



Centre d'Estudis Demogràfics

**THE LABOUR COMPLEMENTARITY  
BETWEEN INTERNATIONAL MIGRATION  
AND NATIONAL LABOUR FORCE IN SPAIN,  
FROM A GENDER PERSPECTIVE**

Elena VIDAL COSO

331

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**Resum.-** *La complementariedad laboral, a Espanya, entre els migrants procedents d'altres països i els treballadors nacionals, des d'una perspectiva de gènere*

L'article compara, a través de les dades de la Encuesta de Población Activa (EPA) i, pel període 1999-2006, la distribució dels treballadors estrangers i nacionals en el mercat de treball espanyol. La hipòtesi inicial apunta que, en un mercat segmentat, els estrangers acabats d'arribar, ocupen les posicions més precàries del "segment de treball secundari", el que permet als joves espanyols ocupar aquelles posicions laborals més qualificades en relació al seu nivell d'instrucció. La inserció laboral no només segueix unes pautes diferenciades segons la nacionalitat, sinó també en funció del sexe. L'augment de la demanda de treballadors estrangers és una conseqüència de la millora educativa i de la posició socioeconòmica de les joves generacions femenines a Espanya. A la primera part de l'article, es desenvolupa un anàlisi descriptiu dels trets laborals de la població espanyola i estrangera. A la segona part, a partir de la tècnica de la regressió logística, es creen models multivariats per explicar com, les diferències entre les posicions laborals de nacionals i estrangers no venen només propiciades per les característiques dels treballadors (com el nivell d'instrucció), sinó també per diferències de gènere o per la nacionalitat dels mateixos.

**Paraules clau.-** Complementariedad laboral, immigració internacional, desigualtats de gènere.

**Resumen.-** *La complementariedad laboral, en España, entre los migrantes procedentes de otros países y los trabajadores nacionales, desde una perspectiva de género.*

Este artículo compara, a través de los datos de la Encuesta de Población Activa (EPA) y para el periodo 1999-2006, la distribución de los trabajadores extranjeros y nacionales en el mercado de trabajo español. La hipótesis inicial apunta que, en un mercado segmentado, los extranjeros recién llegados ocupan las posiciones más precarias del "segmento de trabajo secundario" permitiendo a los jóvenes españoles ocupar aquellas posiciones laborales más cualificadas, en relación a su nivel educativo. Además, esta inserción laboral no solamente sigue unas pautas diferenciadas según la nacionalidad, sino también en función del sexo. Efectivamente, el aumento de la demanda de trabajadores extranjeros es una consecuencia de la mejora educativa y de la posición socio-económica de las jóvenes generaciones femeninas en España. En la primera parte del artículo, se desarrolla un análisis descriptivo de las características laborales de la población española y extranjera. En la segunda parte, a partir de la técnica de la regresión logística, se crean modelos multivariados para explicar cómo las diferencias entre las posiciones laborales de nacionales y extranjeros no son causadas solamente por características de los trabajadores (como el nivel de instrucción), sino también por diferencias de género o la nacionalidad de los mismos.

**Palabras clave.-** Complementariedad laboral, inmigración internacional, desigualdades de género.

**Abstract.-** *The labour complementarity between international migration and national labour force in Spain, from a gender perspective*

Using the Spanish Labour Force Survey from 1999 to 2006, this article compares the distribution of foreign and national workers within the Spanish labour market. The initial hypothesis states that in the context of a segmented labour market, the recently arrived foreign population has filled the more precarious labour positions of the "secondary labour segment", allowing younger Spanish generations to occupy more skilled and stable occupations in accordance with educational attainment. This labour insertion has not only a national pattern but also a gendered one. Effectively, the increasing demand for immigrant women is a response to the improvement of the educational and socio-economic position of young female generations in Spain. We first carry out a descriptive analysis of the labour characteristics of the national and foreign population in Spain. In the second part of the analysis, using multivariable logistic regression models analysis, we attempt to establish that differentials in the labour attainment of nationals and foreigners are not only due to personal characteristics (educational levels, etc.) but also to gender and national identity.

**Keywords.-** Labour complementarity, international immigration, gender inequality.

**Résumé.-** *La complémentarité du marché du travail entre migration internationale et offre nationale de travailleur en Espagne, depuis une perspective de genre.*

Cet article compare, à partir de données issues de l'Enquête de Population Active (EPA) pour la période 1999-2006, la distribution des travailleurs étrangers et nationaux sur le marché du travail espagnol. L'hypothèse initiale démontre que, dans un marché segmenté, les étrangers occupent les positions les plus précaires du « segment de travail secondaire » permettant ainsi aux jeunes espagnols d'occuper des postes de travail plus qualifiés, en relation avec leur niveau d'étude. De plus, ce processus d'insertion dans le marché du travail, non seulement suit des dynamiques différentes selon la nationalité, mais aussi en fonction du sexe. Effectivement, l'augmentation de la demande de travailleurs étrangers est une conséquence de l'amélioration en termes d'éducation et de position socio-économique des jeunes générations féminines en Espagne. Dans la première partie de l'article s'effectue une analyse descriptive des caractéristiques en ce qui concerne le travail de la population espagnole et étrangère. Dans une seconde partie, à partir de la technique de la régression logistique, se créent des modèles multivariés pour expliquer que les différences entre les positions occupées dans le marché du travail par les nationaux et les étrangers ne sont pas seulement la conséquence des caractéristiques des travailleurs, sinon que doivent être aussi pris en compte le niveau d'étude, l'âge, ainsi que le sexe et la nationalité des individus.

**Mots clé.-** complémentarité du marché du travail, immigration internationale, inégalités de genre.

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**THE LABOUR COMPLEMENTARITY BETWEEN  
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IN SPAIN, FROM A GENDER PERSPECTIVE**

**Elena Vidal Coso<sup>1</sup>**  
evidal@ced.uab.es

**1.- Introduction: complementary and international migration in Southern Europe**

**1.1.- International immigration in a context of ageing and dual labour markets**

During last decade, European Union countries have gone through very different experiences concerning migratory flows in an economic context of increasing globalisation of capitals and labour markets (Baldwin-Edwards, 1997; Arango, 2003; Castles and Miller, 2003; Balch, 2005). Almost all Member States have currently positive migratory growths; even though the size of the arriving flows is extremely diverse. In recent years the most paradigmatic case are southern EU countries (Spain, Greece, Italy and Portugal), that have recently evolved from emigration countries to immigration ones with a sudden increase in the number of non-EU citizens arriving to live and work in them (Baldwin-Edwards and Arango, 1999; Cornelius, 2003; Ribas-Mateos, 2004).

Frequently these recent migratory flows have been interpreted in terms of purely demographic replacement, i.e. the immigrant population is substituting the national one, which is ageing (European Commission, 2002). From this point of view, the newcomers are completing the decreasing age cohorts of the host population in order to maintain the stability of their age structure. This concept is known as “replacement migration” and it comes from a study published under this same title by the United Nations Population Division (2001). The main aim of this publication was to estimate the number of

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immigrants that would be necessary, in a series of countries, to maintain the size of the total and the working-age population, as well as the ratio between old dependent and working age population (Population Division, 2001). The central message of the study is that international migration is not the solution to compensate ageing, due to the magnitude of this process and, therefore other social policy measures are needed to face this challenge. Despite of these conclusions, the arrival of foreign immigrants continues to be frequently interpreted in terms of filling labour shortages, which are caused by changes in the age structure of the host population due to ageing. However, other authors as Coleman and Rowthorn in their article of 2004, made important contributions against the point of view of 'immigration as a necessary population replacement'.

Nevertheless, demographic trends are not the only factor explaining the growing importance of international migration; socio-economic factors also intervene. In this sense, the entry of big amounts of immigrants in southern EU Member States –in parallel to the existence of relatively high unemployment levels in specific sectors of activity and in some regions– should be explained by the role played by the social context prevailing in host societies (Abad, 2002). The development of dual labour markets where immigrant workers hold those jobs that native workers try to avoid, is behind this reality, as Piore's segmented labour market theory explained long time ago (Piore, 1979). The need to fill the bottom positions in the job hierarchy and the emergence of new activities linked with domestic reproduction (mainly caring for children and the elderly) in a context of growing female participation in the labour market, are much more decisive to explain the arrival of foreign immigrants than general labour shortages. These trends are fuelled in some of the host countries by the quick development of low-regulated, low-paid and unstable activity sectors like personal services, the tourist sector, intensive agriculture or the building industry, where a significant proportion of the immigrants works.

### **1.2.- The concept of complementarity between foreign and national labour forces**

This investigation focuses on the existence in Spain of a dual labour market, with two differentiated labour segments: primary and secondary segment. The former offers jobs with relatively high wages, good working conditions, chances of advancement, equity and due process in the administration of work rules, and, above of all, employment stability (Piore, 1975). By contrast, jobs in secondary segment, tend to be low-paying, with poorer working conditions and little chance of advancement; to have a highly personalized relationship



between workers and supervisors which leaves wide latitude for favouritism and is conducive to harsh and capricious work discipline, and to be characterized by considerable instability in jobs and a high turnover among the labour force. In this sense, Arango characterized jobs in secondary segment as dirty, dangerous, precarious and not much prestigious (Arango, 2004). Furthermore, the mechanism of jobs assignment in a dual labour market does not depend only on the skills of employees. Other discriminatory barriers, like sex, age or national origin, play important roles that explain who is usually positioned in primary or secondary segment of the labour market.

Labour force segmentation has specially been significant in southern EU countries (see Martinez Veiga, 1999; Vitale, 2000; Parella, 2003; Solé and Parella, 2003; and Garrido and Toharia, 2004, for the Spanish case). Traditionally young workers, women and immigrants from rural areas, independently of their skills levels, filled less desirable labour positions. However, it is necessary to consider the socio-economic and demographic changes occurred during last decades in these countries to understand the immigrant labour demand in new labour market contexts. For instance, incorporation of national young cohorts (especially young women) to the labour market has been accompanied with their social promotion, as their education level is much higher than that of older generations (Domingo and Houle, 2004). Though this process is not new and has already been experienced and studied in other countries (Dickens y Lang, 1988; Enchautegui, 1998), the situation in southern EU countries is especially interesting due to the extraordinary concentration, in only few years, of the immigration growth that this social process is promoting. Moreover, the pull effect caused by the improvement of the educational level of the native population, especially among young female generations, has previously been analysed for Western Europe (Jennissen, 2003), and should also be considered as one of the most significant explicative factors of the international migration waves in those southern countries (Domingo, 2002; Carrasco, Jimeno and Ortega, 2004). In this sense, some authors have underlined the complementary role of the foreign immigrant population in relation to the autochthonous population as the former fills in the vacancies left as a consequence of the latter's educational, social and labour promotion (Domingo and Houle, 2004). Therefore, we use the concept of *complementarity* to describe the role of foreign immigration in the native population's social promotion. This concept does not only refer to the labour area. Other contexts that can be understood as markets and that imply social mobility of those involved, such as the marriage market or residential market should also be explored.

However, the area where this phenomenon has been better investigated, and in which the investigation will focus, is the labour market.

### **1.3.- Complementarity between national and immigrant labour force from a gender perspective**

Within this theoretical framework the intense development of precarious industry sectors, detailed previously in this paper, is very important to explain the growing immigration in Spain (Gil and Domingo, 2006a). However, gender perspective is also a crucial explanatory factor as the female immigrant labour demand (which is near 50% of total immigrant labour force) in the Spanish labour market is mainly related with the educational, labour and social improvement of national young female generations (Garrido, 1992; Pérez, 2001). This upward labour and social mobility of young women have generated new labour demand to fill those gaps that young Spanish women are not going to hold anymore and, also to fill new vacancies in domestic services, caused by the increase female participation in the labour market.

Moreover, although complementarity, or labour promotion of Spanish workers due to immigrants' labour insertion, is general to both, men and women, jobs differ between masculine and feminine labour force, following a clear gender pattern. Effectively, female immigrant labour demand is mainly product of the externalisation of domestic tasks, which were historically assumed by autochthonous women as a part of the reproductive work that was assigned to them in the division of gender roles. In despite of this, not all immigrant women are holding jobs in domestic services and some men also may be found in these labour positions. However, what is true is that a great share of foreign women in Spain insert themselves in the labour market through domestic services and that their social image is derived from this position in the labour market, identifying some nationalities with that kind of work, specially in the case of the Latin-Americans and Filipino women. Within an international context, Spain follows the general pattern of increase of female international migration occurred in Western Europe during the last decades of 20<sup>th</sup> century (Castels and Miller, 2003). What makes Spain an exception of this general pattern is the speed and intensity of the phenomena.

In this sense, the specific model of international migration of South-EU (King and Zontini, 2000) must be set in context within Capitalism development and socio-demographic

characteristics of these countries. Mingione (1995) identifies a distinctive Capitalism model for Southern countries characterised by labour instability, a rapid and general improvement of educational levels for younger generations, specially for women; and a intense grown of levels of female labour participation due to the increase of female labour demand in services sector. This massive incorporation of women to the labour market has not been compensated with any balance of responsibilities in domestic task within couples. Furthermore, there have been a scarcity of effective familial political measures to allow women to conciliate work and family in Southern countries (Parella, 2000), and also deficiencies in the offer of public assistance services. In this context, the easiest and cheapest solution for many families have been to contract those services, especial children and old people's care, in the private market, mainly through non-EU female labour force. King and Zontini (2000) identify other common occupations of immigrant women: in hotels and restaurants (as waitresses, cleaning, cook helpers), as assistants in care institutions, trade assistants, etc. Authors stress the existence of a common trend in all those different occupations: all may be identified as traditionally feminine jobs, especially in Catholic societies in South Europe: as a cleaners/ assistants/ children or old people caretaker, etc., than young native women avoid. As so on, immigrant women suffer a triple discrimination: class, gender and ethnic group discrimination (Solé, 2001). In this context, far from the traditional model in which female migration was identified as family reunification migration posterior to their husbands or parents previous migrations, new female migration must be understood as a personal project of women and an answer to a specific labour demand. It is for this reason that gender perspective will be present in every moment in this paper, as immigrant labour demand has differential causes and consequences depending on if it is directed to female or male labour force.

## **2.- Hypotheses and structure of the paper**

This paper aims to investigate which has been the impact of the recent and intense grown of immigrant labour in the Spanish segmented labour market. The starting hypothesis is that foreign labour force plays a *complementary role* with national one, and occupies those less desirable labour positions. In addition, despite of their national origin, women are worse situated in the labour market than men. Therefore, along all the paper, analysis will also focus in the existing differences in the labour attainment of men and women, both nationals and foreigners. In this sense, the hypothesis is that in the labour insertion process

there are two key discriminatory elements in the job assignment process: nationality and sex. Second hypothesis is more optimistic, as it is related with the adjustment process of immigrants to the receiving society and labour market. Indeed, labour positions of non national workers improve in parallel to the time spent in Spain.

After describing, in next section, the data source used in the analysis, a descriptive analysis about the labour characteristics of national and foreign population is carried out in section 4. The description of the growth of a multinational labour force, their impact over total permanent or temporary employment, the sex and national differential distribution of industry sector and occupational categories will be described in this section. Finally, once descriptive analysis evidences that immigrant labour force, especially feminine immigrant population, fill those more unstable and precarious positions, two multivariable explanatory models follow in section 5, using the statistical method of logistic regressions. In first model, probability of being employed in an elementary-unskilled occupation is calculated using as explanatory variables the *industry sector, year of data collection, nationality, educational level, age* and *sex*. A second model, only including foreign workers, introduces the influence of length of stay in host country, trying to demonstrate that occupational position in Spanish labour market improves in parallel to time spent in this receiving country.

### **3.- Data Source: the Spanish Labour Force Survey (LFS)**

In this investigation it has been used data from the Spanish Labour Force Survey for the 1999-2006 (second quarters) period. This survey interviews approximately 200.000 persons in 65.000 households and is representative of the working age population in Spain. The survey contains a great variety of variables at individual level about socio-demographic and labour characteristics of population, as sex, age, employment status, employment characteristics of main job, labour status, previous work experience, search for employment, etc. (Amuedo, 2000), that makes its analysis the best option for the purpose of this paper. Although the Spanish Labour Force Survey intends to be representative of the whole Spanish population aged 16 year and over, it must be highlight the relatively poor cover of foreigners of the survey (Cachón, 2004) and the unequal representativeness of foreigners depending on their origins: Africans and EU foreigners are more under-represented than people from other origins.

In order to overcome this under-representation of foreign population, Spanish LFS is modified in 2005 and adapted it to the new demographic and labour context, in special due to the rapid and recent grown of foreigners residing in Spain. One of the most significant changes was the substitution of the sampling frame based of 1991 Census by the new sampling frame based in the 2001 Census and its successive population revisions (García, 2005). The most important consequence of this change is that new weight factors applied to the sample are now more coincident with recent volume of population, recent age and sex structure in every region, and recent volume of population by nationality. Obviously, this update in the sample frame has special importance in order to calculate percentages of foreigners, since presence of foreign population in Spain have been grown in a significant way between 1991 and 2001 (INE, 2005).

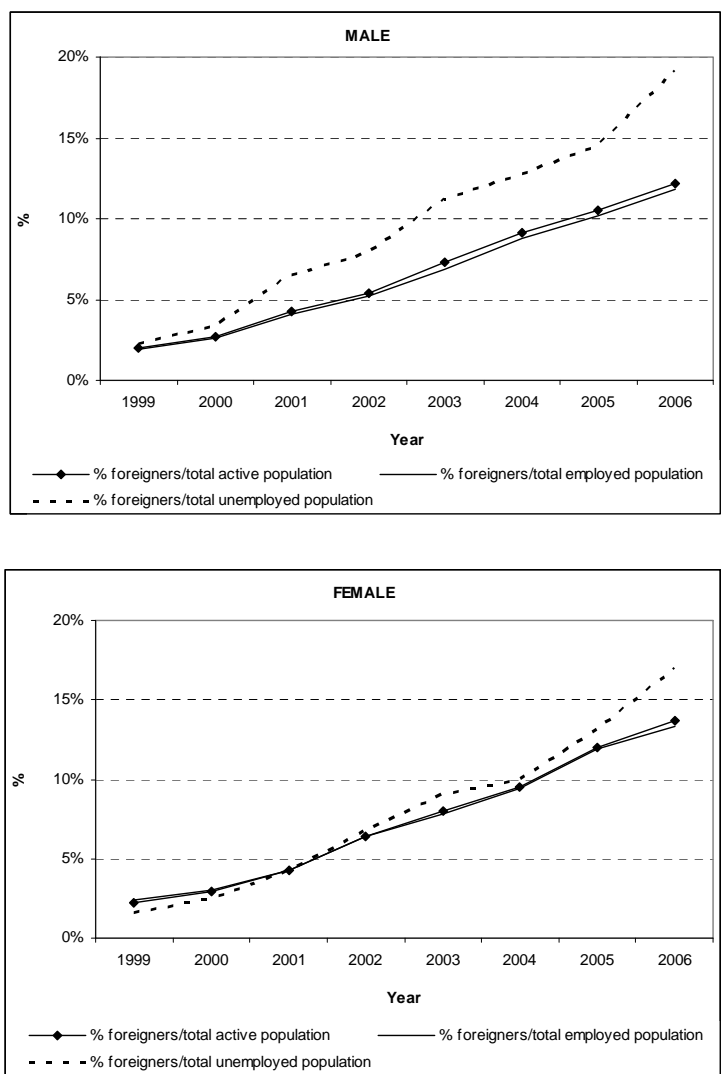
#### **4.- The growing presence of non EU-25 workers in the spanish labour force: are they inserted in the same labour positions than national workers?**

##### **4.1.- The rapid growth of a multinational labour force in Spain**

Spain has experienced, in less than a decade, an intense and rapid shift from an almost totally native labour force, where the presence of immigrant workers was very unusual, to a multinational one, with the highest proportion of non-national labour force of the European Union (excepting Luxemburg), over 10% (Vidal et al., 2006). Figure 1 shows the rapid evolution of non nationals within total active, employed and unemployed male and female population. In 1999 foreign males represented only the 2% of total active male population in Spain. Percentages over total employed or total unemployed were not very different, 1,9% and 2,3% respectively. In contrast, in 2006 percentages of male non-nationals have increased considerably: 12,2% of total actives are non national, percentage very similar to the 11,8% over total employed, but far from the 19,1% that foreigners represent over total male unemployment. Female non-national population follows the same pattern and presence of foreign women within actives and employed women have increased even more, from 2,2% and 2,4% to 13,7% and 13,3% respectively. However, foreign women are less overrepresented within the unemployed than foreign men, although female percentage in 2006 is also high, 17%. In this way, from a simple overview of these figures we could observe how foreigners have multiplied by 6 their presence within

Spanish labour force and, how this increase is even more evident within the unemployed. Therefore, first interpretation of data analysis is that although there is a strong demand of immigrant labour, foreign workers have more difficulties to maintain themselves as employed, as their labour positions are more precarious and unstable, as next sections will shows us.

**Figure 1.- Percentage of non-national population over total active population in Spain (1999-2006)**



Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

In Table 1 the national distribution of foreign active population is displayed for the period from 1999 to 2006.

**Table 1.- National distribution of active non-national population aged 16-64 (1999-2006)**

<i>Male</i>							
	UE-25	Other	African North American	Central and South American	Asian	Total	
		European	and Oceania				
1999	31,5%	2,2%	33,4%	2,4%	22,5%	7,9%	100,0%
2000	30,5%	5,6%	29,4%	1,4%	26,1%	7,0%	100,0%
2001	23,5%	10,0%	26,3%	0,3%	33,7%	6,3%	100,0%
2002	22,2%	11,8%	23,4%	1,2%	37,9%	3,5%	100,0%
2003	16,5%	16,4%	25,0%	1,0%	38,8%	2,3%	100,0%
2004	15,6%	16,9%	21,6%	0,3%	42,2%	3,4%	100,0%
2005	12,8%	19,1%	21,5%	0,2%	43,6%	2,8%	100,0%
2006	12,7%	17,5%	23,7%	0,3%	43,0%	2,8%	100,0%

<i>Female</i>							
	UE-25	Other	African North American	Central and South American	Asian	Total	
		European	and Oceania				
1999	32,9%	4,2%	11,2%	2,5%	42,1%	7,1%	100,0%
2000	29,8%	5,5%	14,8%	0,6%	43,0%	6,3%	100,0%
2001	20,9%	11,7%	11,4%	0,8%	51,3%	4,0%	100,0%
2002	19,7%	10,1%	8,4%	0,4%	58,6%	2,8%	100,0%
2003	17,2%	14,1%	9,8%	0,6%	56,3%	2,0%	100,0%
2004	15,8%	15,9%	8,2%	0,9%	57,5%	1,8%	100,0%
2005	14,5%	18,8%	7,5%	0,8%	56,3%	2,3%	100,0%
2006	12,3%	20,2%	8,0%	0,4%	57,3%	1,8%	100,0%

Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

This table shows that the rapid growth of foreign activity in Spain has been parallel to a change in its national composition, from a hegemony of EU citizens and African in 1999, to a gradual increase of Central and South American, specially in the female case, where almost 60% of foreign active women are from this area of nationality in 2006. Other European also have increase their presence during this period, from 2,2% to 17,5% among total male non-national active and from 4,2% to 20% of non-national active women. African is the most veteran active non-national collective inside the male labour force, whereas their presence among active women is small during all period. This is due to the fact that African immigration is, proportionally, more a masculine than a feminine immigration and, because activity rates of African women are considerably lower than those of other collectives. In contrast, Central and South American women are the main

protagonist within foreign women over all period analysed, and this is due to the high activity rates of this collective and because, in general terms, immigration flows of this national origin are leaded by women. Only when women are already in the labour market, male immigration follows in a second wave.

Although only persons in active age are included in the analysis, those aged 16-64, it is well known that labour behaviour changes along all life course and propensity of being in the labour market it is not the same in all age groups. The different age structures of foreign and national population in Spain, the former more concentrated in young adult ages, those with the highest activity rates, is the main reason to compare labour participation by age group (figure 2). However, this analysis is also useful to identify two key elements in order to explain the arrival of this foreign labour force. Firstly, the delay in the labour insertion of young native population, due to the enlargement of their education and, secondly, the extraordinary shift from a very low participation of native women aged 35 and over to a high activity rates for younger women.

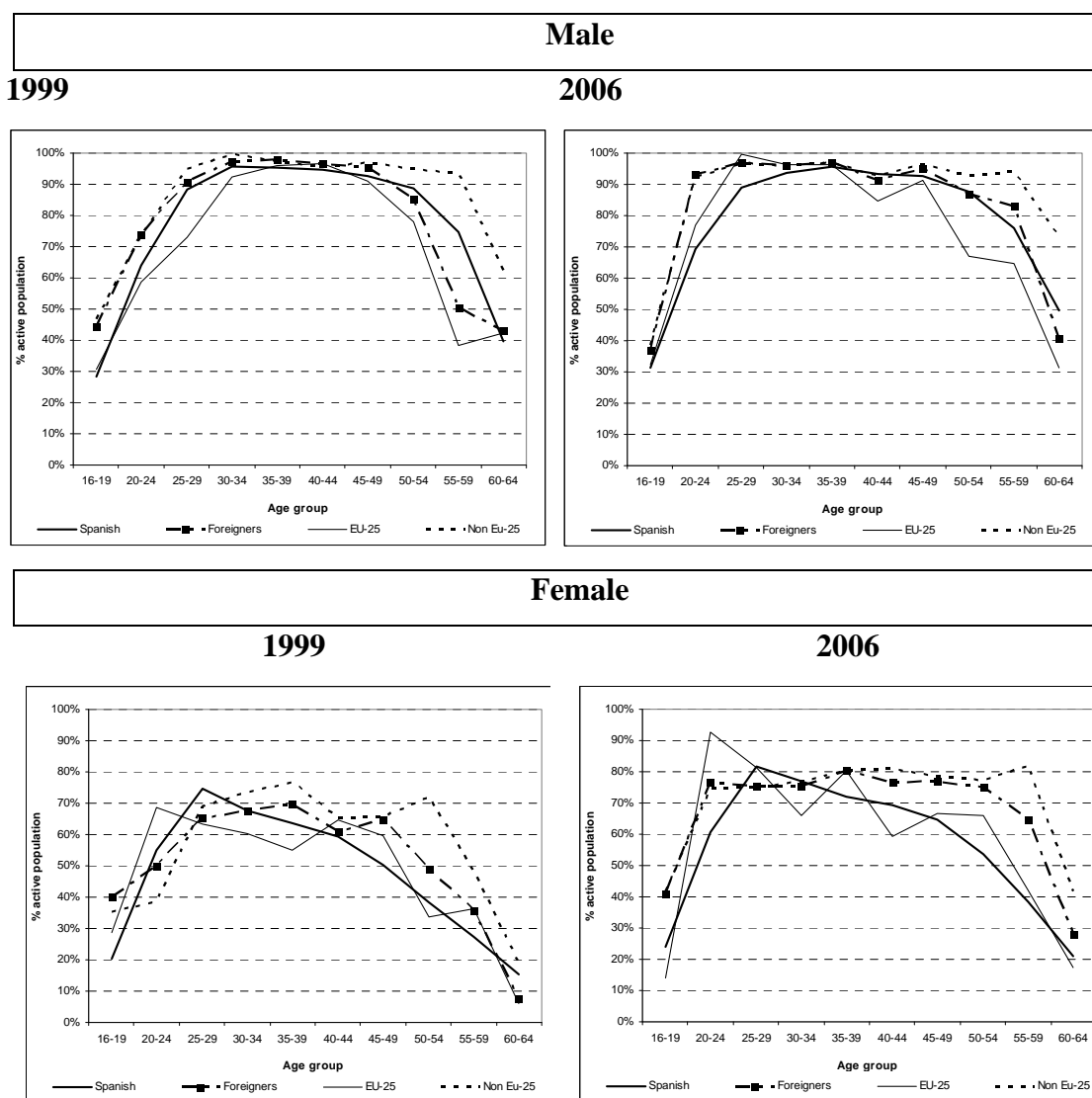
From the figures it could be observed that masculine activity rates are higher and more regular for all age groups than those for women. Activity rates of Spanish men increase until the age group 30-34, approximately, and still high (near 100%) until near retirement age. However, in contrast with 1999, in 2006 young men present slightly lower activity rates, only arriving to the maximum at the age group 35-39. The higher educational levels of younger generations in Spain explains their delay in the incorporation to labour market. Foreigners have, both in 1999 and 2006, activity levels by age group very similar than those for Spanish men. However, differences could be observed in those rates near retirement age, when foreigners present lower activity rates than nationals. The fact that non national population in those age groups is mostly EU citizens, who mainly reside in Spain for retirement more than for labour reasons, explains those low activity rates in these age groups. However, activity rates for non EU-25 citizens are higher than those for Spanish population from 44-49 age group henceforth.

Figures for women show similar trends for 1999 and 2006, with the difference that activity rates in 2006 are, for all group ages, higher than those for 1999. Focusing in the activity rates by age group of Spanish female population, it can be observed a clear generational shift of these women regarding their participation in the labour market. Young women have high participation levels, over 80%, very close to those for male. However, rates of



those women aged more than 35 decreases until a very low participation levels, whereas rates for men aged 40 and more still being considerably high.

**Figure 2.- Activity rates by age group by nationality and sex (1999 and 2006)**



Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

In contrast, activity rates of foreign women, especially in 2006, follow the same pattern than those for men and are very constant and high, around 80%, over all active age groups, only decreasing in ages near retirement. Only EU women do not follow the rule and their rates for women over 45 decrease abruptly. Finally, similarity to what happens in male figures, rates for Spanish women under 25 are relatively low and this should be interpreted

as a consequence of the enlargement of education of young female generations. The main conclusion of the analysis of activity levels by age is that non-EU immigrants present higher and more stable labour participation at all age groups and an earlier labour incorporation of young generations compared to those for native population. Finally, it should be stressed the generational shift of Spanish women regarding their presence in the labour market that explains the low levels for women older than 40 years, whereas immigrant women upper this age maintain high participation rates until retirement.

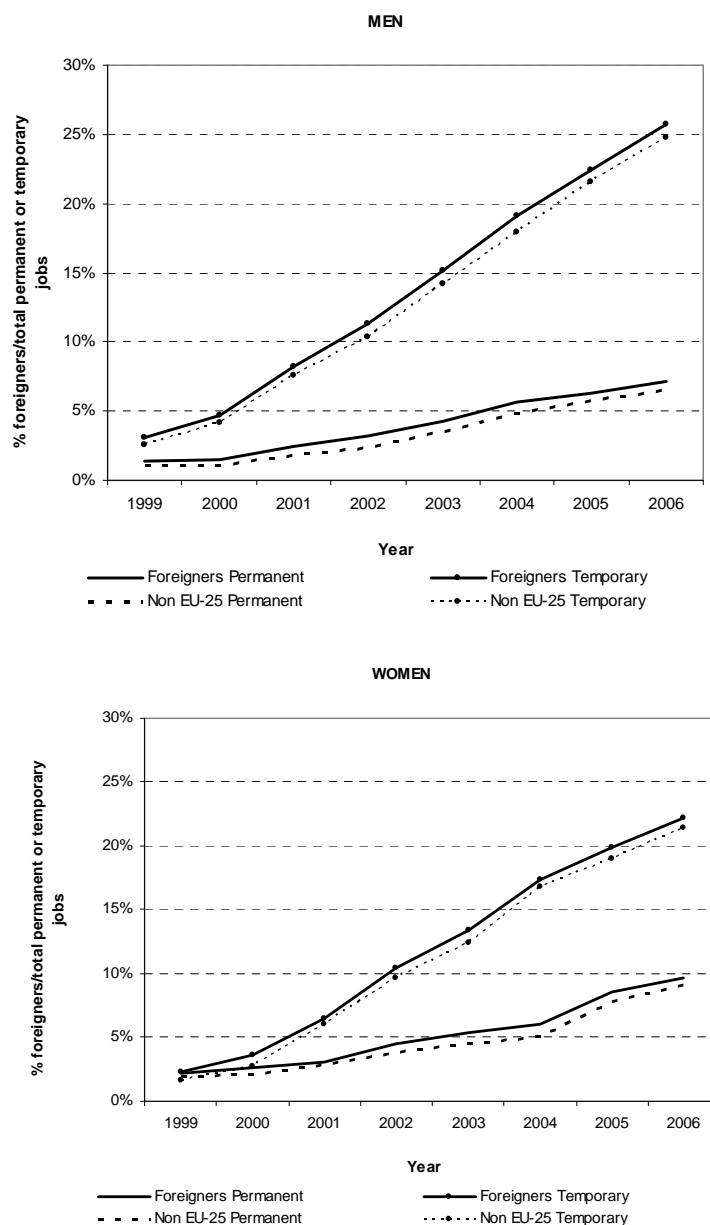
#### **4.2.- Some characteristics of the labour insertion of foreigners in Spanish labour market**

One of the most determinant characteristic in order to define a job as a “precarious” one is the duration of the labour contract or in other words, the temporary or permanent nature of the job. Although the meaning of having a permanent contract is not the same than in past decades, nowadays is still being an indicator of labour stability (Miret and Vidal, 2006). Furthermore, the capacity of negotiation, wages and, other social rights depend on the duration of the job. Figure 3 shows the evolution between 1999 and 2006 of the proportion of foreign workers over total permanent and temporal job in Spain. Having into account the evolution than foreign workers represent over total employment in Spain, described in anterior section (from 2% to 12%, approximately), figure evidences how these workers, men and women, are overrepresented within temporary workers. In 1999 male non national workers with a temporary job are already 3% of the total and increase along time until reaching 25,7% or what is the same, a quarter of male temporary jobs in Spain are filled by foreigners. For women figure does not show a better picture. In 1999 foreign women represent 2,2% of female non permanent jobs in Spain but this proportion increases up to 22,7%. Furthermore, figure distinguishes proportions for non-EU workers and lines are parallel and very close to those for all foreign population, what is obvious if we think than almost all immigrant workers are non-EU citizens.

The conclusion from this analysis is that non-EU workers clearly bear more labour instability. What is less obvious is if this overrepresentation of foreigners among temporal job in Spain is due to the fact that they are occupied in those industry sectors with larger proportions of temporary work, where they hold the worst occupations or, according with our hypothesis, is due to the existence of a nationality discriminatory element (Domingo and Houle, 2004). In this case, controlling by industry and occupational level, foreigners

would still having more chance to being temporal than national workers (Miret and Vidal, 2006).

**Figure 3.- Percentage of non-national over total permanent and temporary job (1999-2006)**



Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

Table 2 shows the distribution of industry sectors by sex and nationality. Obviously, the massive arrival of non-national workers in the Spanish labour market during recent years has been reflected in an intense increase of foreigners inside all industry sectors. However,

non nationals have not inserted themselves homogeneously among all industries, and this insertion is different depending on the sex.

**Table 2.- Employed by industry sector, nationality and sex (1999 and 2006)**

	1999				Total	Non Eu-25	
	Spanish		Foreigners			Men	Women
	Men	Women	Men	Women			
Primary sector	72,2%	24,7%	2,8%	0,3%	100%	2,4%	0,1%
Manufacturing and Energy	77,0%	21,7%	1,0%	0,3%	100%	0,6%	0,2%
Construction	94,5%	3,9%	1,6%	0,0%	100%	1,0%	0,0%
Trade	55,8%	42,7%	1,1%	0,5%	100%	0,6%	0,3%
Hotels and Restaurants	52,1%	43,0%	3,0%	1,9%	100%	2,1%	0,8%
Transports, Storage and Communications	80,4%	18,1%	0,9%	0,7%	100%	0,5%	0,2%
Financial, Rental state, Renting and Business activities	56,9%	41,6%	1,0%	0,6%	100%	0,3%	0,0%
Public Administration	62,5%	37,3%	0,1%	0,1%	100%	0,0%	0,1%
Education	36,1%	61,8%	1,1%	0,9%	100%	0,4%	0,4%
Health, Veterinary and Social Work	30,7%	68,1%	0,5%	0,7%	100%	0,3%	0,5%
Other social and community services activities	61,4%	35,5%	1,6%	1,5%	100%	0,9%	1,0%
Personal services	22,6%	73,8%	0,4%	3,2%	100%	0,0%	2,6%
Private households with employed persons	11,0%	77,1%	1,2%	10,6%	100%	1,2%	9,4%
Extraterritorial organizations and bodies	24,3%	43,6%	32,1%	0,0%	100%	0,0%	0,0%

	2006				Total	Non Eu-25	
	Spanish		Foreigners			Men	Women
	Men	Women	Men	Women			
Primary sector	59,6%	23,1%	12,3%	4,9%	100%	11,6%	4,7%
Manufacturing and Energy	69,2%	22,1%	6,8%	1,9%	100%	5,8%	1,6%
Construction	74,6%	5,1%	20,0%	0,3%	100%	18,8%	0,3%
Trade	46,3%	45,0%	5,0%	3,8%	100%	4,4%	3,0%
Hotels and Restaurants	35,3%	37,7%	10,4%	16,5%	100%	8,6%	14,1%
Transports, Storage and Communications	70,9%	21,1%	5,8%	2,1%	100%	4,0%	0,9%
Financial, Rental state, Renting and Business activities	47,8%	45,1%	3,2%	3,9%	100%	2,2%	2,9%
Public Administration	58,8%	39,8%	0,3%	1,0%	100%	0,2%	0,9%
Education	33,7%	63,1%	1,4%	1,8%	100%	0,5%	0,4%
Health, Veterinary and Social Work	24,2%	70,8%	1,4%	3,6%	100%	0,9%	3,2%
Other social and community services activities	55,0%	37,0%	5,7%	2,3%	100%	3,9%	1,7%
Personal services	22,6%	68,1%	2,5%	6,8%	100%	1,9%	6,0%
Private households with employed persons	6,2%	41,4%	2,7%	49,8%	100%	2,6%	48,6%
Extraterritorial organizations and bodies	59,6%	22,6%	0,0%	17,8%	100%	0,0%	0,0%

Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

In 1999 proportions of foreign workers were small in almost all industry sectors. Only some industries have some degree of overrepresentation of men non-nationals: *primary*

*sector, hotels and restaurants* and *extraterritorial organizations and bodies* where their presence starts to be obvious and, *personal services and private households with employed persons*, with high presence of foreign women. In contrast, in 2006, proportions of foreigners have clearly increased in all of the industries. However, percentages of male or female labour force differ considerably depending on the industry. Therefore, nowadays two key elements are necessary to understand the distribution of labour force among industries: nationality and sex. *Construction* (20%), *primary Sector* (12,3%) and *hotels and restaurants* (10,4%) are the industries with larger proportions of male non national labour force. Concentration of female non national workers is even more evident, especially in *domestic services*, where foreign women represent 50% of labour force. Other high proportions of female foreign workers could be found in *extraterritorial organizations and bodies, hotels and restaurants* and *personal services*

Therefore, analysis shows how foreign men insert in those precarious and typically masculine sectors as *primary sector, construction* and *hotels and restaurants*, where labour demand is fluctuant, seasonal, where a big amount of temporal and non skilled jobs are offered. In contrast, foreign women insert themselves mainly in the labour market in those more *reproductive* and *domestic tasks*, product of the massive insertion of young native women in the formal labour market seen in figure 2. Two columns on the right of the tables show proportions that foreigners represents, without EU population, over total of industries sector. This information stresses that almost all foreigners include in sectors such *domestic or personal services, hotels and restaurants, construction* or *primary sector* are non-EU, whereas, when EU citizens are excluded of the analysis, proportions for *trade, financial sector, education* and other more stable industries decrease in a significant way.

Repeating previous analysis, now for occupational category, table 3 contains distribution by sex and nationality of every occupational category. Table shows a clear sex different distribution: male occupations are mainly *armed forces, agricultural occupations* and different *elementary positions* in factories. In contrast, labour positions where female presence is predominant are *cleaning and domestic occupations, personal services* occupations, *administrative and secretarial jobs* and *sales and consumer services* occupations. In 1999, percentages of non-national workers are small in all occupations, but foreigners start to be overrepresented in some labour positions. In this sense, it is possible to find 8,5% foreign men in *elementary occupations in agriculture*, 5,4% foreign women in

domestic occupations, 4,5% foreign men in elementary positions in sale and costumer services or, 3,1% foreign women in personal services.

**Table 3.- Employed by occupational category, nationality and sex (1999 and 2006)**

	1999				Total	Non Eu-25	
	Spanish		Foreigners			Men	Women
	Men	Women	Men	Women			
Armed forces	97,7%	2,3%	0,0%	0,0%	100%	0,0%	0,0%
Managers and seniors officials	67,8%	29,2%	2,1%	1,0%	100%	0,7%	0,3%
Professional and technical occupations	55,5%	42,6%	1,1%	0,8%	100%	0,4%	0,3%
Administrative and secretarial occupations	40,9%	58,3%	0,2%	0,6%	100%	0,1%	0,2%
Hotels and restaurants services occupations	49,2%	46,3%	2,9%	1,7%	100%	2,4%	0,9%
Personal services ocupacions	17,5%	78,8%	0,5%	3,1%	100%	0,4%	2,5%
Security services occupations	95,2%	4,4%	0,3%	0,0%	100%	0,0%	0,0%
Sales and costumer service occupations	36,7%	62,1%	0,4%	0,8%	100%	0,3%	0,4%
Skilled agricultural trades	76,0%	23,1%	0,7%	0,1%	100%	0,5%	0,1%
Other skilled occupations (not agricultural)	91,3%	7,3%	1,3%	0,1%	100%	0,9%	0,1%
Transport and mobile machine drivers and operatives	84,3%	14,6%	0,9%	0,2%	100%	0,5%	0,2%
Elementary occupations in sales and costumer services	56,2%	38,5%	4,5%	0,8%	100%	4,5%	0,8%
Elementary cleaning and domestic occupations	7,6%	86,2%	0,8%	5,4%	100%	0,8%	4,8%
Windows cleaners and elementary security occupations	84,9%	13,4%	1,7%	0,0%	100%	1,6%	0,0%
Other elementary occupations	82,1%	15,7%	2,2%	0,0%	100%	2,0%	0,0%
Elementary occupations in agriculture	61,5%	30,0%	8,5%	0,0%	100%	7,1%	0,0%
Elementary occupations in construction	96,0%	2,0%	2,0%	0,0%	100%	1,2%	0,0%
Elementary plant and storage related occupations	72,2%	26,3%	1,3%	0,2%	100%	0,9%	0,0%

	2006				Total	Non Eu-25	
	Spanish		Foreigners			Men	Women
	Men	Women	Men	Women			
Armed forces	86,1%	9,9%	2,8%	1,2%	100%	2,8%	1,2%
Managers and seniors officials	64,0%	30,0%	4,2%	1,9%	100%	2,3%	0,8%
Professional and technical occupations	49,5%	46,3%	2,5%	1,7%	100%	1,2%	0,8%
Administrative and secretarial occupations	33,1%	62,2%	1,1%	3,6%	100%	0,9%	2,4%
Hotels and restaurants services occupations	33,6%	35,0%	12,4%	18,9%	100%	10,7%	16,5%
Personal services ocupacions	14,0%	72,1%	1,6%	12,4%	100%	1,4%	11,1%
Security services occupations	89,6%	8,3%	2,1%	0,0%	100%	1,7%	0,0%
Sales and costumer service occupations	26,6%	64,2%	3,7%	5,5%	100%	3,4%	4,2%
Skilled agricultural trades	72,0%	21,3%	6,1%	0,6%	100%	5,2%	0,4%
Other skilled occupations (not agricultural)	79,2%	6,1%	14,1%	0,6%	100%	13,0%	0,6%
Transport and mobile machine drivers and operatives	80,5%	11,6%	6,9%	1,0%	100%	6,0%	0,9%
Elementary occupations in sales and costumer services	47,7%	29,7%	18,2%	4,4%	100%	16,7%	3,2%
Elementary cleaning and domestic occupations	5,1%	60,1%	2,0%	32,8%	100%	1,9%	31,8%
Windows cleaners and elementary security occupations	66,0%	23,6%	8,7%	1,8%	100%	7,1%	1,8%
Other elementary occupations	65,4%	28,4%	4,0%	2,2%	100%	4,0%	2,2%
Elementary occupations in agriculture	36,7%	23,4%	25,6%	14,3%	100%	25,5%	14,0%
Elementary occupations in construction	61,7%	1,7%	36,4%	0,3%	100%	35,1%	0,3%
Elementary plant and storage related occupations	54,9%	25,5%	13,2%	6,3%	100%	12,7%	5,9%

Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

To end with this descriptive section, we may see in Table 3 how during the short period between 1999 and 2006, it has been an important change in the sex and national composition of occupational categories. On the one hand, it is possible to observe in 2006 an increase of the proportion that Spanish women represent over total of those positions on the top of the classification, as managerial and senior officials positions or professional and technical positions. On the other hand, foreign labour force in 2006 has increased enormously in all occupational categories, although differences between occupations exist and should be mentioned. Foreign men represent 36,4% of *elementary occupations in construction* whereas 32,8% of employed in *elementary cleaning and domestic occupations* are foreign women. Other concentrations of foreign labour are in all other elementary occupations, in those positions related to *hotels and restaurants* or *personal services*. Relating to *cleaning, domestic and personal services occupations*, it has been, compared with 1999, a significant reduction of national female labour force clearly compensated with this increase of foreign labour. In the male case, the same happens in relation to the different elementary categories, with a reduction of national male workers, who have been substituted by foreign workers, specially men but also women (14,3% in elementary agricultural). Finally, the two columns on the right display the percentages than non-EU workers represent in every occupational category. Although percentages are almost identical than those for total foreign workers, when EU members are excluded of the analysis, percentages over total *managerial or professional and technical positions* decrease in a more significant way than the percentages over total elementary positions.

Summarizing, it is possible to affirm that the intensive grown of foreign labour force in Spain have different impact inside labour market depending on the stability of the job they got, on the industry where insert themselves and, on the occupational category that they fill, as labour market is not a continuous one, but is divided between different segments, where worse position seem reserved for immigrants. Moreover, even in the secondary labour market, foreign women insert mainly in those elementary ‘female’ occupations, the most deregulated and the least prestigious. Therefore, those tables confirm that nationality and sex are the main discriminatory elements in the assignment of the labour positions.

To conclude with this descriptive analysis, data interpretation is that the immigrant labour demand in Spain is due to the rapid grown of a segmented labour market, as native workers, specially young workers, try to avoid those less attractive jobs in the bottom positions of occupational classification where non-EU foreigners are concentrated

(Arango, 2004), searching for those labour positions in concordance with their educational levels. In addition, as a consequence of their educational improvement, young native women participate massively in the labour marketing in similar conditions than young men, creating labour gaps in domestic tasks and other 'feminine' labour positions, than are mainly filled by immigrant women.

## **5.- The Multivariable Model: explaining the probability of being employed as unskilled**

### **5.1.- Methodology**

Following with the same theoretical arguments, the starting hypothesis of the multivariable models is that, in a segmented labour market, non-EU workers, playing a complementary role of native labour force, have more chance to be employed in those less attractive, less prestigious, more elementary, more unstable and more unskilled jobs, situated in the bottom of the occupational classification. What is less obvious is if this overrepresentation of foreigners among unskilled job in Spain is due to the fact that they are occupied in those industry sectors with larger proportions of this kind of work, or if exists a nationality discriminatory element (Domingo and Houle, 2004). Our hypothesis is that national discrimination exists and, therefore, controlling by industry and other personal characteristics, as age, sex or educational level, foreigners, especially that non-EU, would have more chance to being employed as 'unskilled' (Miret and Vidal, 2006).

In order to confirm or refuse the hypothesis, a multivariable explanatory model has been created, where the dichotomous dependent variable is 'holding an unskilled-elementary occupation', with two possible categories: 'holding an unskilled-elementary occupation' or 'non holding an unskilled-elementary occupation'. Key independent or explanatory variable is nationality, but this is not the only explanatory element in our model. Probability of being employed as unskilled worker is also controlled by *industry sector*, *year of data collection*, *educational level*, *age* and *sex*. Once this model concluded that non-EU workers have more chance to be unskilled workers, a second model was created, in order to check the influence of integration or length of stay in the host country in the improvement of the position in the receiving labour market. In this second model, only foreigners are included, and the principal hypothesis is that probability of being in skilled occupations rises in parallel to the time that the immigrant worker spends in the host country, since there is an adjustment of the *just arrived* to the receiving labour market. In



particular, because immigrants lack location-specific human capital, and their skills may not transfer perfectly into the host labour market, they are unable to compete on an equal basis with native individuals immediately after immigration (Wheatley Price, 2001), consequence of the lack of appropriate language skills and the little knowledge of the labour market institutions, job opportunities or business customs. However, as time spent in the destination labour market increases, immigrant outcomes assimilate or adjust towards those of their native counterparts (Chiswick, 1978).

The dichotomous or binary nature of the dependent variable requires the application of the statistical technique of logistic regression, the best option for calculating probabilities of binary dependent variables. As Field (2000) argued, logistic regression is multiple regression but with an outcome variable that is categorical dichotomy and predictor variables that are either continuous or categorical. Using a logistic regression as an explanatory method it is possible to get the predicted values, or the probabilities of  $Y$  (in this case the *probability of holding an unskilled occupation*), given the values of each predictor for a given subject. As Plewis (1997) explained, there are a number of ways in which we can link our response to our explanatory variables, and there are a number of distributions to choose from the response. With proportions as responses, we assume a binomial distribution and we use what is known as a *logistic* or *logit* link, transforming a proportion  $P$  to:

$$\text{Log} [P/(1-P)]$$

$$\log[P/(1-P)] = \text{logit } P = a + bx$$

$$P/(1-P) = \exp(a + bx)$$

Therefore, the probability of the outcome (e.g. being unemployed) is:

$P = \exp(a + bx)/(1+\exp(a+bx))$  and, conversely the probability of the outcome not occurring is  $1 - P$ .

## **5.2.- Results**

Once logistic regression was applied, the first step is to check the predictive power of the model. When only the constant is included in the model, the  $-2 \text{ Log}$  likelihood value, which is an indicator of how much unexplained information there is after the model has

been fitted, is 555.040,548. Once the six explanatory variables are included in the model, this value decrease to 383.662,548, or a total of 171.417,977 (30,8% of initial value), which is equivalent to the Chi-square in the model. The log-likelihood statistics is analogous to the error sum of squares in multiple regression (Field, 2000), and large its value, the more unexplained observations there are. Therefore, it is possible to affirm that the introduction of our six variables has improved the prediction of the outcome more accurately. And the sig = 0,000 of the Chi-square values means that this improvement is significant.

Table 4 shows frequencies, coefficients, statistical significations and resulting probabilities for constant and all categories of our explanatory variables. Firstly, for the variable *industry*, reference is not any particular category, but the whole of them, i.e., the overall industries coefficient is 0 and general probability (when all industries are included) is equal to 50%. Coefficients lower than 0 mean that the probability of a person working in this particular industry to be in an unskilled position is smaller than the overall probability. Contrarily, those coefficients higher than 0 represent greater risks. From the table we could see that industries with higher coefficients are *private households with employed persons* ( $\beta=3,874$ ), *personal services* ( $\beta=2,119$ ), *hotels and restaurants* ( $\beta=1,594$ ) and, *Health, veterinary and social work* ( $\beta=1,018$ ). Second explanatory variable included in the model is *year of data collection*, as unskilled labour demand depends on the changeable economic and social context, consequence of the development of determinant industries and of the evolution of the socio-demographic characteristics described in the introduction. From the table we could observe that probability of be employed as unskilled worker slightly increase in a continuous way over time. Taking 1999 as the reference year, with a coefficient equal to 0, value increases slowly until 2006 ( $\beta= 0,397$ ). In other words, it seems to be a recent evolution towards an increase of the unskilled work in Spain, though this increase is not extremely obvious.

Following with our explanatory variables we arrive to the effects of nationality. Results reinforce the initial hypothesis and risk of being employed as unskilled worker clearly differs depending on the nationality. Therefore, being Spanish nationality the reference category or coefficient equal to 0, all other nationality groups, except *Northern America and Oceania*, present higher coefficients. In order, *Other European* is the group with more probability of being employed as unskilled, followed by *African* immigrant and *Central and South American* and *Asian* national groups *EU members* are only slightly over

Spanish, but the statistical test seems to indicate that this difference is not significant. More significant are the differences between Spanish workers and those from other regions. If probability for Spanish workers is 50,6%, probability for *Other European*, *Asian* and *Central and South American* groups is clearly higher, approximately 80%.

**Table 4.- Logistic Regression Coefficients**

Variable	Categories	Frequencies	Beta	Sig.	Probability
<b>Industry</b>	Primary sector	34.788	-0,438	0,000	39,8%
	Manufacturing and Energy	95.389	-1,517	0,000	18,4%
	Construction	62.064	-0,983	0,000	27,7%
	Trade	84.811	-1,504	0,000	18,5%
	Hotels and Restaurants	34.027	1,594	0,000	83,5%
	Transports, Storage and Communications	28.768	-1,279	0,000	22,2%
	Financial, Real state, Renting and Business activities	50.137	-0,256	0,003	44,2%
	Public Administration	37.417	-0,791	0,000	31,7%
	Education	32.548	-0,382	0,000	41,2%
	Health, Veterinary and Social Work	32.616	1,018	0,000	73,9%
	Other social and community services activities	13.441	-0,130	0,968	47,4%
	Personal services	6.874	2,119	0,000	89,5%
	Private household with employed persons	13.958	3,874	0,000	98,0%
	Extraterritorial organisations and bodies	46	-1,323	0,011	21,5%
<b>Year (2n quarter)</b>	1999	68.204	0,000	Ref.	50,6%
	2000	65.686	0,358	0,000	59,5%
	2001	64.603	0,347	0,000	59,2%
	2002	64.877	0,391	0,000	60,2%
	2003	67.180	0,408	0,000	60,6%
	2004	67.808	0,416	0,000	60,8%
	2005	62.120	0,394	0,000	60,3%
	2006	66.406	0,397	0,000	60,4%
<b>Nationality</b>	Spanish	512.240	0,000	Ref.	50,6%
	EU-25	2.683	0,101	0,180	53,2%
	Other European	2.440	1,523	0,000	82,5%
	African	2.600	1,405	0,000	80,7%
	Northern American and Oceania	91	-0,995	0,073	27,5%
	Central and South America	6.379	1,303	0,000	79,0%
	Asian	451	0,544	0,004	63,8%
<b>Educational Level</b>	Low	152.146	0,000	Ref.	50,6%
	Medium	228.641	-0,785	0,000	31,9%
	High	146.097	-2,626	0,000	6,9%
<b>Age Groups</b>	16-24	61.758	0,000	Ref.	50,6%
	25-44	286.484	-0,639	0,000	35,1%
	45-64	178.642	-1,096	0,000	25,5%
<b>Sex</b>	Man	324.478	0,000	Ref.	50,6%
	Women	202.406	0,650	0,000	66,3%
<b>Constant</b>		526.884	0,025	0,193	50,6%

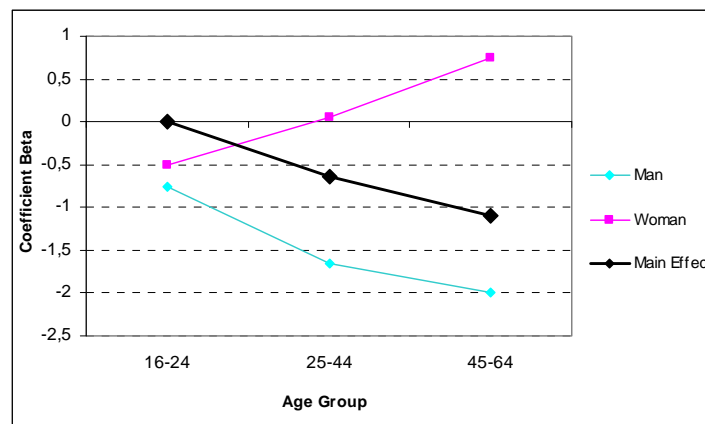
Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

Educational level is also interpreted as a key element to control in order to calculate the probability of being in the bottom positions of labour market. Results only corroborate the common view that higher the educational level lower is the probability of being employed

as an unskilled worker. Reference coefficient for people with low educational level decreases for medium educational level category to -0,785 and to -1,096 for people with a degree. Same decreasing progression occurs with the coefficient by age group, young people have more chance of being unskilled compared with medium age or aged over 45 years workers. However, despite of the net effect of age in the dependent variable, as we check the possibility effect of interaction effect between independent variables, we found that not always probability decreases in parallel to age. In figure 4 and 5 respectively we may observe the interactions of age with sex and some of the nationality categories. Contrary to the main effect, women increase their coefficient in parallel with age, confirming that the educational improvement of young women generations in Spain allows them to a better insertion in the labour market than old generations of same sex. Moreover, for *Spanish* and *Central and South American* national groups, propensity of being unskilled increase slightly in the older age group, whereas the main effect of age is continuous.

**Figure 4.- Coefficients by age and sex (interactions found and main effects)**

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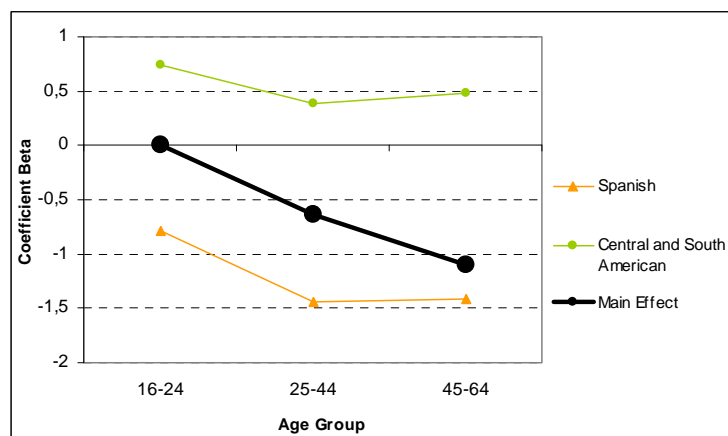
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Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

Finally, as it was announced previously in the paper, sex is another key discriminatory element in the job assignment process and results reaffirm this idea. Controlling by the rest of explanatory variables of the model as educational level, age, nationality or industry, probability of being positioned in bottom positions of occupational classification is higher for women than for men, concretely is 66,3% for female population and 50,6% for men.

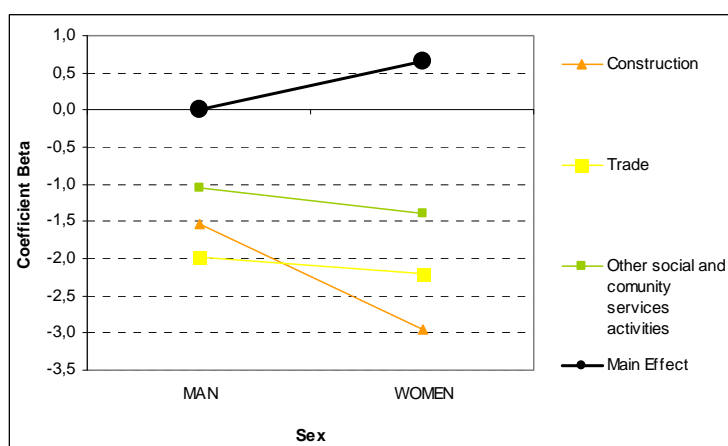
However, analysis showed an interaction effect between sex and some of the categories of the *industry* variable (figure 6).

**Figure 5.- Coefficients by age and nationality (interactions found and main effects)**



Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

**Figure 6.- Coefficients by sex and industry (interactions found and main effects)**



Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

Concretely, probability of being employed in unskilled occupations is lower for women than for men in three industries: *construction*, *trade* and *other social and community social activities*. The existence of these interactions means that women employed in those activities are, proportionately, in better positions than men. Further analysis would be necessary to find out which are the occupations that men and women differently hold in these industries. For instance, in *construction*, the physical requirements of most of the

unskilled occupations developed in this industry, seems to indicate that they are not suitable for women and, as a consequence, female employed in construction, are proportionally more occupied in those technical and professional positions, whereas men could be found in both, either manual or more skilled occupations.

The second model, only including foreign workers, has the aim to investigate the effect of time spent in host country and their ability to advance upward the occupational scale adjusting their jobs to their personal capacities. When only the constant is included in the model, the -2 Log likelihood value, which is an indicator of how much unexplained information there is when only constant is included, is 20.270,046. Once the seven explanatory variables are included in the model, this value decrease to 12.485,509, or a total of 7.784,537 (38,4% of initial value), which is equivalent to the Chi-square in the model. Therefore, the inclusion of these seven variables has improved the prediction of the dependent variable. And, again, the sig = 0.000 of the Chi-square values means that this improvement is significant.

In a similar way than in previous model, now that only foreign workers are included in the analysis, *private households with employed persons* is the industry with the highest coefficient ( $\beta=3,874$ ) or what is the same, an immigrant worker in this industry has 98% of probability of being an unskilled worker. Following in order is *hotels and restaurants* with a coefficient of 1,815, *personal services* ( $\beta=0,827$ ) and *primary sector* ( $\beta=0,805$ ). It is interesting to note that in the previous logistic model, when Spanish workers were including, coefficient of *primary sector* was negative, whereas only including immigrants, it changes to positive. My interpretation is that, in general terms, Spanish population working in agricultural activities are the owners of lands or farms and, therefore, are considered as skilled workers, whereas foreign employed in agricultural tasks work in those more elementary and temporary occupations, as fruit picking. Following the interpretation of results, industries where immigrants have less risk of being unskilled worker is in manufacturing and energy ( $\beta=-1,557$ ) or in education ( $\beta=-1,450$ ).

Confirming the hypothesis regarding the role of time spent in receiving country, probability of being employed in the bottom occupational positions decreases in parallel to length of stay in Spain, although statistical tests indicate that until three years in the country, there is not significant difference with those recently arrived. Year of interview, educational level, age group and, sex follow the same pattern than in first explanatory model.

**Table 5.- Logistic Regression Coefficients (continuation)**

Variable	Categories	Frequencies	Beta	Sig.	Probability
<b>Industry</b>	Primary sector	1.258	0,805	0,000	53,8%
	Manufacturing and Energy	1.782	-1,557	0,000	9,9%
	Construction	2.731	-0,693	0,000	20,7%
	Trade	1.571	-0,981	0,000	16,4%
	Hotels and Restaurants	2.151	1,815	0,000	76,2%
	Transports, Storage and Communications	537	-1,036	0,000	15,6%
	Financial, Real state, Renting and Business activities	941	-0,058	0,806	33,0%
	Public Administration	74	-0,015	0,355	33,9%
	Education	377	-1,450	0,000	10,9%
	Health, Veterinary and Social Work	329	0,378	0,049	43,2%
	Other social and community services activities	340	-0,761	0,000	19,6%
	Personal services	136	0,827	0,000	54,4%
	Private household with employed persons	2.408	3,843	0,000	96,1%
	Extraterritorial organisations and bodies	9	-1,117	0,174	14,6%
<b>Years residing in Spain</b>	Less than 1 year	1.230	0,000	Ref.	34,3%
	1 year	1.411	0,027	0,777	34,9%
	2 years	2.057	-0,006	0,347	34,1%
	3 years	1.980	-0,191	0,037	30,1%
	4 years	1.657	-0,066	0,044	32,8%
	5 years	1.420	-0,189	0,021	30,2%
	6 to 10 years	2.625	-0,496	0,000	24,1%
	More than 10 years	2.264	-0,636	0,000	21,7%
<b>Year (2n quarter)</b>	1999	699	0,000	Ref.	34,3%
	2000	741	0,080	0,339	36,1%
	2001	1.046	0,137	0,435	37,4%
	2002	1.400	0,259	0,024	40,3%
	2003	1.977	0,293	0,014	41,2%
	2004	2.385	0,325	0,007	41,9%
	2005	2.742	0,288	0,034	41,0%
	2006	3.654	0,325	0,018	41,9%
<b>Nationality</b>	EU-25	2.683	0,000	Ref.	34,3%
	Other European	2.440	1,129	0,000	61,7%
	African	2.600	1,608	0,000	72,3%
	Northern American and Oceania	91	-1,117	0,042	14,6%
	Central and South America	6.379	1,090	0,000	60,8%
	Asian	451	0,630	0,015	49,5%
<b>LowMedHigh</b>	Low	4.026	0,000	Ref.	34,3%
	Medium	7.182	-0,284	0,000	28,2%
	High	3.436	-1,261	0,000	12,9%
<b>Age Group</b>	16-24	2.047	0,000	Ref.	34,3%
	25-44	9.948	-0,274	0,000	28,4%
	45-64	2.649	-0,460	0,000	24,8%
<b>Sex</b>	Home	8.391	0,000	Ref.	34,3%
	Dona	6.253	0,676	0,000	50,6%
<b>Constant</b>		14.644	-0,651	0,086	34,3%

Data source: Spanish Labour Force Survey (1999-2006, 2n quarters).

The more recent is the year of the interview, the greater is the probability of being employed in elementary occupations, from 34,3% in 1999 to 41,9% in 2006, although statistical test indicates that this variable does not makes any significant difference in the dependent variable. Probability of being employed as an unskilled worker decreases from

34,3% ( $\beta=0,000$ ) for those with low educational level to 24,5% ( $\beta=-1,261$ ), in a similar way that happens with age. Taking as a category of reference the youngest age group (16-24), coefficient decreases to -0.247 for age group 25-44 and to -0,460 for foreigners aged 45-64. Again, women are statistically more prone to be employed in more elementary occupations than men. Concretely, female probability is 50,6% whereas male probability is only 34,3%. Therefore, this result confirms the idea than in the Spanish labour market not only foreigners are situated in worse positions, but within them, there is a gender discrimination, and the probability of women to being in the bottom labour positions are clearly higher than those for men of same nationality.

Finally, in this second model, nationality groups present similar coefficients than in previous one, even though some differences appear. For instance, in previous model non-EU European workers were those with the highest risk to fill elementary occupations in the Spanish labour market. Now, when length of stay in Spain is included in the model, African are the national group with the highest coefficient ( $\beta=1,608$ ). Interpretation is that Other European appeared as the worst situated workers as a consequence of their more recent incorporation to the Spanish labour market (see table 1). Once controlling by time spent in the receiving country, African, despite of their antiquity as a foreign collective in Spain, are those with more chance of being in the worse labour positions.

## **6.- Conclusions**

The theoretical framework of this paper has been the complementarity between national and immigrant workers in the labour market that relates immigrant arrivals with the educational, labour and social promotion of Spanish native population. As it has been explained in the introductory section, in this complementary process the labour insertion of immigrant workers depends on Spanish labour market characteristics, as the growth of the tertiary sector, and on the characteristics of its Welfare State. However, other influences such as the socio-demographic specificities of Spanish population, especially the improvement of the educational level of the youngest generations and the shift in gender roles, with a higher female participation in the labour market, have not been less relevant.

From the descriptive analysis in section 4, conclusions are that although there is a strong demand of immigrant labour force, foreign workers have more difficulties to maintain themselves as employed, as their overrepresentation over total unemployment seems to indicate. Moreover, when immigrants are employed, their clearly bear more labour



instability and proportions of non-national over total temporary work have increased considerably during recent years. Following in the analysis, data showed that the intensive increase of non-national workers in Spain presents interesting differences relating to the insertions which depend on the industry or the occupational category that they fill, as labour market is not a continuous one, but is divided between different segments, where worse positions seem reserved for immigrants. Moreover, even in the secondary labour market, foreign women are even more discriminated, as they mainly insert in those elementary 'female' occupations, more deregulated and less prestigious.

In order to calculate the risk for a foreign worker to be in the bottom positions of occupational scale, two explanatory models have been developed. Controlling by other explanatory variables as year of data collection, industry, sex, educational level or age, results of the first model confirm that non-national workers, specially those non-EU, have more probability to work as unskilled workers in Spain. In second model the *integration element* has been included and outcomes confirm that labour positions of foreign workers improve in parallel to the time spent in the receiving country. However, two interesting points should be mentioned. The first is that in these two models women are more prone to be occupied in more elementary and unskilled positions. The second one is that, although they are the most veteran foreign group in Spain, once controlled by time spent in host country, African immigrants are the worst situated in the labour force.

In conclusion, data analysis shows how labour positions in the Spanish labour force differ considerably depending on the sex and nationality, in a context of a segmented labour market, where this recently arrived population is who fill those more precarious labour positions of the "secondary" labour segment. In addition, analysis also demonstrated that foreign women, due to their condition to being women, are successors of those traditional gender roles than Spanish women try to avoid to play. Furthermore, their presence in Spanish labour market is mainly reduced to these traditionally feminine occupations as helpers/cleaner/assistants, independently of their educational level or professional training. Doing so, traditional gender roles are perpetuated, even when the host society believes that they are overcome.

Finally, the most optimistic point of the analysis is that data seems indicate that although foreign workers, men and women, are situated in more precarious labour positions than the Spanish ones, this is not only consequence of their national identity, but also is due to the

adjustment process to the new social and labour context, as they improve their occupations in parallel to the time spent in Spain.

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