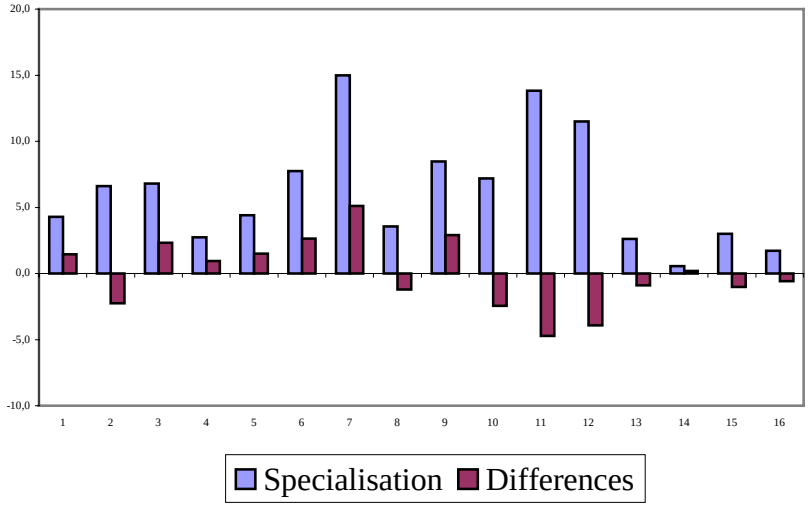

Figure A.12. Relative characteristics of the distribution of employment by labour occupations. Netherlands. (Source: ECHP. 2000).

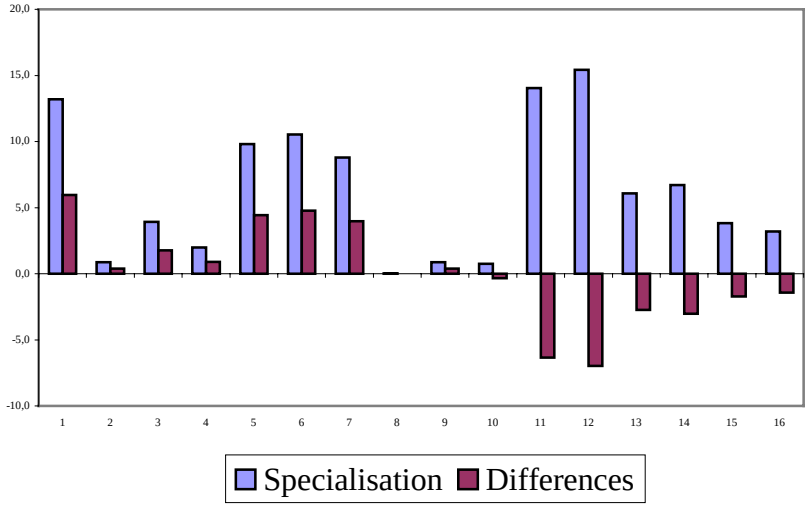

Figure A.13. Relative characteristics of the distribution of employment by labour occupations. Belgium. (Source: ECHP. 2000).

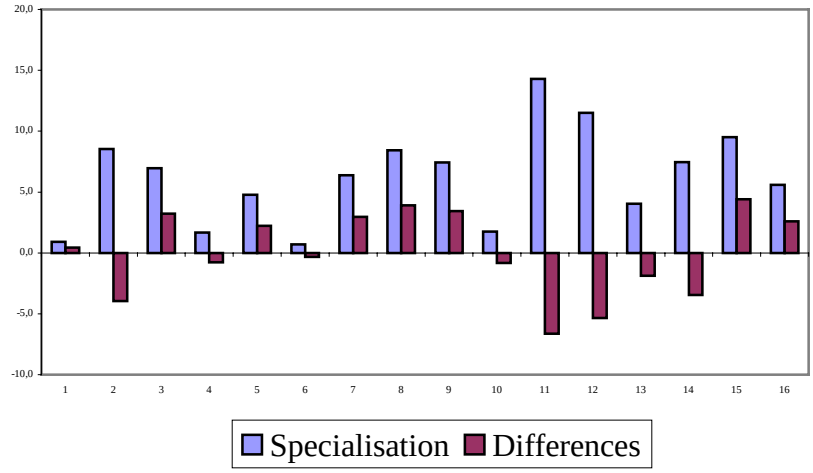

Figure A14. Relative characteristics of the distribution of employment by labour occupations. France. (Source: ECHP. 2000).

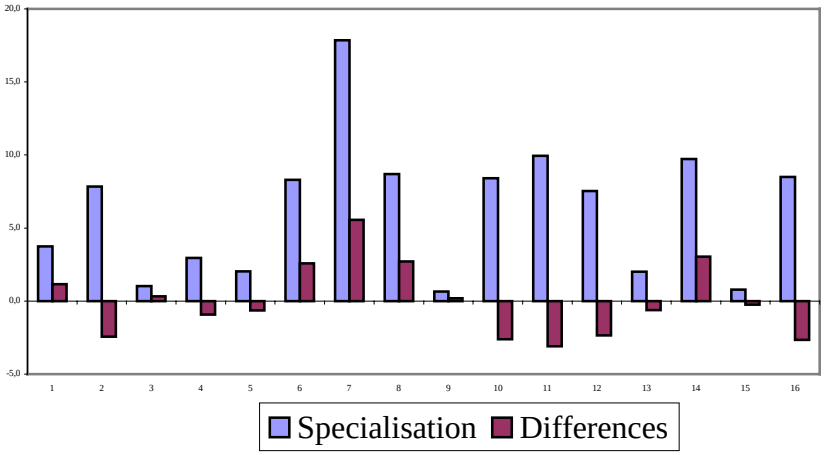

Figure A.15. Relative characteristics of the distribution of employment by labour occupations. Ireland. (Source: ECHP. 2000).

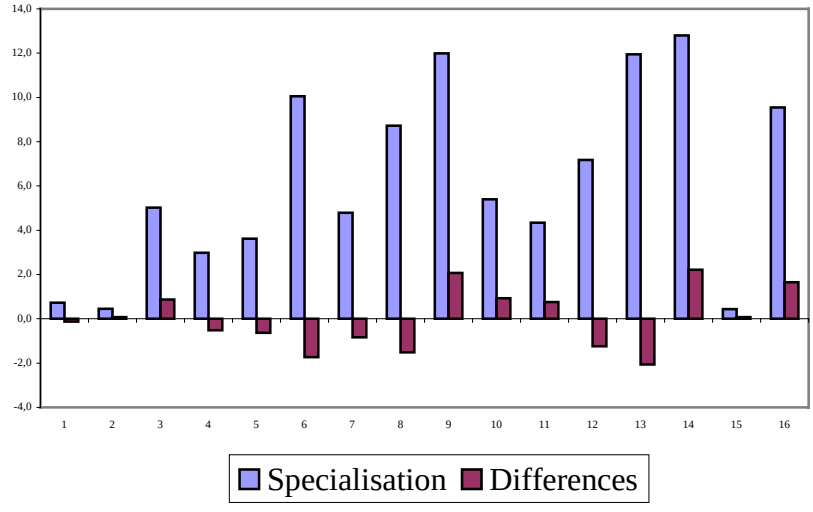

Figure A.16. Relative characteristics of the distribution of employment by labour occupations. Italy. (Source: ECHP. 2000).

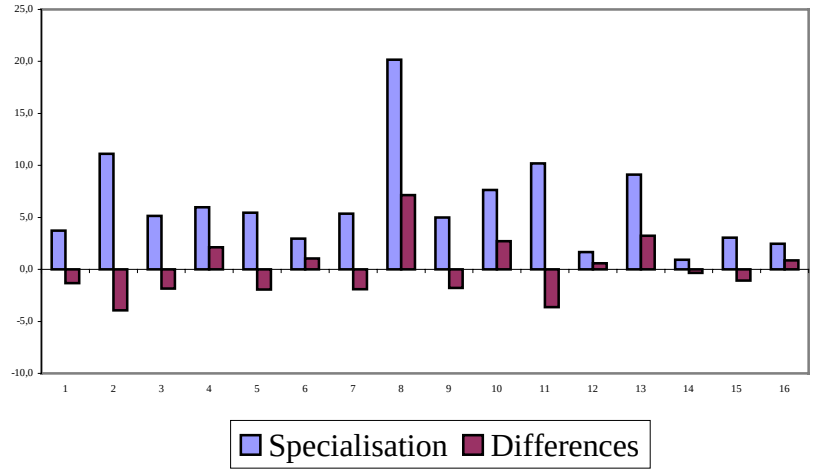

Figure A.17. Relative characteristics of the distribution of employment by labour occupations. Greece. (Source: ECHP. 2000).

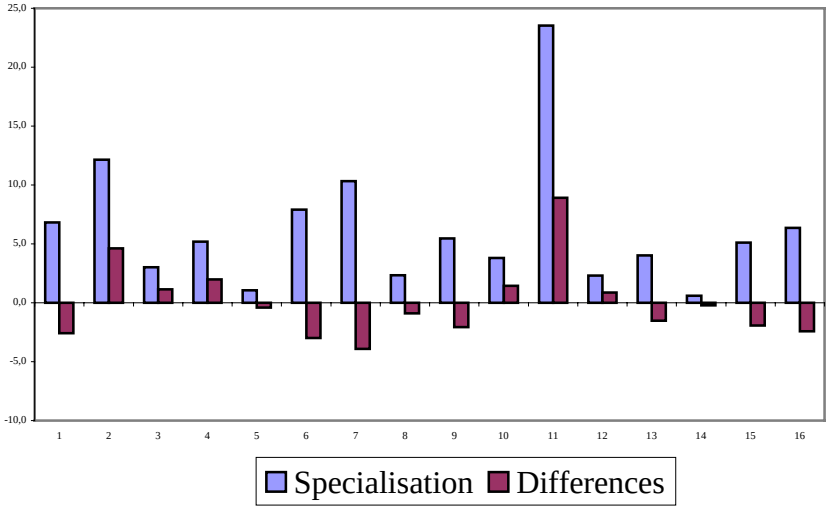

Figure A.18. Relative characteristics of the distribution of employment by labour occupations. Spain. (Source: ECHP. 2000).

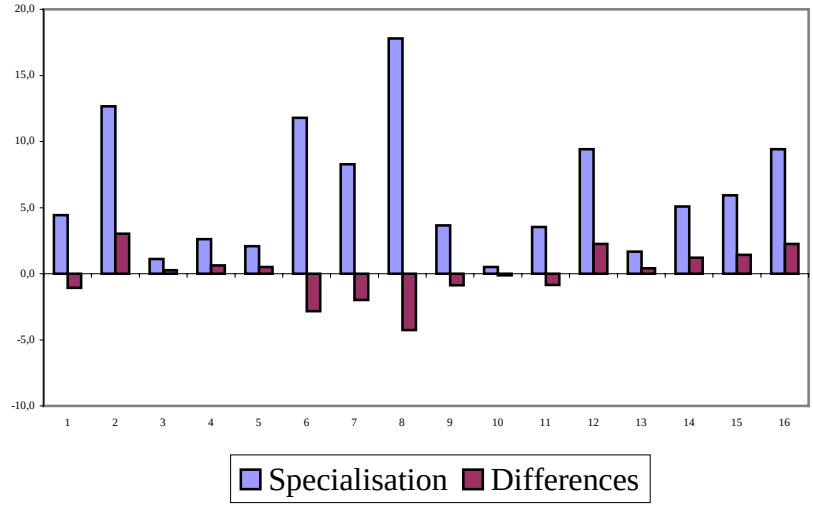

Figure A.19. Relative characteristics of the distribution of employment by labour occupations. Portugal. (Source: ECHP. 2000).

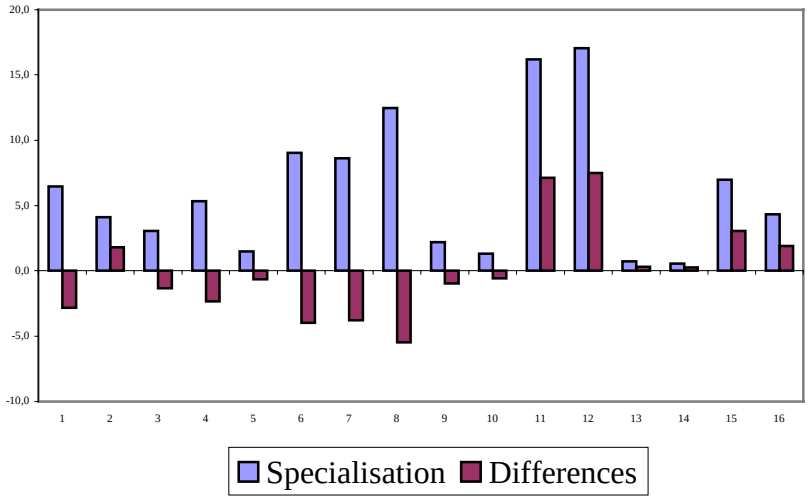

Figure A.20. Relative characteristics of the distribution of employment by labour occupations. Austria. (Source: ECHP. 2000).

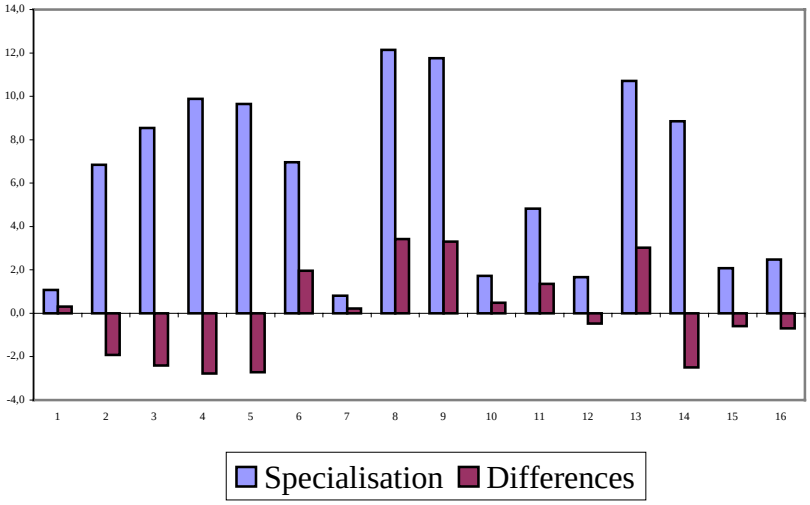

Table A.1. Flows of labour mobility from agriculture. Percentage distribution for sectors by destination. (Source: Own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Industry	Construction	Services	Total
Denmark	32,7	30,7	36,6	100
Netherlands	11,4	17,5	71,1	100
Belgium	33,6	0,0	66,4	100
France	32,7	22,2	45,1	100
Ireland	28,9	12,9	58,2	100
Italy	24,8	13,3	61,9	100
Greece	15,4	19,6	65,1	100
Spain	22,9	24,3	52,8	100
Portugal	18,6	29,1	52,3	100
Austria	13,8	11,2	75,0	100
Average	*24,1*	*18,2*	*57,6*	*100*

Table A.2. Flows of labour mobility from industry. Percentage distribution for sector by destination. (Source: own elaboration from ECHP data. 1994 --2000. Averages of the period).

Countries	Agriculture	Construction	Services	Total
Denmark	9,8	22,0	68,2	100,0
Netherlands	4,0	11,4	84,6	100,0
Belgium	6,0	12,8	81,1	100,0
France	5,6	13,0	81,5	100,0
Ireland	6,6	22,7	70,7	100,0
Italy	6,2	10,3	83,5	100,0
Greece	11,8	16,3	72,0	100,0
Spain	6,5	25,2	68,3	100,0
Portugal	12,9	22,3	64,8	100,0
Austria	3,9	17,0	79,1	100,0
Average	*6,7*	*17,7*	*75,6*	*100,0*

Table A.3. Labour flows from construction. Percentage distribution for sectors by destination. (Source: own elaboration from ECHP data. 1994 - 2000. Averages of the period).

Countries	Agriculture	Industry	Services	Total
Denmark	0,0	32,1	67,9	100,0
Netherlands	8,0	21,3	70,7	100,0
Belgium	0,0	39,9	60,1	100,0
France	10,8	24,4	64,9	100,0
Ireland	6,4	35,1	58,6	100,0
Italy	7,1	29,0	63,9	100,0
Greece	27,2	19,8	53,0	100,0
Spain	8,1	45,4	46,6	100,0
Portugal	15,4	28,2	56,4	100,0
Austria	7,8	41,9	50,4	100,0
Average	*9,4*	*33,8*	*56,9*	*100,0*

Table A.4. Flows of labour mobility from the service sector. Percentage distribution for sectors by destination. (Source: own elaboration from ECHP data 1994-2000. Averages of the period).

Countries	Agriculture	Industry	Construction	Total
Denmark	10,9	59,1	30,0	100,0
Netherlands	11,8	64,6	23,6	100,0
Belgium	6,1	74,8	19,1	100,0
France	16,1	62,9	21,0	100,0
Ireland	12,2	64,6	23,2	100,0
Italy	12,7	67,4	19,9	100,0
Greece	31,4	39,9	28,8	100,0
Spain	14,9	57,9	27,2	100,0
Portugal	21,1	47,9	30,9	100,0
Austria	17,4	63,5	19,1	100,0
Average	*14,8*	*61,1*	*24,1*	*100,0*

Table A.5. Labour mobility flows to agriculture. Percentage distribution for sectors by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Industry	Construction	Services	Total
Denmark	43,8	0,0	56,2	100,0
Netherlands	18,7	13,2	68,2	100,0
Belgium	53,6	0,0	46,4	100,0
France	19,1	18,1	62,8	100,0
Ireland	28,3	13,5	58,2	100,0
Italy	26,6	14,2	59,2	100,0
Greece	18,1	27,5	54,3	100,0
Spain	22,9	14,9	62,2	100,0
Portugal	24,7	22,1	53,2	100,0
Austria	16,8	13,2	69,9	100,0
Average	*31,1*	*12,8*	*56,1*	*100,0*

Table A.6. Labour mobility flows to industry. Percentage distribution for sectors by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Agriculture	Construction	Services	Total
Denmark	14,1	16,3	69,6	100,0
Netherlands	2,4	8,3	89,3	100,0
Belgium	3,7	13,4	82,9	100,0
France	11,4	12,9	75,7	100,0
Ireland	11,0	17,4	71,6	100,0
Italy	6,3	14,2	79,5	100,0
Greece	17,8	18,4	63,8	100,0
Spain	7,9	24,4	67,6	100,0
Portugal	13,9	21,8	64,3	100,0
Austria	3,5	20,4	76,1	100,0
Average	*7,9*	*17,0*	*75,1*	*100,0*

Table A.7. Labour mobility flows to construction. Percentage distribution for sectors by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Agriculture	Industry	Services	Total
Denmark	20,0	33,0	47,0	100,0
Netherlands	8,5	25,6	65,8	100,0
Belgium	0,0	40,9	59,1	100,0
France	16,2	29,7	54,1	100,0
Ireland	9,8	42,1	48,0	100,0
Italy	8,9	28,2	62,8	100,0
Greece	25,1	25,5	49,4	100,0
Spain	13,2	37,9	48,9	100,0
Portugal	24,7	27,0	48,3	100,0
Austria	6,4	46,0	47,6	100,0
Average	*12,4*	*35,3*	*52,3*	*100,0*

Table A.8. Labour mobility flows to service sector. Percentage distribution for sectors by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	Agriculture	Industry	Construction	Total
Denmark	13,7	58,1	28,2	100,0
Netherlands	11,2	69,6	19,2	100,0
Belgium	5,9	76,5	17,6	100,0
France	11,6	63,8	24,6	100,0
Ireland	18,6	57,8	23,6	100,0
Italy	11,8	65,0	23,2	100,0
Greece	32,7	46,0	21,3	100,0
Spain	16,5	60,5	23,0	100,0
Portugal	25,6	45,0	29,4	100,0
Austria	13,3	69,8	17,0	100,0
Average	*16,1*	*61,8*	*22,1*	*100,0*

Table A.9. Flows of labour mobility from white-collar high skilled jobs. Percentage distribution for labour occupation by destination. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCLS	BCHS	BCLS	Total
Denmark	81,3	6,9	11,8	100
Netherlands	87,5	7,3	5,2	100
Belgium	92,8	5,4	1,8	100
France	74,8	10,7	14,5	100
Ireland	63,7	25,7	10,7	100
Italy	78,5	16,2	5,3	100
Greece	60,5	24,8	14,8	100
Spain	66,5	25,2	8,4	100
Portugal	66,1	24,6	9,3	100
Austria	84,5	11,2	4,3	100
Average	*77,4*	*15,7*	*6,9*	*100*

Table A.10. Flows of labour mobility from white-collar low skilled jobs. Percentage distribution for labour occupation by destination. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	BCHS	BCLS	Total
Denmark	47,1	13,0	39,9	100,0
Netherlands	72,7	6,6	20,8	100,0
Belgium	60,8	10,1	29,1	100,0
France	47,3	17,2	35,5	100,0
Ireland	57,2	10,0	32,8	100,0
Italy	43,2	23,1	33,7	100,0
Greece	57,0	18,4	24,5	100,0
Spain	53,6	16,2	30,2	100,0
Portugal	37,6	15,2	47,3	100,0
Austria	49,0	23,7	27,3	100,0
Average	*54,0*	*14,1*	*31,9*	*100,0*

Table A.11. Flows of labour mobility from blue-collar high skilled jobs. Percentage distribution for labour occupations by destination. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCLS	Total
Denmark	12,1	34,5	53,4	100,0
Netherlands	28,6	29,7	41,7	100,0
Belgium	9,3	36,6	54,1	100,0
France	9,4	38,6	51,9	100,0
Ireland	22,1	20,3	57,6	100,0
Italy	7,1	28,8	64,0	100,0
Greece	27,1	26,0	46,9	100,0
Spain	21,0	16,2	62,8	100,0
Portugal	11,2	16,8	72,0	100,0
Austria	9,1	43,6	47,3	100,0
Average	*15,8*	*28,6*	*55,7*	*100,0*

Table A.12. Flows of labour mobility from blue-collar low skilled jobs. Percentage distribution for labour occupations by destination. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCHS	Total
Denmark	10,7	63,6	25,7	100,0
Netherlands	15,2	59,4	25,4	100,0
Belgium	4,3	54,5	41,2	100,0
France	9,0	52,0	39,0	100,0
Ireland	11,1	46,0	42,9	100,0
Italy	3,4	39,0	57,6	100,0
Greece	10,0	35,2	54,8	100,0
Spain	6,1	33,1	60,8	100,0
Portugal	3,6	31,5	64,9	100,0
Austria	4,1	46,6	49,3	100,0
Average	*7,5*	*46,6*	*45,9*	*100,0*

Table A.13. Flows of labour mobility to white-collar high skilled jobs. Percentage distribution for labour occupations by origin (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCLS	BCHS	BCLS	Total
Denmark	73,9	8,1	17,9	100,0
Netherlands	82,7	9,6	7,7	100,0
Belgium	91,4	4,9	3,7	100,0
France	80,1	8,0	12,0	100,0
Ireland	73,2	14,2	12,6	100,0
Italy	78,6	14,4	7,0	100,0
Greece	63,4	28,6	8,0	100,0
Spain	68,1	24,0	7,9	100,0
Portugal	72,3	20,4	7,3	100,0
Austria	85,7	9,8	4,5	100,0
Average	*78,5*	*13,7*	*7,8*	*100,0*

Table A.14. Flows to labour mobility to white-collar low skilled jobs. Percentage distribution for labour occupation by origin (source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	BCHS	BCLS	Total
Denmark	29,9	12,5	57,6	100,0
Netherlands	63,8	8,9	27,3	100,0
Belgium	56,5	12,2	31,3	100,0
France	28,3	23,0	48,7	100,0
Ireland	42,5	11,5	45,9	100,0
Italy	33,7	27,8	38,4	100,0
Greece	54,2	22,5	23,3	100,0
Spain	48,5	15,6	35,9	100,0
Portugal	38,6	20,6	40,9	100,0
Austria	45,5	26,1	28,3	100,0
Average	*47,2*	*16,5*	*36,4*	*100,0*

Table A.15. Flows of labour mobility to blue-collar high skilled jobs. Percentage distribution for labour occupation by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCLS	Total
Denmark	7,2	30,1	62,7	100,0
Netherlands	22,4	27,9	49,7	100,0
Belgium	10,6	26,2	63,2	100,0
France	6,6	33,5	59,9	100,0
Ireland	24,7	15,6	59,7	100,0
Italy	8,3	23,9	67,8	100,0
Greece	29,6	22,6	47,9	100,0
Spain	18,3	16,8	64,9	100,0
Portugal	11,9	16,4	71,7	100,0
Austria	10,4	38,4	51,1	100,0
Average	*15,0*	*23,9*	*61,1*	*100,0*

Table A.16. Flows of labour mobility to blue-collar low skilled jobs. Percentage distribution for labour occupation by origin. (Source: own elaboration from ECHP data. 1994-2000. Averages of the period).

Countries	WCHS	WCLS	BCHS	Total
Denmark	7,9	58,8	33,3	100,0
Netherlands	10,2	55,9	34,0	100,0
Belgium	3,1	56,4	40,5	100,0
France	6,8	53,9	39,3	100,0
Ireland	9,5	48,1	42,4	100,0
Italy	2,4	31,3	66,3	100,0
Greece	17,1	29,3	53,6	100,0
Spain	6,2	32,4	61,3	100,0
Portugal	3,5	39,3	57,3	100,0
Austria	4,2	46,1	49,8	100,0
Average	*6,4*	*45,0*	*48,5*	*100,0*