



Centre d'Estudis Demogràfics

**AUTOCHTHONOUS AND FOREIGN WORKERS
IN THE SPANISH LABOUR MARKET:
SUBSTITUTION, COMPETITION AND SEGREGATION**

Fernando GIL-ALONSO
Andreu DOMINGO

377

*PAPERS
DE
DEMOGRAFIA*

2010



Centre d'Estudis Demogràfics

**AUTOCHTHONOUS AND FOREIGN WORKERS
IN THE SPANISH LABOUR MARKET:
SUBSTITUTION, COMPETITION AND SEGREGATION**

Fernando GIL-ALONSO
Andreu DOMINGO

377

Centre d'Estudis Demogràfics

2010

Resum.- *Treballadors autòctons i estrangers en el mercat de treball espanyol: substitució, complementarietat i segregació*

Durant la darrera dècada, en els països del sud d'Europa s'ha produït un increment significatiu de la població estrangera, arribada principalment per motius laborals. D'entre ells, Espanya seria el cas més paradigmàtic. Seria un exemple de "migració de reemplaçament", ja que la força de treball espanyola també ha crescut en el mateix període, especialment la femenina. Els autors sostenen que aquest "boom migratori" es deu, en part, a la promoció educativa, laboral i social de la mà d'obra autòctona, el que crea un "efecte aspirador", atraient treballadors estrangers que, en un mercat laboral segmentat o dual i amb nínxols específics (tant per als nacionals com pels estrangers), els migrants omplen els llocs vacants que els treballadors nacionals no volen o no són capaços de cobrir. Malgrat això, aquest procés no ha evolucionat de la mateixa manera a cada sector d'activitat econòmica, com es pot observar, tant pel nombre de nacionals i estrangers que treballen a cada sector, com per les variacions en les seves característiques sociodemogràfiques. L'article distingeix a nivell nacional i regional, tres grups de sectors d'activitat que experimenten dinàmiques de substitució, competència o dinàmiques de segregació entre les forces de treball nacionals i estrangeres. L'anàlisi es basa en les dades de l'*Enquesta de la Població Activa-EPA* (mà d'obra espanyola), dels anys 2.000 i 2.007.

Paraules clau.- Migracions internacionals, anàlisi del mercat de treball, demografia, *Enquesta de la Població Activa-EPA*, Espanya.

Resumen.- *Trabajadores autóctonos y extranjeros en el mercado de trabajos español: substitución, complementariedad y segregación*

Durante la última década, en los países del sur de Europa se ha producido un aumento significativo de la población extranjera, llegada principalmente por motivos laborales. Entre ellos, España sería el caso más paradigmático. Sería un ejemplo de "migración de reemplazo", ya que la fuerza de trabajo española también ha crecido en el mismo período, en especial la femenina. Los autores sostienen que este "boom migratorio" se debe, en parte, al incremento del nivel educativo, la promoción laboral y social de la mano de obra autóctona, lo que crea un "efecto aspirador", atrayendo a trabajadores extranjeros que, en un mercado laboral segmentado o dual y con nichos específicos (tanto para los nacionales como para los extranjeros), los migrantes llenan los puestos vacantes que los trabajadores nacionales no quieren o no son capaces de cubrir. Sin embargo, este proceso no ha evolucionado de la misma manera en cada sector de la actividad económica, como puede observarse, tanto por el número de nacionales y extranjeros que trabajan en cada sector, como por las variaciones en sus características socio-demográficas. El artículo distingue a nivel nacional y regional, tres grupos de sectores de actividad que experimentan dinámicas de sustitución, competencia o dinámicas de segregación entre las fuerzas de trabajo nacionales y extranjeras. El análisis se basa en los datos de la *Encuesta de Población Activa-EPA* (mano de obra española), de los años 2.000 y 2.007.

Palabras clave.- Migración internacional, análisis del mercado laboral, demografía, *Encuesta de la Población Activa-EPA*, España.

Abstract.- *Autochthonous and Foreign Workers in the Spanish Labour Market: Substitution, Competition and Segregation*

This last decade, southern EU countries have seen a significant increase of their foreign population, who has mainly arrived for labour reasons, and Spain would be the most paradigmatic case among them. The latter would not however be an example of “replacement migration”, as the Spanish workforce has also grown during the same period, particularly the female one. Authors argue that this “migration boom” is partly due to the educational, labour and social promotion of the autochthonous workforce, which creates a “vacuum cleaner effect” attracting foreign workers who, in a segmented or dual labour market with specific niches for both nationals and foreigners, fill the vacant posts that national workers do not want or are no longer able to cover. However, this process has not evolved in the same way in each economic activity sector, as it can be observed both by the numbers of national and the foreign people working in each of them, and by variations in their socio-demographic characteristics. This paper intends to differentiate –firstly at a national level, then at the regional one– three groups of activity sectors experiencing substitution, competition or segregation dynamics between the national and foreign workforces, by using 2000 and 2007 EPA (Spanish labour force) survey data.

Keywords.- International migration, foreign population, labour market analysis, demography, EPA, Spain.

CONTENTS

1.- Introduction	1
2.- Data used and paper's structure	3
3.- Examining Spanish and foreign worker's insertion in the labour market	4
4.- Spanish and foreign workers: competition, substitution or segregation? An analysis by economic sectors	9
5.- Socio-demographic analysis by sector and nationality: age, sex, and education level structure	13
6.- Analysis at a regional level	19
7.- Summary and conclusions	23
References	25

LIST OF FIGURES

1.- Sex-age structure and educational level, by activity sector and Spanish or foreign nationality. Spain, 2007	16
2.- Tree diagram produced from a hierarchical analysis of Spanish regions according to their autochthonous labour force structure by sex. Spain, 2000	20

LIST OF TABLES

1.- Total Spanish and foreign employed labour force, by economic sector. Spain, 2000-2007	5
2.- Total Spanish and foreign employed labour force, by sex and educational level. Spain, 2000-2007	6
3.- Total Spanish and foreign employed labour force, by occupational class. Spain, 2000-2007	8
4.- Real and estimated change in the number of Spanish and foreign nationals employed by activity sector. Growth Index (GI) and Sector Segregation Index (SSI). Spain 2000-2007	12
5.- Change in Spanish and foreign nationals employed by activity sector and sex. Spain, 2000-2007	14
6.- Employment change, GI and SSI for the four groups of autonomous Communities, by nationality. Spain, 2000-2007	21

**AUTOCHTHONOUS AND FOREIGN WORKERS
IN THE SPANISH LABOUR MARKET:
SUBSTITUTION, COMPETITION AND SEGREGATION¹**

Fernando GIL-ALONSO
fgil@ub.edu

Andreu DOMINGO
adomingo@ced.uab.es

1.- Introduction

These last decades, Spain has become a new immigration country (Muñoz Pérez and Izquierdo Escrivano 1989; Arango 1997 and 1999; Salt and Almeida 2006). Studies focusing on foreign citizens' participation in the Spanish labour market have not only underlined their increasing volume, but also the qualitative aspects of this incorporation by activity sector (Colectivo IOE 2002; R. Carrasco 2003; C. Carrasco and C. García 2004; L. Garrido and L. Toharia 2004). In this paper, socio-demographic differences between foreigners and Spanish nationals have initially been used to explain how the former have been inserted in the labour market, underlining their "complementary" role with regards the autochthonous population (F. Gil Alonso and A. Domingo 2008).

As explained by L. Cachón (1997), following Michael J. Piore's work (1979), this role would not basically be related to the Spanish recent demographic evolution², but to the

¹ This paper is an output of the R+D Projects "Demographic behaviour and social integration of immigrants and their children in Spain" (CSO2008-04778/SOCI), directed by Dr Andreu Domingo, and "Demographic dynamics in Spain through the 20th Century Censuses" (CSO2008-06217/SOCI), directed by Dr Fernando Gil. Both projects are funded by the Spanish Ministry of Science and Innovation, through the National R+D+i Plan 2008-2011. The authors belong to two research groups recognised and funded by the Generalitat de Catalunya (regional government): Grup de Recerca en Població, Territori i Ciutadania, directed by Dr Isabel Pujadas (ref.: 2009SGR01086), and Grup d'Estudis Demogràfics i de Migracions, directed by Dr Andreu Domingo (ref.: 2009SGR858).

² As shown by the paper by Andreu Domingo, Fernando Gil Alonso and Elena Vidal (2006), the Spanish demographic trajectory presents some specificities within a European context mainly marked by a rapidly

Spanish labour market characteristics, marked by segmentation. This process is particularly visible when focusing on how young (mainly female) Spanish nationals, who have attained a much higher education level than older generations, get socially promoted when they incorporate the labour market (A. Domingo and F. Gil Alonso 2007).

Even though this situation is not new, and has already been experienced and studied in other countries (W.T. Dickens and K. Lang 1988; M. E. Enchaustegui 1998; D. Coleman and R. Rowthorn 2004), the Spanish case –which has been analysed by U. Martínez Veiga 1999; L. Abad 2002; C. Solé and S. Parella 2001 and 2003; R. Carrasco, J.F. Jimeno and A.C. Ortega 2004; Balch 2005; H.J. Simón, R. Ramos and E. Sanromá 2007 among other authors – is particularly interesting due to the great speed of the process and the large numbers of immigrants that have arrived. These trends would be partly related to the increasing local female labour market participation and the extension of two salary households in a context of female education level improvement. As household reproductive tasks are still unequally distributed between men and women, family's older generations are increasingly carrying out these tasks (L. Garrido 1992; J. MacInnes and J. Pérez 2008). When this is not possible, they are externalised into the market, as the Welfare State is very weak in comparison with other EU countries. This has favoured an internationalisation of domestic work, including child and elderly care, and housework. Here, the concept of “complementarity” is used to describe how the arrival of foreign immigrants impulses Spanish nationals' social promotion. This concept does not only concern the labour market. Other contexts involving social mobility, such as, the marriage market or the residential one can be understood as markets and should also be explored. However, we will be focusing on the labour market because, even though it is not the only element attracting foreigners to a given territory, it plays a major role in it and it is also one of the most obvious.

In a first step, the process will be analysed by activity sectors, as there are sectors where the foreign population is virtually substituting the autochthonous one, other sectors where there is competition between the two populations, independently from whether they compete or not for the same jobs, and finally others which have nearly become, for legal or other reasons, exclusive niches for the Spanish nationals. Following these three categories (substitution, competition and segregation), the spatial dimension of the phenomenon will

ageing population and the arrival of smaller cohorts to the labour market. As Spain had its baby boom later, the arrival of large cohorts of autochthonous population to the labour market has downplayed the demand of

be explored by activity sector at regional (autonomous community) level, as this process does not seem to develop at the same pace throughout the Spanish territory.

2.- Data used and paper's structure

The Spanish labour force survey or Encuesta de Población Activa (EPA) has been this paper's data source. This survey, carried out by the INE every three months since 1964, collects data on the labour force, its different components (employed and unemployed), and the inactive population. The sample has 65,000 families, which, in practical terms, are reduced to about 60,000 interviewed families, or in other words, about 200,000 people, which is a reasonable sample size for the paper's aim.

Two EPA waves, separated seven years from one another, have been used to analyse the growing impact of foreigners in the Spanish labour market within an economic growth phase. The first wave (cycle 111) corresponds to the second quarter of 2000 and the second (cycle 139) to the second quarter of 2007, i. e. just before the current crisis started. As the first years of the 21st century were precisely those in which foreign immigration grew, data will allow us to fulfil the rest of the paper's four targets. In the first place we will study how this process has changed the volume and the characteristics of labour force participation, both within the autochthonous and the foreign populations (section 3). Then (section 4), substitution, competition and segregation between the two groups of workers will be analysed at greater depth, as a new set of indicators will allow us to explain the three existing dynamics between the foreign and local populations, in the diverse activity sectors, and therefore to build a typology. Section 5 will focus on the basic socio-demographic elements characterising the two populations (age, sex and education level) taking the analysis further than the mere evolution of numbers in each sector. Finally, section 6 will describe the territorial patterns of this phenomenon allowing to group regions with similar behaviour. Conclusions and main results will be summarised in section 7.

3.- Examining Spanish and foreign worker's insertion in the labour market

According to the EPA, Spain had 15.5 million employed workers in 2000 and nearly 20.4 in 2007 (Table 1). This growth (4.9 million people) had similar proportions of Spanish (about 2.6 million) and foreign (about 2.3 million) workers. As the volume of the latter is much smaller, foreign workers have therefore relatively grown much more (549 per cent) than autochthonous ones (17 per cent). However, a growth in 2.6 million national workers can not be considered irrelevant. Moreover, as a first conclusion it can be stated that this massive growth in foreigner employment took place while the local workforce participation and employment levels were only not dwindling, but significantly growing. Hence, the simplistic idea that immigrants have come to occupy the jobs that the increasingly old and reduced Spanish workforce can no longer undertake –i.e. the “replacement migration” theory– should be abandoned. As we have formerly shown (A. Domingo, F. Gil Alonso and E. Vidal Coso 2006; A. Domingo and F. Gil Alonso 2007), though this could be true for certain European countries, it is not really the case in Spain, in other Mediterranean countries or Ireland.

Therefore, the complementary relationship between foreigners and the Spanish labour force can not continue to be strictly explained in demographic volume terms. As Piore (1979) explained some years ago, labour market segmentation has a dominant role, and this would not only be in nationality terms, but also by sex, age, or education attainment. These variables are not only intimately interrelated but, as we will see in the next section, condition both Spanish and foreigner differential labour market participation in the diverse activity sectors.

However, it is also true that the Spanish national workforce has undergone a certain ageing process (the mean age increasing from 38.2 in 2000 to 39.7 in 2007), particularly in the primary sector. This has been partly mitigated by the arrival of foreigners, who have a younger mean age which has moreover diminished in 1.6 years (from 36.3 to 34.7), the youngest of which can be found in the primary sector (Table 1). This ageing process is partly due to the incorporation of Spanish women to the labour market. Even though they have a slightly younger mean age than their male colleagues, during this period they have undergone, a greater relative ageing process.

Table 1.- Total Spanish and foreign employed labour force, by economic sector. Spain, 2000-2007

SECTORS	Nationality	2000		2007		variation 2000-2007			Mean age		
		Employed	%	Employed	%	Abs. growth	rel. growth(%)	variation %	2000	2007	variation
Agriculture, forestry and fishing	Spanish	997.478	6,6	747.385	4,2	-250.093	-25,1	-2,4	42,4	44,2	1,7
	Foreign	37.776	8,9	173.605	6,3	135.829	359,6	-2,6	32,6	32,8	0,2
	Total	1.035.254	6,7	920.990	4,5	-114.264	-11,0	-2,2	42,1	42,0	0,0
Industry and transport	Spanish	3.932.340	26,1	4.042.287	22,9	109.947	2,8	-3,2	38,0	39,5	1,5
	Foreign	65.759	15,5	398.956	14,5	333.197	506,7	-1,0	35,0	34,5	-0,5
	Total	3.998.100	25,8	4.441.243	21,8	443.143	11,1	-4,0	38,0	39,1	1,1
Construction	Spanish	1.660.965	11,0	2.046.399	11,6	385.433	23,2	0,6	37,2	38,0	0,7
	Foreign	44.780	10,6	667.336	24,2	622.556	1390,3	13,7	34,9	34,5	-0,4
	Total	1.705.745	11,0	2.713.735	13,3	1.007.990	59,1	2,3	37,2	37,1	-0,1
Wholesale and retail trade, hotels and restaurants	Spanish	3.404.051	22,6	3.856.459	21,9	452.408	13,3	-0,7	36,6	38,4	1,8
	Foreign	127.924	30,2	709.460	25,8	581.535	454,6	-4,4	36,3	33,5	-2,8
	Total	3.531.975	22,8	4.565.918	22,4	1.033.943	29,3	-0,4	36,6	37,6	1,1
Finance and real estate	Spanish	1.496.369	9,9	2.296.319	13,0	799.949	53,5	3,1	37,2	39,0	1,8
	Foreign	35.657	8,4	205.568	7,5	169.911	476,5	-0,9	41,3	36,4	-4,9
	Total	1.532.026	9,9	2.501.887	12,3	969.860	63,3	2,4	37,3	38,8	1,5
Public administration, education and health	Spanish	2.609.104	17,3	3.487.969	19,8	878.865	33,7	2,5	40,2	41,7	1,5
	Foreign	28.735	6,8	110.129	4,0	81.395	283,3	-2,8	39,8	39,7	-0,1
	Total	2.637.839	17,1	3.598.098	17,7	960.260	36,4	0,6	40,2	41,6	1,4
Other services, including domestic services	Spanish	945.685	6,3	1.136.711	6,5	191.025	20,2	0,2	38,4	39,8	1,4
	Foreign	83.213	19,6	488.733	17,7	405.521	487,3	-1,9	36,5	35,9	-0,6
	Total	1.028.898	6,7	1.625.444	8,0	596.546	58,0	1,3	38,3	38,7	0,4
Overall	Spanish	15.045.993	100,0	17.613.528	100,0	2.567.535	17,1		38,2	39,7	1,5
	Foreign	423.843	100,0	2.753.787	100,0	2.329.944	549,7		36,3	34,7	-1,6
	Total	15.469.836	100,0	20.367.315	100,0	4.897.479	31,7		38,2	39,0	0,8

Source: Encuesta de Población Activa (EPA).

Note: Grey shading – above-average growth.

However, even though the variable “sex” has had certain influence on the workforce’s age, it has had a much grater impact on its volume, as nearly 1.7 million Spanish women got employed (numbers, for men, only reached 0.9 million) in addition to another million foreign females. Despite that the number of foreign men, in absolute terms, has increased more (1.3 million) than that of foreign women and female employment has increased more in relative terms, and this both for Spanish nationals (+30.6 per cent compared to +9.3 per cent) and foreign ones (+592 per cent against +521 per cent, see Table 2). Hence, mass immigration has taken place within a progressive Spanish labour market feminisation context. In 2007, female employment reached 41 per cent of those employed while seven years before it was only 37 per cent.

**Table 2.- Total Spanish and foreign employed labour force, by sex and educational level.
Spain, 2000-2007**

Nationality	Sex	Education level	2000		2007		variation 2000-2007		
			Employed	%	Employed	%	Abs. Growth	rel. growth (%)	variation %
Spanish	Men	Less than secondary	2.965.289	31,0	2.056.348	19,7	-908.941	-30,7	-11,3
		Secondary	4.271.269	44,7	5.219.175	50,0	947.906	22,2	5,3
		Higher	2.314.907	24,2	3.162.570	30,3	847.663	36,6	6,1
		Total	9.551.465	100,0	10.438.094	100,0	886.629	9,3	34,5
	Women	Less than secondary	1.293.103	23,5	982.866	13,7	-310.237	-24,0	-9,8
		Secondary	2.360.154	43,0	3.271.106	45,6	910.952	38,6	2,6
		Higher	1.841.272	33,5	2.921.463	40,7	1.080.191	58,7	7,2
		Total	5.494.528	100,0	7.175.434	100,0	1.680.906	30,6	65,5
	Both sexes	Less than secondary	4.258.392	28,3	3.039.214	17,3	-1.219.178	-28,6	-11,0
		Secondary	6.631.422	44,1	8.490.281	48,2	1.858.858	28,0	4,1
		Higher	4.156.179	27,6	6.084.033	34,5	1.927.854	46,4	6,9
		Total	15.045.993	100,0	17.613.528	100,0	2.567.535	17,1	100,0
Foreign	Men	Less than secondary	91.507	36,2	447.162	28,5	355.654	388,7	-7,7
		Secondary	99.573	39,4	813.641	51,8	714.069	717,1	12,4
		Higher	61.596	24,4	308.803	19,7	247.207	401,3	-4,7
		Total	252.675	100,0	1.569.605	100,0	1.316.930	521,2	56,5
	Women	Less than secondary	34.642	20,2	230.848	19,5	196.206	566,4	-0,7
		Secondary	82.771	48,4	687.449	58,1	604.678	730,5	9,7
		Higher	53.755	31,4	265.885	22,5	212.130	394,6	-9,0
		Total	171.168	100,0	1.184.182	100,0	1.013.014	591,8	43,5
	Both sexes	Less than secondary	126.149	29,8	678.009	24,6	551.860	437,5	-5,1
		Secondary	182.344	43,0	1.501.090	54,5	1.318.746	723,2	11,5
		Higher	115.351	27,2	574.688	20,9	459.337	398,2	-6,3
		Total	423.843	100,0	2.753.787	100,0	2.329.944	549,7	100,0

Source: Encuesta de Población Activa (EPA).

Key: Higher education (categories 51 to 61 of EPA's NFORMA variable); Secondary education (categories from 23 to 41); Less than secondary (categories from 11 to 22, 36 and 80).

Note: Grey shading – above-average growth.

As it can be seen in table 2, ageing, feminisation, and a significant improvement in education attainment, particularly in women, would be the main characteristics of the national employed workforce. More than 1.9 million out to the 2.6 million Spanish workers who incorporated the labour market between 2000 and 2007 had higher education and 1.8 million had secondary education. 60 per cent of the former and nearly half of the latter were women. At the same time, those who had less than secondary education fell in 1.2 million. However, it should also be noted that these were mainly men (3 out of 4), as women with low education levels generally belong to elderly generations who did not participate in the labour market. By contrast, immigrant's education attainment has decreased, as the proportion of those arriving with higher education has grown less than those reaching the country with secondary education or less. Although, according to immigrant education distribution by sex, more men than women have higher education,

women have particularly grown among the category which has increased more, that is to say, those with secondary education. Finally, the bottom group has also grown more among foreign women than men.

Therefore, the substitution of Spanish elderly generations with low education and low female labour participation by younger more educated groups has implied a significant labour force participation increase and a change in the labour market structure in general, and that of certain occupational categories and sectors in particular. Indeed, labour promotion of Spaniards has attracted, under a “vacuum cleaner” effect, foreign nationality workers to the less qualified jobs in sectors in which Spanish nationals do no longer want to work. In addition, this new immigrant arrival has created new labour niches, like ethnic shops. In conclusion, labour dynamics of these two groups seem to be complementary.

These dynamics can clearly be observed in table 3, showing the evolution of foreign and Spanish workers between 2000 and 2007 by occupational category in absolute and relative terms. As it can be seen, Spaniards have improved their relative position in the labour market: out of the 2.6 million supplementary Spanish workers, a quarter million are senior officials and managers in either businesses or the public administration. A million and a half have been categorised as professionals, technicians and associated professionals, 0.9 million of which would be women and 650,000 men. By contrast, absolute figures of those registered under the “farmers and skilled workers in the primary sector” and “elementary occupations” categories, or in other words as unskilled workers, have fallen.

Differences by sex should also be underlined. Though there is a slight growth in the number of male craft and related trade workers and in that of skilled manual workers in industry and the building sector, the number of women in this category has diminished (despite their already symbolic presence). The opposite can be observed among unskilled workers, as the number of women occupied in this area increases, though only slightly, while the presence of men significantly falls. Finally, it should also be noted that the number of jobs in the “service and sales workers” category has increased for both sexes, but particularly in the case of women.

In conclusion, between 2000 and 2007, female employment increased to such an extent that their absolute figures raised both in high and low categories, being professional and technician categories the ones with both the highest absolute and relative growth.

Table 3.- Total Spanish and foreign employed labour force, by occupational class. Spain, 2000-2007

Nationality	Type of occupation	Sex	Year		Variation	
			2000	2007	Absolute	Relative (%)
Spanish	Senior officials and managers in businesses and public administrations	Men	800.833	959.934	159.101	19,9
		Women	366.196	441.995	75.799	20,7
		Total	1.167.029	1.401.929	234.900	20,1
	Professionals	Men	902.085	1.149.006	246.921	27,4
		Women	845.977	1.279.860	433.883	51,3
		Total	1.748.062	2.428.865	680.804	38,9
	Technicians and associate professionals	Men	879.911	1.285.699	405.788	46,1
		Women	577.044	1.055.185	478.141	82,9
		Total	1.456.955	2.340.885	883.930	60,7
	Clerks	Men	602.409	614.019	11.610	1,9
		Women	895.346	1.139.176	243.829	27,2
		Total	1.497.755	1.753.195	255.439	17,1
	Service and sales workers	Men	911.137	965.693	54.556	6,0
		Women	1.212.266	1.638.051	425.785	35,1
		Total	2.123.403	2.603.744	480.341	22,6
	Farmers and skilled workers in the primary sector	Men	513.833	360.257	-153.576	-29,9
		Women	175.172	107.628	-67.545	-38,6
		Total	689.005	467.885	-221.120	-32,1
	Craft and related trade workers and skilled manual workers in industry, construction and mining	Men	2.382.787	2.580.287	197.500	8,3
		Women	190.212	177.497	-12.715	-6,7
		Total	2.572.999	2.757.784	184.785	7,2
	Plant and machine operators, assembly workers	Men	1.374.331	1.477.089	102.758	7,5
		Women	242.707	231.507	-11.200	-4,6
		Total	1.617.037	1.708.596	91.559	5,7
	Elementary occupations	Men	1.108.390	971.572	-136.817	-12,3
		Women	984.625	1.095.223	110.598	11,2
		Total	2.093.015	2.066.796	-26.219	-1,3
	OVERALL	Men	9.551.465	10.438.094	886.629	9,3
		Women	5.494.528	7.175.434	1.680.906	30,6
		Total	15.045.993	17.613.528	2.567.535	17,1
Foreign	Senior officials and managers in businesses and public administrations	Men	28.487	66.542	38.055	133,6
		Women	15.489	32.017	16.528	106,7
		Total	43.976	98.559	54.583	124,1
	Professionals	Men	21.131	61.081	39.950	189,1
		Women	12.849	49.236	36.386	283,2
		Total	33.980	110.316	76.336	224,6
	Technicians and associate professionals	Men	17.652	65.478	47.825	270,9
		Women	9.342	40.947	31.606	338,3
		Total	26.994	106.425	79.431	294,3
	Clerks	Men	3.949	33.809	29.860	756,2
		Women	17.828	79.966	62.138	348,5
		Total	21.776	113.774	91.998	422,5
	Service and sales workers	Men	39.719	168.846	129.127	325,1
		Women	44.749	371.711	326.963	730,7
		Total	84.467	540.557	456.090	540,0
	Farmers and skilled workers in the primary sector	Men	9.204	30.519	21.315	231,6
		Women	547	2.439	1.892	346,2
		Total	9.751	32.958	23.207	238,0
	Craft and related trade workers and skilled manual workers in industry, construction and mining	Men	46.591	567.772	521.180	1118,6
		Women	6.757	23.217	16.460	243,6
		Total	53.348	590.989	537.641	1007,8
	Plant and machine operators, assembly workers	Men	18.922	141.586	122.664	648,3
		Women	3.996	22.282	18.287	457,7
		Total	22.918	163.868	140.950	615,0
	Elementary occupations	Men	67.020	431.185	364.165	543,4
		Women	59.613	561.932	502.319	842,6
		Total	126.633	993.117	866.484	684,2
	OVERALL	Men	252.675	1.569.605	1.316.930	521,2
		Women	171.168	1.184.182	1.013.014	591,8
		Total	423.843	2.753.787	2.329.944	549,7

Source: Encuesta de Población Activa (EPA).

Note: Grey shading – above-average growth.

On the contrary, immigrants of both sexes have particularly grown in low occupational categories and especially the unskilled one (see elementary occupations in Table 3). Male foreigners have increased relatively more than women in clerical and in industrial jobs (“craft and related trade workers and skilled manual workers” and “plant and machine operators and assembly workers” categories.) However, the opposite case can be observed among service sector related jobs.

In summary, as the Spanish workforce, particularly women, has relatively improved its position, foreign nationality workers have been attracted to occupy the less qualified, less remunerated and more unstable jobs, which Spanish workers try to avoid as they have been able to climb the labour ladder, due to the fact they have improved their education level, redefining at the same time, a basic gender role redefinition. The arrival of foreign immigrants (both men and women) has allowed Spanish women to quickly enter the labour market. However, this has not been in part time jobs, like in other countries, but in full time ones, like their male counterparts. Consequently, domestic work has been externalised, and carried out, to a large extent, by (female) immigrants. Hence, as it will be explained in the following paragraphs, the structure of autochthonous and foreign labour force participation has been completely modified.

4.- Spanish and foreign workers: competition, substitution or segregation? An analysis by economic sectors

Which are the sectors that are progressively abandoned by autochthonous workers and occupied by foreigners? Would substitution be the only existing mechanism, or are there sectors in which workers from both origins have increased? And finally, are there sectors almost exclusively for native workers? Taking the four category framework proposed by Feld (2000) which combined national and foreign employment increases and falls as starting point, a new three category typology (as, between 2000 and 2007, foreign employment grew in all sectors) has been created to differentiate among the existing dynamics by economic activity sectors:

- Sectors with a substitution dynamics: numbers of Spanish nationals in them have dwindled either in absolute or relative terms, while those of foreigners have increased.

- Sectors with competition dynamics: both numbers of foreign and Spanish workers in them have grown in absolute and relative terms.
- Sectors with segregation dynamics: Spanish nationals have specialised and predominate in them, as they have been considered their “niches” and are practically inaccessible to foreigners. Even though, in this period, the latter have increased in absolute terms, they have lost weight in the relative terms, as Spanish workers have grown much more than foreigner ones.

The analysis by activity sector groups all economic activities in nine categories (table 1). As it can be observed in the formerly mentioned table, the only sector which loses employment in absolute terms is the primary one (agriculture, forestry and fishing), as the loss of 250,000 Spanish workers is not compensated by the arrival of more than 135,000 foreigners. Hence, 6.7 per cent of the employed population worked in this sector in 2000, compared to 4.5 per cent in the year 2007. Moreover, it has undergone an important ageing process (Spanish actives in the sector were a mean of 1.7 years older in 2007 than seven years before), presently becoming the oldest³, with a mean age of 44.2 in 2007. Though the number of Spanish nationals employed in industry and transport, and in wholesale and retail trade, hotels, and restaurants has increased in absolute terms, they have lost presence in relative terms. While in 2000, 26.1 per cent of the Spanish employed workers belonged to the industrial sector, this proportion diminished to 22.9 per cent in 2007 or in other words, their presence was reduced in 3.2 points. On the other hand, Spanish workers employed in trade, hotels and restaurants in the same period dwindled in 0.7 points and, in 2007, represented 21.9 per cent of those employed.

These three sectors, in which foreign employment has increased more than the local one, would be the ones where there has been what we have called a substitution dynamics. Construction, on its side, would be the paradigmatic case of sectors in which there has been a parallel growth of both populations. Moreover, both groups have increased more than the average growth rate. Spanish nationals employed in this sector have gone from representing 11 per cent of those employed in 2000 to 11.6 per cent in 2007, increasing in

³ It should be mentioned that the only sector where foreign workers have also experienced an ageing process is farming. However, their age has only increased in 0.2 years, reaching a mean age of 32.8 in 2007. Moreover, it is the sector where foreigners are still the youngest. In the rest of sectors, Spanish workers have

385.000 new jobs. Foreigners have gone from being 10.6 per cent in 2000 to a remarkable 24.2 per cent seven years later, with 620.000 new jobs. Ageing has not affected much Spanish workers in this sector, as the mean age has only increased in 0.7 years, the weakest increase in all sectors. Hence, we can observe a generational renovation process among the Spanish workers.

Finally, the highest added value and earning sectors, like the financial and real estate ones and those with a high volume of civil servants (public administration, education, health) are those where Spanish workers (+800.000 and +879.000 respectively) have increased more, even above foreigners, who have lost weight in relative terms. The share of Spaniards working in the real state and financial sector has gone from a 10 per cent to a 13 per cent and those working in the public sectors have risen from a 17.3 per cent to a 19.8 per cent. Activities grouped under “other services” have also had a relative increase of Spanish workers, which have risen in 0.2 points, while foreigners have undergone a relative decrease of 1.9 points. However, the picture in this sector in absolute terms is more complex as the number of foreigners employed has more than doubled that of Spanish ones.

An index called “foreign and Spanish worker Sector Segregation Index” (SSI), has been developed to avoid confusions, and determine the dominant trend in each sector more clearly. The period’s total employment growth rate in each of the two groups⁴ has been respectively applied to 2000 Spanish and foreign workers, obtaining, through a sort of indirect standardisation, an estimate number of Spanish and foreign workers for 2007 in each sector. Results indicate how employment would have grown in each sector if they had all increased at the same rate -i.e. with the growth quotient calculated for each of the two populations all sectors included. By dividing the real number of 2007 workers in a given sector by those estimated following this method, a growth index (GI) for each sector and nationality has been also calculated. If the GI is more than one, it would indicate that employment in that sector and for that nationality has grown more than employment for that nationality in general. If results are less than one, it would mean that employment for

become older (with a mean age of 38-41 in 2007), while foreign ones are now younger (34-36 years old in 2007).

⁴ Among the different ways of calculating the 2000-2007 growth rate, the simplest one has been chosen: dividing the number of 2007 employed people by the 2000 ones. Results give 1.17, that is to say, a 17 per cent growth for Spanish workers and 6.497, or what is the same, a 549.7 per cent growth for foreign ones. If the SSI evolution was to be analysed annually, the cumulated annual growth rate should be obviously used instead. However, here we only wanted to compare the change between the period’s two end years.

that sector and nationality has increased less than the mean or has fallen (See table 4, one but last column).

As it has just been stated, the SSI combines Spanish and foreign growth rates. A negative result would mean that Spanish workers in that sector are being substituted by foreign ones. Hence, the more negative a result is, the stronger the substitution process would be. If the SSI is positive, but smaller than one, it would mean that employment is predominantly growing among Spanish nationals, and that of foreigners are loosing weight. The closest a result to one, the more would Spanish employment grow, and the nearer to 0, the higher the equilibrium between the two populations. Finally, if the SSI is positive and above 1, this would mean that employment would have risen in both groups in absolute and in relative terms. The more the growth of both groups adds, the higher the SSI. Results of the SSI between 2000 and 2007 can be observed in the last column of table 4.

Table 4.- Real and estimated change in the number of Spanish and foreign nationals employed by activity sector. Growth Index (GI) and Sector Segregation Index (SSI). Spain 2000-2007

SECTORS	Nationality	2000 Employed	2007			GROWTH INDEX	SECTOR SEGREGATION INDEX
			Employed Real	Difference Estimated	real-estimated		
Agriculture, forestry and fishing	Spanish	997.478	747.385	1.167.694	-420.309	0,640	-1,067
	Foreign	37.776	173.605	245.437	-71.832	0,707	
Industry and transport	Spanish	3.932.340	4.042.287	4.603.378	-561.091	0,878	-1,056
	Foreign	65.759	398.956	427.250	-28.294	0,934	
Wholesale and retail trade, hotels and restaurants	Spanish	3.404.051	3.856.459	3.984.937	-128.479	0,968	-0,886
	Foreign	127.924	709.460	831.147	-121.688	0,854	
Construction	Spanish	1.660.965	2.046.399	1.944.402	101.997	1,052	3,346
	Foreign	44.780	667.336	290.942	376.394	2,294	
Other services, including domestic services	Spanish	945.685	1.136.711	1.107.062	29.648	1,027	0,123
	Foreign	83.213	488.733	540.648	-51.915	0,904	
Finance and real estate	Spanish	1.496.369	2.296.319	1.751.718	544.600	1,311	0,424
	Foreign	35.657	205.568	231.669	-26.101	0,887	
Public administration, education and health	Spanish	2.609.104	3.487.969	3.054.337	433.633	1,142	0,552
	Foreign	28.735	110.129	186.693	-76.564	0,590	
Overall	Spanish	15.045.993	17.613.528	17.613.528			
	Foreign	423.843	2.753.787	2.753.787			

If SSI <0 = Substitution dynamics
 If SSI >0 but <1 = Labour niche for Spanish workers
 If SSI >1 = Competition dynamics

Source: Encuesta de Población Activa (EPA).

A T-test for independent samples has been applied in pairs, that is to say, by activity sectors to check whether the Spanish and foreigner growth indexes (GI), obtained from the EPA sample and used to build the SSI, are significantly different. T (bilateral) has come out as significant in all cases, for a p equal or less than 0.05. Therefore, as differences in employment growth between Spanish and foreign populations are significant, results by sector have been analysed. Construction is the only one in which both groups of nationalities grow vigorously and simultaneously. By contrast, the primary sector, followed by industry and transport, are those in which more Spanish labour force is being substituted by the foreign one. This can also be observed, though to a much smaller extent, in wholesale and retail trade, and in hotels and restaurants, where there tends to be much more of an equilibrium between the two populations. “Other services” also present a similar trend, though Spanish workers have relatively grown more than foreign ones. Finance and real estate and particularly public administration (including health and education) are the more attractive sectors for Spanish workers and are hence becoming protected niches in which the Spanish workforce is specialising, particularly the last, as foreigners have limited access to many posts. It should also be emphasised that this is the sector receiving many of the women who are lately incorporating the labour market as, within the analysed dates, more than half a million Spanish women occupied post in the public administration, education, or health.

5.- Socio-demographic analysis by sector and nationality: age, sex, and education level structure

The latter figure leads the discussion towards analysing the participation structure by sector and sex (table 5). Results show that while employment has grown more or less in the same sectors for both sexes among Spaniards, important differences by sex can be observed among foreigners. In the first case, both sexes are significantly concentrated in the public sector, in the financial and real estate one and in the building sector. In absolute figures, Spanish female employment has particularly increased in the public sector (including education and health), and in the real estate and financial one, adding 1.1 million new employments in these sectors alone, whereas Spanish male growth has concentrated in construction and the financial real-estate sector, with 700,000 new jobs.

Table 5.- Change in Spanish and foreign nationals employed by activity sector and sex. Spain, 2000-2007

Nationality	SECTORS	Sex	2000 Employed	2000 sex distrib.	2007 Employed	2007 sex distrib.	variation 2000-2007 absolute	variation 2000-2007 relative (%)
Spanish	Agriculture, forestry and fishing	Men	729.729	73,2	544.650	72,9	-185.079	-25,4
		Women	267.749	26,8	202.735	27,1	-65.014	-24,3
	Industry and transport	Men	3.031.487	77,1	3.047.184	75,4	15.698	0,5
		Women	900.854	22,9	995.103	24,6	94.249	10,5
	Construction	Men	1.577.882	95,0	1.904.505	93,1	326.623	20,7
		Women	83.083	5,0	141.894	6,9	58.811	70,8
	Wholesale and retail trade, hotels and restaurants	Men	1.881.611	55,3	1.942.633	50,4	61.022	3,2
		Women	1.522.439	44,7	1.913.825	49,6	391.386	25,7
	Finance and real estate	Men	825.064	55,1	1.192.478	51,9	367.414	44,5
		Women	671.305	44,9	1.103.841	48,1	432.536	64,4
Foreign	Public administration, education and health	Men	1.164.540	44,6	1.384.739	39,7	220.200	18,9
		Women	1.444.564	55,4	2.103.230	60,3	658.666	45,6
	Other services, including domestic services	Men	341.152	36,1	421.905	37,1	80.752	23,7
		Women	604.533	63,9	714.806	62,9	110.273	18,2
	Overall	Men	9.551.465	63,5	10.438.094	59,3	886.629	9,3
		Women	5.494.528	36,5	7.175.434	40,7	1.680.906	30,6
	Agriculture, forestry and fishing	Men	34.775	92,1	131.799	75,9	97.024	279,0
		Women	3.001	7,9	41.806	24,1	38.805	1293,1
	Industry and transport	Men	45.713	69,5	304.924	76,4	259.211	567,0
		Women	20.046	30,5	94.032	23,6	73.986	369,1
Foreign	Construction	Men	44.218	98,7	655.702	98,3	611.484	1382,9
		Women	562	1,3	11.634	1,7	11.072	1969,6
	Wholesale and retail trade, hotels and restaurants	Men	80.189	62,7	304.969	43,0	224.779	280,3
		Women	47.735	37,3	404.491	57,0	356.756	747,4
	Finance and real estate	Men	21.060	59,1	81.694	39,7	60.635	287,9
		Women	14.597	40,9	123.874	60,3	109.276	748,6
	Public administration, education and health	Men	10.205	35,5	35.246	32,0	25.041	245,4
		Women	18.529	64,5	74.883	68,0	56.354	304,1
	Other services, including domestic services	Men	16.515	19,8	55.271	11,3	38.756	234,7
		Women	66.697	80,2	433.462	88,7	366.765	549,9
	Overall	Men	252.675	59,6	1.569.605	57,0	1.316.930	521,2
		Women	171.168	40,4	1.184.182	43,0	1.013.014	591,8

Source: Encuesta de Población Activa (EPA).

Note: Grey shading - above-average growth.

However, foreigners are more specialised by sex. Male employment has concentrated in construction (more than 610,000 new employments, that is to say, nearly half of the 1.3 million new foreign male jobs). Even though, foreign women have been employed in more sectors, they have mainly done so in two. "Other services", including domestic service, gained more than 365,000 jobs, which means that 1 in 3 new employments were in that sector. Nevertheless, as it has grown less than female employment as a whole, it has lost weight in relative terms. Wholesale and retail trade, hotels and restaurants represent another third of the total. Foreign female employment has also had a strong growth, though only in relative terms, is the primary sector, construction and finance and real estate. However, particularly the first two, were very small in 2000 and continue to be so.

Despite differences between Spanish and foreigner employment evolution, in both cases there is a clear trend towards a masculinisation or feminisation of certain sectors. Construction is the sector where the percentage of males is higher (9 out of 10 of those

employed in it are men), followed by industry and transport, and the primary sector (3 out of 4 workers are men, though there is a slight increase in female participation levels). The highest percentage of women, on the other hand, can be found in “other services”, including domestic service, particularly among foreigners (nearly 9 out of 10 foreigners in the sector are women), followed by the public sector, education and health (in this case, 6 out of 10 are women). Trade, hotels and restaurants, and finance and real estate tend to be much more equilibrated in this sense. While there are slightly more Spanish men employed, there are some more foreign women.

Pyramids showing Spanish and foreign worker's population structure by sex, age, and education attainment, all activity sectors together, are presented in the figure 1.1. The situation in each sector can be observed in figures 1.2 to 1.8. As it can be seen in Figure 1.1, males, particularly young ones, are predominant within the Spanish employed population, but even more so among foreigners, who, as they have less mature workers, have a younger age structure. Even though most foreign workers (both male and female) have secondary education, the amount of those (especially males) with low education is higher than for young Spanish workers, who have generally attained a higher education level than foreigners of the same age, and than Spanish older generations. Here we can observe once again the complementary role of both groups: as young Spanish generations have increased their education, social and labour status, foreign immigrants occupy the vacancies this process has left empty or has created *ex novo*.

Nevertheless, as it has already been explained, this general process affects differently each sector, adopting substitution or competition dynamics, or even favouring the preponderance of Spanish workers depending on the case. Figure 1.2 corresponding to agriculture, forestry and fishing would be a paradigmatic case in which ageing Spanish workers (with a mean age which has increased from 42.4 years in 2000 to 44.2 in 2007⁵) are being substituted by foreign ones. As it can be observed, Spanish workers, mainly men over 40 who have an increasingly low education level as their age raises, are being substituted by younger (aged less than 40), generally male foreigners with a medium-low

⁵ A similar trend can also be observed among females within the domestic service. In this case, the ageing process is stronger as, during the analysed period, the mean age has increased from 43 to 45.5. This is a paradigmatic case with little generational renovation. Mature low educated Spanish women compete –usually in the informal economy– with much younger foreigners who, in some cases, have better education. (M. Baldwin-Edwards and J. Arango 1999).

education level, lower in any case than that of Spaniards of the same cohort. Dwindling numbers of Spanish workers are entering the sector and occupying the best posts.

Figure 1 (Figures 1.1 to 1.8).- Sex-age structure and educational level, by activity sector and Spanish or foreign nationality. Spain, 2007

FIGURE 1 OVERALL

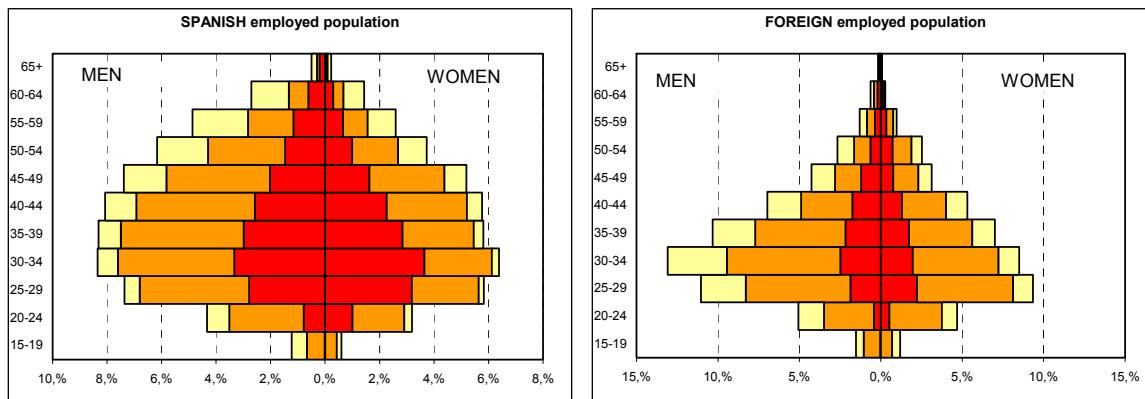


FIGURE 2 AGRICULTURE, FORESTRY AND FISHING

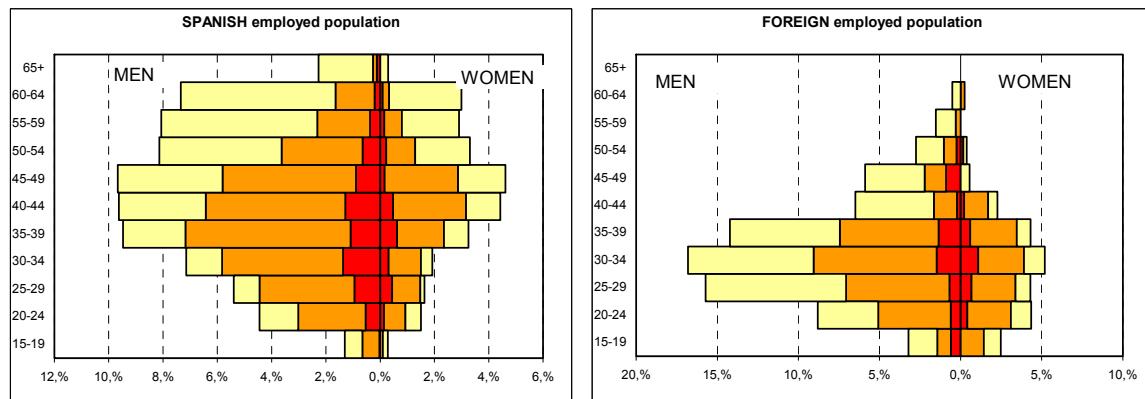
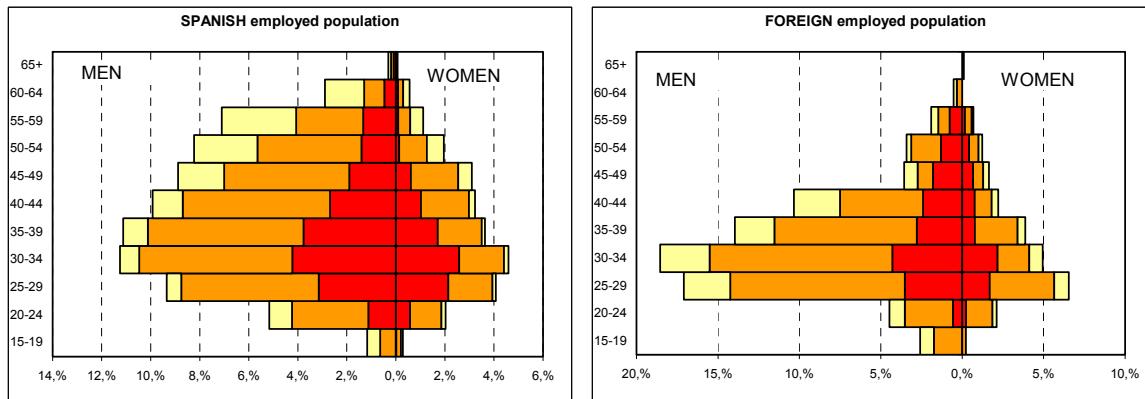


FIGURE 3 INDUSTRY AND TRANSPORT



Continues

FIGURE 4 CONSTRUCTION

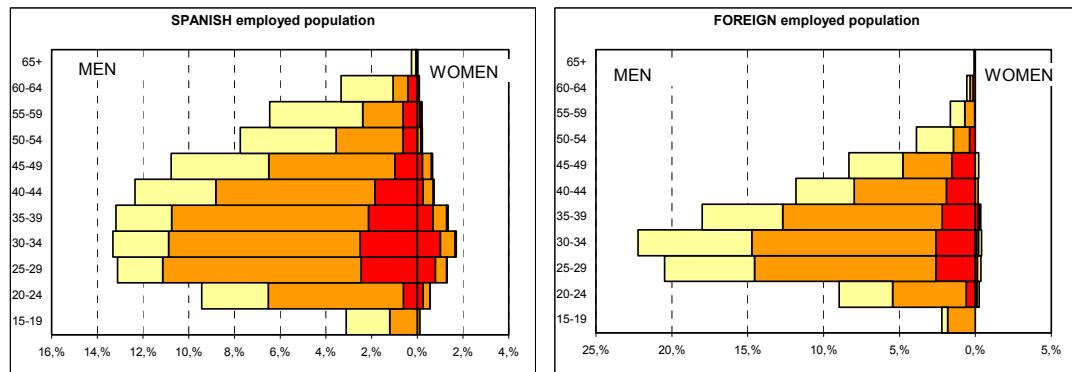


FIGURE 5 WHOLESALE AND RETAIL TRADE, HOTELS AND RESTAURANTS

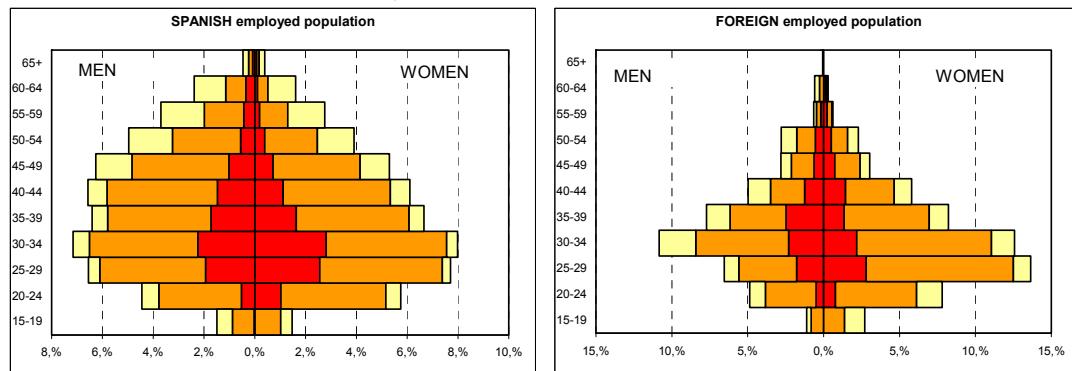


FIGURE 6 FINANCE AND REAL ESTATE

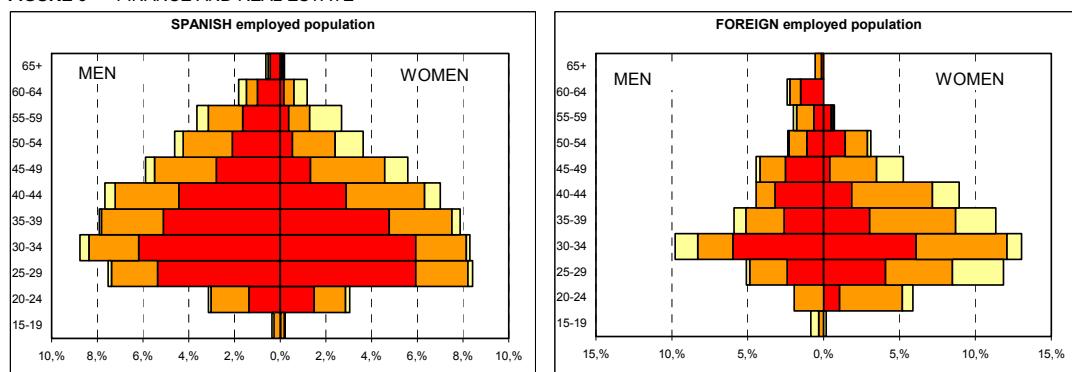
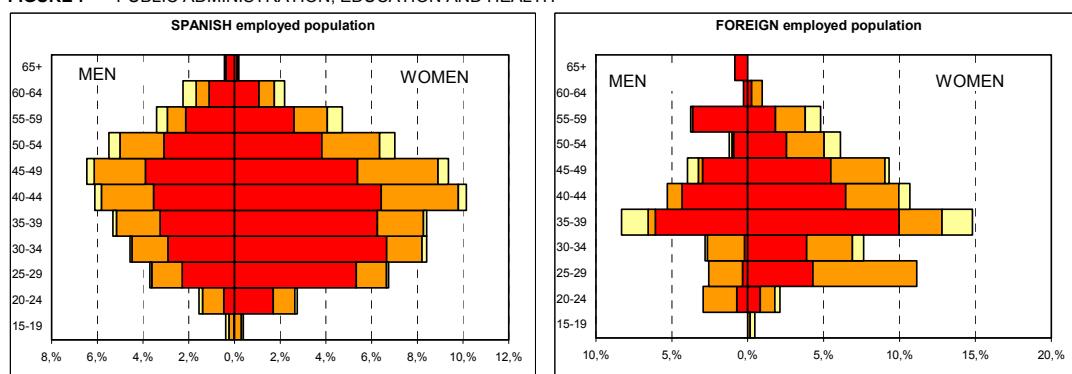
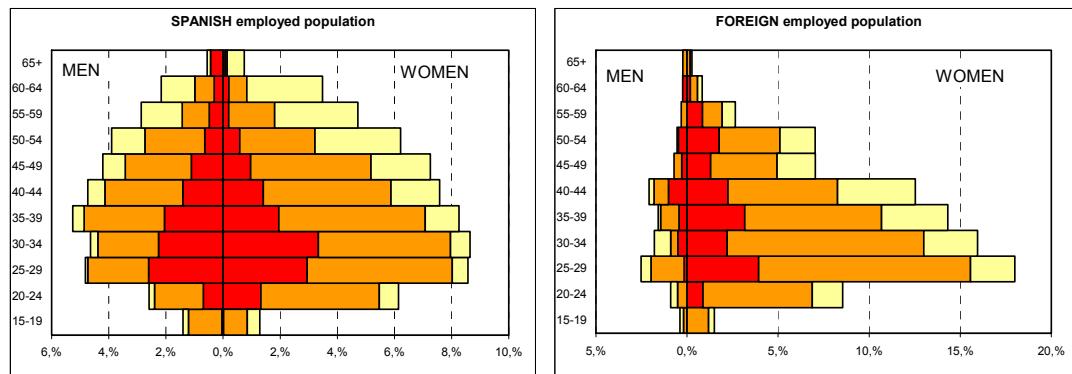


FIGURE 7 PUBLIC ADMINISTRATION, EDUCATION AND HEALTH



Continues

FIGURE 8 OTHER SERVICES

Source: *Encuesta de Población Activa* (EPA).

Key: DARK GREY: High education (categories 51 to 61 of EPA's NFORMA variable); GREY: secondary education (categories from 23 to 41); LIGHT GREY: less than secondary (categories from 11 to 22, 36 and 80)

As shown by pyramids in figure 1.4, construction would be the paradigmatic case of a sector in which both populations have grown, in absolute and relative terms. Both pyramids are extremely masculine and have a very young age structure, as workers are predominantly under 40. It is the only one with a competition dynamics. Why is that so? Between 2000 and 2007, Spain was under a construction boom, which generated an important male employment growth independently from the nationality and education attainment of those employed, and hence attracted both national men with low education levels and immigrants. However, as the Spanish population has increased its education level, the former subgroup has dwindled and is particularly concentrated in this sector. In other words, if 23.8 per cent of the low educated Spanish workers were already employed in construction in the year 2000, this percentage had risen to 30 per cent seven years later. As observed in table 1, this sector has the youngest national workers and therefore ageing has had little impact. Hence, there has been a generational renovation process. This picture leads us to the issue of the present crisis and to question ourselves on its effects on the sector. Will it affect more Spanish low educated workers or foreigners?

Public administration, education, and health (Figure 1.7) would be the clearest example of a sector in which Spanish employment is growing more than the foreign one. Women, particularly those with higher education, are particularly concentrated in it (+660,000 jobs in seven years). Though Spanish males also had a good education level, they were less attracted to it (+220,000). Foreigners, on their hand, are much less present in this sector

and those who are, have particular characteristics which should be underlined. Most of them have higher education and a mature age, particularly women. Hence, some belong to former immigration waves, not just to this last fifteen year one.

Finally, though the rest of the figures show less clear sex, age and education attainment trends, some characteristics can be pointed out, like the predominance of well-educated Spanish workers in finance and real estate, of young foreign women in “other services” (including domestic service), and of young males in the industrial sector, and particularly among foreigners.

In summary, even though foreign and Spanish workers generally have complementary dynamics, sectors with substitution or competition ones, or even those with niches for Spanish workers can also be found, and this has left its imprint on the demographic structure of both populations. In the following section we will study how these trends are distributed throughout the Spanish territory and will analyse whether they explain why there are more migrants in certain regions (autonomous communities) than others.

6.- Analysis at a regional level

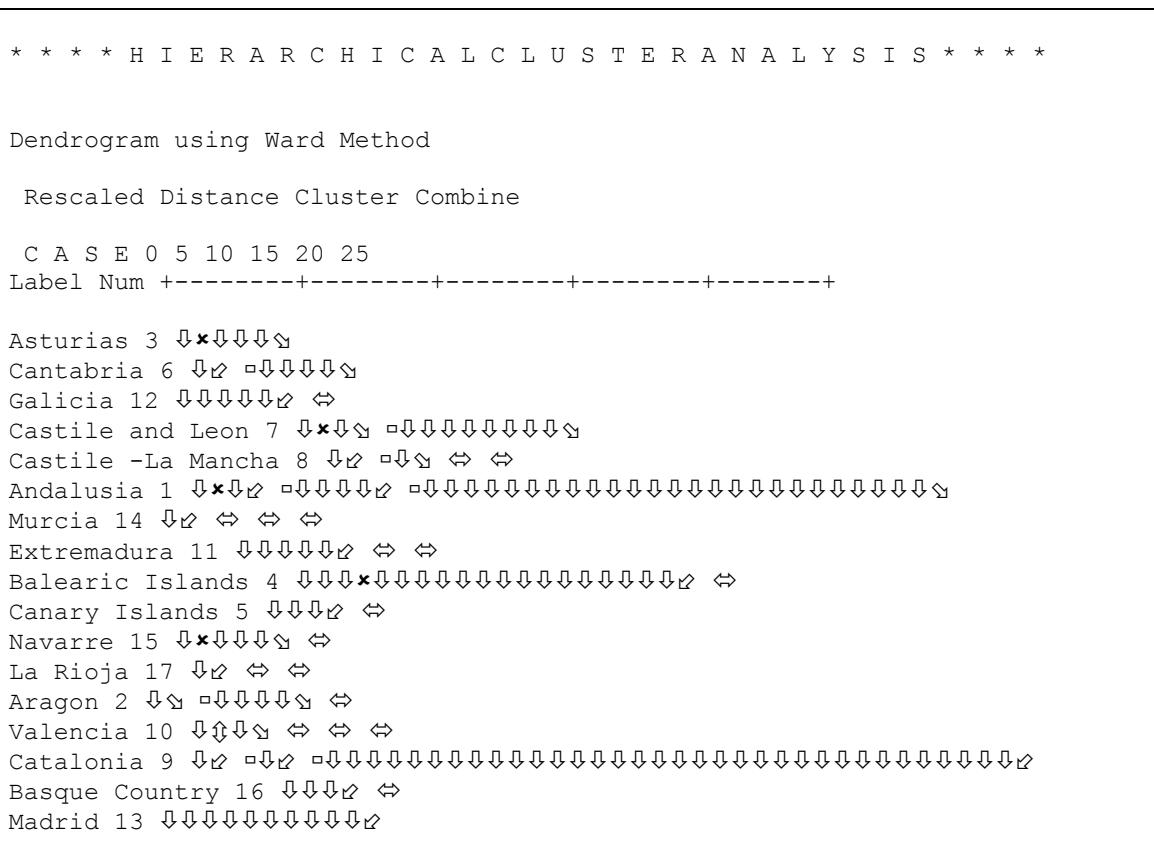
As the initial “complementarity” hypothesis states that the arrival of new foreign immigrants depends on local workforce labour participation characteristics, Spanish workers in each of the 17 autonomous communities have been classified in the above mentioned seven big sectors. In addition, as male and female employment characteristics are quite different, they have been analysed separately. A cluster analysis (figure 2) has been applied to the 14 variables obtained and four big autonomous community groups have been obtained:

- Madrid⁶, the Basque Country, Catalonia, Valencia, Aragon, La Rioja and Navarre (GROUP 1): employment is generally well distributed throughout all the sectors, combining a relatively strong industry and a well developed service sector.
- The Balearic and Canary Islands (GROUP 2): characterised by the importance of the retail, hotel and restaurant sectors, particularly linked to tourism.

⁶ Though the public sector, education and health are much more relevant in Madrid than in the rest of regions in the group, they have all been considered as a unit to avoid making a single region group.

- Farming is relatively strong in the rest of autonomous communities, which can however be divided in two: the two Castiles, Andalusia, Murcia and Extremadura (GROUP 3) where the public sector, education and health are relatively more relevant than in Asturias, Cantabria and Galicia (GROUP 4).

Figure 2.- Tree diagram produced from a hierarchical analysis of Spanish regions according to their autochthonous labour force structure by sex. Spain, 2000.



Source: Encuesta de Población Activa (EPA) using SPSS software.

The regional evolution of Spanish nationals and foreigners working in the different sectors, and the relative weight of each sector during that period, have been analysed through growth indexes (GI) and sector segregation indexes (SSI), taking into account the above mentioned classification. Results speak for themselves (table 6):

Table 6.- Employment change, GI and SSI for the four groups of autonomous communities, by nationality. Spain, 2000-2007

	GROUP 1	GROUP 2	GROUP 3	GROUP 4
Spanish employed -2000	7.985.298	993.609	3.796.941	2.227.328
Spanish employed -2007	9.037.055	1.168.435	4.811.058	2.554.016
Foreign employed -2000	257.382	63.784	84.177	19.235
Foreign employed -2007	1.766.274	281.193	567.707	137.273
Growth rate - Spanish	1,132	1,176	1,267	1,147
Growth rate - Foreigners	6,862	4,408	6,744	7,137
GI Agr - Spanish	0,701	0,639	0,608	0,596
GI Agr - Foreigners	0,806	0,718	0,637	0,493
GI Indust - Spanish	0,865	0,847	0,916	0,943
GI Indust - Foreigners	0,894	0,881	1,338	0,772
GI Constr - Spanish	0,986	1,079	1,146	1,008
GI Constr - Foreigners	1,967	1,886	5,819	2,120
GI Hotel & Rest - Spanish	0,967	0,918	0,951	1,027
GI Hotel & Rest - Foreigners	0,854	1,019	0,791	1,054
GI Real estate - Spanish	1,276	1,423	1,409	1,399
GI Real estate - Foreigners	1,059	0,656	0,483	3,476
GI Public Adm - Spanish	1,155	1,202	1,084	1,170
GI Public Adm - Foreigners	0,616	0,484	0,561	0,571
GI Other Serv - Spanish	0,993	0,916	1,106	1,073
GI Other Serv - Foreigners	0,858	1,016	0,977	0,894
SSI Agriculture & fishing	-1,105	-1,079	-1,029	-0,897
SSI Industry & transport	-1,029	-1,034	-1,422	-0,829
SSI Hotel & Restaurants	-0,887	-1,102	-0,839	2,082
SSI Construction	-1,981	2,965	6,965	3,128
SSI Other Services	-0,865	-1,101	0,129	0,179
SSI Real estate & financial	2,335	0,766	0,925	4,875
SSI Public Administration	0,540	0,718	0,523	0,599

If SSI <0 = Substitution dynamics

If SSI >0 but <1 = Labour niche for Spanish workers

If SSI >1 = Competition dynamics

Source: Encuesta de Población Activa (EPA).

Note: Number of Spanish and foreigners employed in 2000 and in 2007; Growth rate (employed in the year 2007 over those employed in 2000); GI (growth index or quotient between those really employed in 2007 and those estimated for that year under the Table 4 criteria); SSI (sector segregation index, following Table 4 criteria).

- Spanish employment has particularly grown, from the relative point of view, in GROUP 3 regions. As these had the highest unemployment rates and the lowest activity ones they had wide workforce reserves. However, foreigner employment has particularly grown in GROUP 4 ones, where their presence in the labour market was relatively scarce. Their lowest increase, though important, was in the Balearic and Canary islands (GROUP 2) where they were already relatively more numerous in 2000.

- Analysing Spanish and foreigner employment growth by sector and the resulting sector segregation indexes, it can be concluded that Spanish employment, in GROUP 1 autonomous communities, practically concentrated in two sectors: finance and real estate, and public administration, education and health. As foreigner employment has also grown in the first sector, it can be stated that it has had a competition dynamics. However, the latter sector has become a niche for Spanish nationals, as the relative weight of foreigners has dwindled. Even so, Spanish employment was less important or increased less than that of foreigners in the rest of sectors in this group of regions. Therefore, we can speak of substitution dynamics, particularly in the building sector.
- By contrast, there has been a relatively positive evolution of Spanish employment in the construction sector in the two archipelagos (GROUP 2) However, foreign employment has had a higher increase and therefore it can be stated that there is competition dynamics in this sector for these regions. However, Spanish workers are increasingly dominant in the finance and real estate sector, as well as in the public one even though Spanish workers are being progressively substituted by foreign ones in the rest of sectors.
- The situation is similar in GROUP 3 regions, though the remarkable increase of both Spanish and foreign employment in construction should be particularly underlined. Spanish workers would dominate in three sectors: the financial and real estate one, the public one and, as a novelty, “other services”, including domestic service. This is probably due to their important and increasing workforce reserves, as they had high unemployment and low activity, particularly female, rates. Substitution processes appear in the industry and transport sectors, in the farming one, and to a lesser extent in the trade, hotel and restaurant one.
- Finally, in GROUP 4 autonomous communities, the number of Spanish workers grows in most of the sectors except for two where there is a substitution dynamics: farming, in which numbers fall enormously, and the industrial one, where the decline is small. Apart from construction, competition between Spanish and foreign nationals can be found in trade, hotels and restaurants, and in the financial and real estate sectors. Therefore Spanish people only predominate in the public administration and “other services”.

This is obviously only a static picture of a dynamic situation. In fact, these four groups do not only represent regional categories, but stages in the same development process. Firstly, arriving immigrants substitute Spanish workers in sectors where jobs are harder and less paid. Then, foreigners expand and compete with Spanish workers (particularly those with

less education) in the rest of sectors, with very few exceptions. Finally, Spanish employment only ends up growing in the better paid jobs (finance and real estate) or in those which have the best conditions. This is the case of the civil service, where non-nationals have restricted access. Hence, Spanish workers in group 3 and 4 regions will eventually be avoiding the worst paid or harder sectors –such as construction, trade, hotels and restaurants, and other services– when foreign immigrants arrive to occupy these posts, as it has already occurred in the leading communities, i.e. those in Group 1. However, the recent economic crisis, mainly affecting the construction sector, might alter these dynamics and therefore modify this trend.

7.- Summary and conclusions

According to the EPA, 2.3 million jobs, out of the 4.9 million new jobs created in Spain between 2000 and 2007, would have been occupied by foreigners, due to the recent foreign immigration wave, and nearly 2.6 million of them by Spanish workers. As local Spanish people's employment has grown in parallel to this massive foreign employment increase, the role of demography in the arrival of immigrants should be downplayed and more attention given to other factors influencing the way the Spanish labour market works, characterised by dualism and segmentation.

Increasingly more Spanish women with a substantially better education level are being employed. However, new immigrants have relatively worse education than in previous waves. This is logical as the posts which the Spanish labour market is offering them only require low qualification levels. Therefore, foreign labour force arriving and Spanish youth and female labour force have become “complementary”. Indeed, as the autochthonous workforce, particularly women, has improved its education level, they have, in the first place, been able to massively enter the labour market and then, been capable of raising the labour ladder, attracting foreign nationality workers who enter in it by the base. However, this “complementarity” is clearly uneven as foreigners mainly find jobs in sectors requiring a low skilled workforce and these are also the hardest, worst paid, and more unstable posts. The labour market externalisation of reproductive work, which was carried out before by Spanish women in the family without any economic remuneration, has accelerated the process. Therefore, there are new employment niches where foreigners are overrepresented.

Foreigner labour market insertion has been generally perceived as “subordinated” due to this uneven entry. However, non-national labour itineraries are very diverse, and each sector’s specificities should be taken into account. Construction would be the only sector where employment has strongly and simultaneously grown in both origin groups. The main sectors where Spanish workers are being substituted by foreigners are the agrarian sector, followed by industry and transport. Finally, those sectors with a greater capacity to attract Spanish workers are also the more inaccessible to foreigners: the financial and real estate sectors, and particularly public administration (including health and education). Therefore, they have become segregated niches for the Spanish national workforce, and particularly for women.

This diverse situation by sector, which can be also observed in the age, sex, nationality, and education pyramids, has also influenced the territorial distribution of immigrants⁷. A high affluence of foreign immigrants has run parallel to a high Spanish employment increase in the best remunerated jobs (mainly in the finance and real estate sector) or in those which offer best conditions (public administration, particularly women) in the richer and more economically diverse territories, where the growing service sector is combined with a strong industrial sector and a dynamic construction one. Nearly all the rest of sectors have substitution dynamics in these regions⁸. The less dynamic regions, with a greater Spanish workforce supply and less foreign immigrants, are situated at the other extreme. Here, local origin workers have increased in most of the sectors. Substitution would only be observed in farming and the industrial sector, that is to say, the first ones that Spanish workers seem to abandon. In conclusion, the four categories of regions are really four stages of a dynamic process affecting the way Spanish and foreign stocks are inserted in the labour market, and this evolution can only be interrupted by the emerging Spanish economic instability.

⁷Foreign female migration distribution in Spain has also been analysed, though with a different methodology (factor analysis) by E. Vidal Coso, F. Gil Alonso and A. Domingo (2009).

⁸ Spatial results are similar to those recently obtained by J. I. Conde-Ruiz, J. R. García and M. Navarro (2008), who have demonstrated that those regions receiving the highest number of immigrants are also those where native employment and female labour participation have most increased

References

ABAD, L. (2002). "La paradoja de la demanda adicional en mercados con exceso de oferta". GARCÍA CASTAÑO, F. J.; MURIEL LÓPEZ, C. (Ed.). *La inmigración en España: contextos y alternativas*. Vol. II, Granada: Laboratorio de Estudios Interculturales, pp. 459-468.

ARANGO, J. (1997). "A new country of Immigration: Spain". *International Migration Bulletin*, 96, pp. 8-10.

ARANGO, J. (1999). "Becoming a Country of Immigration at the End of the XXth Century: the Case of Spain". KING, R.; LAZARIDIS, G.; TSARDANIDIS, C. (Eds.). *El dorado or Fortress? Migration in Southern Europe*. London: Macmillan Press, pp. 253-256.

BALCH A. (2005). "Immigration as a labour market strategy. Spain". NIESSEN, J.; Schibel, Y. (Eds). *Immigration as a labour market strategy - European and North American Perspectives. Paper for the Migration Policy Group*. Brussels, June 2005.

BALDWIN-EDWARDS, M.; ARANGO, J. (1999). *Immigrants and the Informal Economy in Southern Europe*. London: Frank Cass.

CACHÓN, L. (1997). "Segregación sectorial de los inmigrantes en el mercado de trabajo en España". *Relaciones Laborales*, 10, pp. 49-73.

CARRASCO, C.; GARCÍA, C. (2004). "¿Son tan diferentes los contratos de los trabajadores extranjeros?". Paper for the *IV Congreso sobre la Inmigración en España*, Girona, 10-13 November 2004.

CARRASCO, R. (2003). "Inmigración y mercado laboral". *Papeles de Economía Española*, 98, pp. 94-108.

CARRASCO, R.; JIMENO, J.F.; ORTEGA, A.C. (2004). "The effect of immigration on the employment opportunities of native-born workers: some evidence for Spain". *Current Research on the Economics of Immigration*. Organised by the Fundación Ramón Areces, Madrid, 2004.

COLECTIVO IOE (2002). *Immigració, escola i mercat de treball. Una radiografia actualitzada*. Col·lecció Estudis Socials, 11, Barcelona: Fundación 'La Caixa'.

COLEMAN D.; ROWTHORN, R. (2004). "The Economic Effects of Immigration into the United Kingdom". *Population and Development Review*, 30 (4), pp. 579-624.

CONDE-RUIZ, J. I.; GARCÍA, J. R.; NAVARRO, M. (2008). "Inmigración y crecimiento regional en España". *Working paper 2008-08*, Serie Inmigración, Cátedra FEDEA-Grupo Banco Popular.

DICKENS, W. T.; LANG, K. (1988). "The Reemergence of Segmented Labor Market Theory". *The American Economic Review*, 78 (2), pp. 129-134.

DOMINGO, A.; GIL ALONSO, F. (2007). "Immigration and Changing Labour Force Structure in the Southern European Union". *Population* (English edition), 62 (4), pp. 709-727.

DOMINGO, A.; GIL ALONSO, F.; VIDAL COSO, E. (2006). "Participation of immigrants in the European Union's national labour markets in a context of

complementarity: Substitution and Competition with local labour force". Paper for the *EAPS European Population Conference 2006*, Liverpool, 21-24 June 2006 (published in *Papers de Demografía*, 301).

ENCHAUTEGUI, M. E. (1998). "Low-skilled Immigrants and the Changing American Labor Market". *Population and Development Review*, 24 (4), pp. 811-824.

FELD, S. (2000). "Active Population Growth and Immigration Hypotheses in Western Europe". *European Journal of Population*, 16, pp. 3-40.

GARRIDO, L. (1992). *Las dos biografías de la mujer en España*. Madrid: Instituto de la Mujer, Ministerio de Asuntos Sociales.

GARRIDO, L.; TOHARIA, L. (2004). "La situación laboral de los españoles y los extranjeros según la Encuesta de Población Activa". *Economistas*, 99, pp. 74-86.

GIL ALONSO, F.; DOMINGO, A. (2008). "La complementariedad de la ocupación de españoles y extranjeros: análisis sectorial y diferencias territoriales". *Sistema. Revista de Ciencias Sociales*, 206, pp. 21-47.

MACINNES, J.; PÉREZ, J. (2008). "La tercera revolución de la modernidad; la revolución reproductiva". *Revista Española de Investigaciones Sociológicas*, 122, pp. 89-118.

MARTÍNEZ VEIGA, U. (1999). "Immigrants in the Spanish Labour Market". BALDWIN-EDWARDS, M.; ARANGO, J. (Ed.). *Immigrants and the Informal Economy in Southern Europe*. London: Frank Cass, pp. 105-128.

MUÑOZ PÉREZ, F.; IZQUIERDO ESCRIBANO, A. (1989). "L'Espagne, pays d'immigration". *Population*, 44 (2), pp. 257-289.

PIORE, M. (1979). *Birds of Passage: Migrant Labor and Industrial Societies*. New York: Century University Press.

SALT, J.; ALMEIDA, J.C. (2006). "International Migration in Europe. Patterns and Trends since the mid-1990s". *Revue Européenne des Migrations Internationales*, 22 (2), pp. 155-175.

SIMÓN, H. J.; RAMOS, R.; SANROMÁ, E. (2007). "Segregación laboral y estructuras salariales de nativos e inmigrantes en España. Un análisis con datos emparejados empresatrabajador". Valencia: IVIE, *working paper* WP-EC 2007-03.

SOLÉ, C.; PARELLA, S. (2001). "La inserción de los inmigrantes en el mercado de trabajo. El caso español". SOLÉ, C. (Coord.). *El impacto de la inmigración en la economía y en la sociedad receptora*. Barcelona: Anthropos, pp. 11-51.

SOLÉ, C.; PARELLA, S. (2003). "The labour market and racial discrimination in Spain". *Journal of Ethnic and Migration Studies*, 29 (1), pp. 121-140.

VIDAL COSO, E.; GIL ALONSO, F.; DOMINGO, A. (2009). "The Non-EU-25 Female Population in Spain: A Factor Analysis of Labour Market Integration at Regional Level". KUHN, M.; OCHSEN, C. (Eds). *Labour Markets and Demographic Change*. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 210-233.