Immigration and Social Benefits in a Mediterranean Welfare State: The Case of Spain

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Abstract

The aim of this paper is to explore the impact of immigration on the Spanish Welfare State nowadays. Using two different household surveys, both the reception of state cash transfers and the use of public health care insurance by nationals and immigrants are analysed. Controlling by observable socio-demographic characteristics, we find that immigrants receive fewer cash transfers than locals and do not exhibit a statistically significant higher use of health care services than nationals. The nature of the Spanish Welfare State compared to its European correlates and the age composition of the immigrant population, concentrated in active age, can help to explain these findings.

Keywords: Immigration, Welfare State, Spain, cash transfers, health care.

1. Introduction[1]

From a historical point of view, nowadays immigration rates do not stand comparison to the flows corresponding to the massive migration wave that took place, in a context of almost free movement of people, from the mid 1850's to the beginning of World War I (Hatton and Williamson, 2005). However, the lower economic growth rates of the receiving countries, their higher population density, and the reorientation of migration towards the developed countries have made migration a highly visible and

debatable issue nowadays.[2] According to the *Eurobarometer 65* (2007), immigration is considered in the EU-15 the fourth most important issue of concern faced by the member states (right after unemployment, crime, and the economic situation). At the same time, less than half of EU-15 citizens (42%) consider immigrants contribute a great deal to their countries. In Spain, in 2006, for the first time immigration figured as the most important problem faced by the country (59% of answers), well above unemployment (42%) and housing (21%).[3]

This general concern about the impact of immigration on Spanish society shows in three different dimensions: the impact of immigration on the labour market, potential problems of integration (including delinquency, etc.) and the implications of immigration for the public sector's budget. This paper intends to shed light upon a very specific issue related to the third dimension: the direct impact of immigration on the Spanish Welfare State. It comprises two different dimensions: state cash transfers and health care expenditure. Though there is a long tradition of studies on the implications of immigration for welfare systems, most of them focus on consolidated welfare regimes and consolidated migration communities. Apart from the attitudes towards immigration mentioned above, the case studied in this paper is different for two reasons. First, in Spain immigration is a very recent phenomenon, particularly interesting in a country that was traditionally an emigrant nation. Second, because of historical reasons, including the late democratization of the country, the Spanish Welfare State was developed comparatively late (in the 1970s) and is still much weaker than most of their European correlates. These two characteristics make the Spanish case an interesting case study. The hypothesis to be tested is whether immigrants receive more or fewer social benefits than locals and whether the differences, when existing, can be fully explained by observable characteristics.

In order to accomplish this aim, the paper is organized in five sections as follows. Firstly, the main literature relating to immigration and the Welfare State is briefly reviewed. In the second section, some stylized facts about the Spanish Welfare State and Spanish immigration are offered to allow the reader to understand the

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[2] While in 1960 the worldwide emigration rate was only slightly below the emigration rate of the more developed countries (3.4 versus 2.6%), in 2005 the difference was much higher, 9.5 versus 3% (United Nations Population Division, 2005).
[3] Data from the CIS *Barómetro de septiembre 2006. Estudio 2654*, question 5. Available from: <http://www.cis.es> [Accessed 26 February 2009].

specificity of the case analysed. The third part deals briefly with the main characteristics of the databases used in this work. In the fourth place, the methodology and the main results of the analysis are presented. Last, section five summarizes the main conclusions obtained.

2. LITERATURE REVIEW

Literature documenting the implications of immigration for the sustainability of the Welfare State of the receiving countries follows five different perspectives. From a theoretical perspective, some scholars (Gilens, 1999; Alesina and Glaesser, 2004; Banting and Kymlicka, 2006) have investigated whether the decrease in cultural and ethnical homogeneity resulting from immigration could weaken the popularity of the Welfare State or at least of some of its redistributive programs. From a demographic perspective, it has been argued that immigration could contribute to solve, at least partially, the negative implications for the Welfare State of an increasingly older population and the burden derived from it in terms of growing pension expenditure (Krieger, 2005; Blake and Mayhew, 2006). In demographically mature countries, it is argued that, immigrants, being young, would reduce, at least temporarily, the rate of increase of the dependency rate. From a more mundane, but still general approach, other researchers have tried to evaluate the overall economic impact of immigration on the receiving country, often estimating what is known as the "immigrant surplus".[4] The third approach limits itself to the analysis of the direct budgetary implications of immigration, estimating the effect of the contribution of immigrants to public sector income through taxes and their contribution to expenditures through their use of the different public services and transfer programs. For example, according to Ekberg (1999), the contribution of immigrants to the Swedish sector was positive (around 1-2% of GDP) in the decades of full employment (1950-70), levelling in the 1980s and turning negative nowadays owing to the increase of immigrants' unemployment rates (around 2%). Ulrich's study for Germany arrives at different conclusions, estimating a slightly positive impact explained by the younger age structure of the immigrant population (Ulrich, 1994). The conclusion of Wadensjö and Gerdes (2004) for five

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[4] See, among others, Borjas (1995) for the United States or Dolado and Fernández-Yusta (2001) for Spain.

different immigrant communities in Germany (from Iran, Lebanon, Turkey, Poland and Yugoslavia) is partially different as they estimate a negative impact for the first generation and a positive impact in the case of the last two groups for the second generation. Last, Straubhaar and Weber (1994) estimate that foreign residents in Switzerland are most likely to be net contributors to the government budget. The works for Spain are basically limited to the analysis of Collado, Iturbe-Ormaetxe and Valera (2004), who, based on *ad hoc* assumptions on payment of taxes and take-up rates of social benefits by immigrants, determined the long-term impact of immigration on public budget.[5] Logically, their results are influenced to a large extent by the assumptions made and the demographic composition of immigrant population.

The last approach, the one we follow in this paper, is less ambitious and only focuses on the expenditure side of the public sector. The purpose is to analyse whether immigrants have a specific behaviour in relation to social protection once we account for their socio-economic characteristics. There are many examples of this strategy in the relevant literature. For example, Borjas and Trejos (1991) found that take-up rates of welfare benefits of immigrant households were not significantly different to those of similar native ones. According to Bird *et al.* (1999), in Germany higher take-up of social benefits by immigrants were fully explained by socio-demographic characteristics. Hansen and Lofstrom (2003), whose work was focused on Sweden from 1990 to 1996, showed that immigrants used welfare to a greater extent than nationals, even when controlling for household characteristics. Bengtsson and Scott (2006), also for Sweden, reached similar conclusions, in this case referring to the period 1982-91 and limited to sickness benefits. In contrast, Winkelmann (2002), for Switzerland, concluded that the differences in health care use of female migrants (higher use rates) tended to be no larger than those observed between Swiss citizens living in different cantons of the country.

Also worth mentioning is the comparative study by Brücker *et al.* (2002), who analysed the perception of the main state cash transfers (unemployment benefits, pensions and family benefits) by migrants and natives in several European countries. The main drawback of this work is that, because of its reduced sample size, the database on which the analysis is based, the European Community Household Panel 1994,

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[5] There is also a version of this work for a Spanish region, Andalusia (García Pérez, Osuna and Vera, 2007).

comprises very few observations (fewer than 20 in some cases) of non-EU citizens in countries like Spain or Italy. The results obtained were mixed. Regarding unemployment benefits, while the authors found that being an immigrant had a positive impact on unemployment benefit dependency in some countries (Denmark, the Netherlands, France, Austria and Finland), the country of birth had no significant effect in others (Germany, the United Kingdom, Greece and Spain). With relation to pensions, owing to the small number of observations only four countries were analysed (Austria, Greece, France and Belgium), and no residual effect of immigrant status was found. Finally, the probability of receiving family benefits was higher for immigrants in Spain and France, lower in the United Kingdom and non-significant in the rest of cases. Finally, García, González and Saez (2007) studied the use of health care services in a Spanish region (Catalonia) in 1994 and 2002 and found that the immigrant population used public health care services to a lesser extent than the locals. However, apart from being limited to a very particular Spanish region, this work did not control for demographic and economic characteristics.[6]

Our work, when controlling for characteristics, tries to evaluate whether immigrants receive more or fewer welfare benefits and public health care than nationals. Although the comparative study by Brücker *et al.* (2002) represents a first attempt to do so with relation to cash transfers, as mentioned above, the results reported for Spain can hardly be considered representative because of the few observations available for this country in the ECHP. The aim of this paper is to overcome some of these shortcomings faced by the aforementioned authors, since we explore the reception of state cash transfers from the most national recent household survey, the European Union Social Indicators on Living Conditions 2005 (EU-SILC 2005) and the use of health care services from the last wave of the Spanish Health Survey (SHS 2003). Both databases include large samples and are described in more detail in section 4.

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[6] Catalonia accounted for 15 and 20% of the Spanish population and the Spanish GDP in 2006, respectively.

3. HISTORICAL BACKGROUND OF IMMIGRATION AND THE WELFARE STATE IN SPAIN

3.1. Spanish immigration in historical perspective

Until recently, Spain was a country of emigrants. Three decades ago, at the height of its intensity, Spain had up to 3 million of workers abroad (from a population of 34 million) and around 10% of imports could be financed with their remittances (Oporto del Olmo, 1992). The impact of the economic crisis of 1973 on the host countries, and the modernization and development of the Spanish economy since then has greatly reduced, almost eliminated, the emigration of Spanish workers abroad, even after joining the EU in 1986. On the receiving side, a decade ago Spain was one of the countries of the EU with a lower proportion of immigrants (1%). In sharp contrast with these facts, according to census data, in the last few years Spain has witnessed a gargantuan increase in the number of immigrants, dwarfing all expectations. In less than a decade the percentage of immigrants in Spain increased from 1.4 to 9.5%.[7] In fact, in the context of the EU only Greece experienced a higher increase (6.7 points from 1990 to 2004) and only Ireland (with 4.8) came anywhere close (Eurostat, 2006).[8]

According to Census data, non-EU-25 born individuals make up more than two thirds of immigrants in Spain. The bulk of them (48.5%) come from Latin America, mostly from Ecuador, Colombia and Argentina. Africans (with 22.9%) are the second major group (mostly Moroccans), while European non-EU-25 citizens (mostly Romanians) form the third major group (adding another 21.1%). Finally, nearly 6.5% of the immigrants come from Asia.[9]

3.2. Institutional features of the Spanish Welfare State

Spain is one of the countries in the EU-15 with lower social spending as a percentage of GDP. In 2004, public social expenditure as a percentage of the GDP was 20%, compared to 27.6% in the EU-15. Although it is beyond the scope of this paper to

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[7] See Bover and Velilla (1999) for details on Spanish immigration flows from an historical perspective.
[8] In the case of Greece, immigration is basically explained by the influx of Albanese citizens, while in the Irish case immigration is explained by their huge rate of economic growth in a context of almost full employment.
[9] See http://www.ine.es/inebase/cgi/um?M=%2Ft20%2Fe245&O=inebase&N=&L for Spanish Census data.

offer an account of the factors behind the comparatively low development of the Spanish Welfare State, it is important to notice that this lower level of social protection can only be partially explained by the lower GDP per capita of the country (figure 1). The same is valid for the dependency rate, another key element in explaining social expenditure, as the Spanish dependency rate is similar to the average (25.3% compared to 25.9%).

FIGURE 1 HERE

This lower level of protection characteristic of the Spanish Welfare State is present in all the rubrics of social protection but one: unemployment protection, because of the historically higher level of unemployment in Spain (figure 2). When comparing the average general social protection gap (Spanish relative expenditure is 72% of EU-15 relative expenditure) with the gap in the different categories of social expenditure, the conclusion is clear: the gap is much higher than warranted by the overall difference in relative social expenditure in four categories (family and children, housing, survivors, and social exclusion), to be exact, some of the programs most directly targeted to populations with low income, i.e., means-tested benefits.

It should be mentioned that old age and survivors' benefits accounted for more than 40% of total expenditure on social protection and the Spanish pension system is mostly based on contributory principles, since, apart from minimum benefits, redistribution is limited to non-contributory pensions, which comprise roughly 0.2% of the Spanish GDP.

Regarding health care, several remarks are also required.[10] The Spanish National Health Care System was created in the mid-eighties from the (insurance-oriented) social security health services. It has a regional organizational structure and coverage is almost universal (99.5%, only some non-salaried and high income workers are not obliged to join the National Health System). It is mainly financed by taxes and, excepting doctors' prescriptions, all health services are free at the point of use, although it is important to note that there is a system of gate-keepers, that is, in order to visit the specialist

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[10] See Durán, Lara and van Waveren (2006) for details.

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individuals have to be referred by their general practitioner. Finally, it is worth mentioning that even illegal immigrants are also entitled to public health care.

Summing up, Spain has clearly a low profile Welfare State, with the second lowest level of protection (after Ireland) of the EU-15. Furthermore, this lower level of development of the welfare state cannot be fully explained by its lower GDP per capita. In fact, relative social expenditure in Spain is similar to Poland, a country with half its GDP per capita in 2004.

<p style="text-align:center"><strong style="color:red">FIGURE 2 HERE</p>

4. DATABASES

As mentioned, the data sources for analysing social benefits and health care are two different household surveys: the European Union Social Indicators and Living Conditions (EU-SILC) survey for the year 2005 and the National Health Survey (NHS) for the year 2003. The EU-SILC 2005 is used to analyse reception of cash transfers by immigrants and locals. It follows the common rules regarding sampling design and other features present in modern household surveys.[11] The EU-SILC 2005 has two important advantages over previous databases. Firstly, it includes data on income and social inclusion referring to nationals and immigrants for 2004, when immigration in Spain was already very important. In second place, the size of the EU-SILC has increased considerably with regard to the ECHP and surveys more than 20,000 households, including around 500 headed by individuals born outside of the EU.

The NHS 2003 represents the most relevant database for analysing issues related to health status, health habits and use of health care services. Apart from the much older Family Budget Survey carried out in 1990-1991, the NHS is the only source for analysing issues related to access to health services and the allocation of public health expenditure. It includes around 700 observations of non-EU citizens. The NHS presents, however, many imperfections. It does not contain information about the health care expenditure received by each individual and only comprises information about the yearly number of visits to the general practitioner and specialists, days of hospitalization and emergency room visits.

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[11] See Eurostat (2005) for details.

In addition, we only know who financed a health care service in the case of the last utilization for each category, which means around 70% of total services delivered. These problems are not new in the literature and some scholars like Abásolo (1998) and Urbanos (2000) offer some simple procedures to deal with these difficulties, which we have approximately followed here. In order to solve this problem we calculated the average proportion of publicly financed visits and days of hospitalization by immigrant status and type of coverage. We then applied these values to the 30% of services whose payer is unknown.[12] Lastly, once the number of publicly financed visits and days of hospitalization has been derived, it is possible to impute a value for public health expenditure to each person using the average cost of the different services provided by the National Health System (visits to the general practitioner and the specialist, days of hospitalization and emergency room visits). This information has been estimated from the *Ramón y Cajal Hospital 2004 Annual Report*, one of the most important Spanish hospitals, situated in Madrid, and the public price list of medical services of one of the Spanish autonomous regions (*Law of Public Fees of the Generalitat Valenciana of 2005*).[13] It should be noted that because of these limitations of the database, all health services within each category are valued at the same rate, although there is evidence to believe that immigrants are treated by pathologies that are less costly for the health system (Salazar *et al.*, 2003; López Vélez, 2006).[14]

Another problem of this survey is the high non-response rate for household income (more than half of the values are missing). With a view to solving this, we follow the procedure used by Urbanos (2000) and Álvarez (2001), using a different household survey (the Family Budget Survey 1990-1991) to estimate household income. For this purpose, we combine the NHS 2003 and the EU-SILC 2004, which is

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[12] Abásolo (1998) and Urbanos (2000) only used total average values. We consider that it is better to distinguish between immigrants and locals and that there may be important differences between those with only public health insurance and those with private coverage.

[13] Unfortunately, because of the decentralization process of the National Health System, since 1990 there is no central source of information on the average cost of different medical services on a nation-wide scale (personal communication from the Ministry of Health to the authors). Other researchers, like Abásolo (1998) and Urbanos (2000), have opted for using the latest data available on a national basis, which dates from 1990.

[14] For example, in 2005 15% of births in Spain were from a foreign mother. While the average cost of giving birth is 1,244€ (Cots and Castells, 2004), the average cost of a coronary bypass without PTCA (Percutaneous Transluminal Coronary Angioplasty) with cardiac catheterization, a pathology most frequently treated in the case of natives, is 13.431€ (Spanish Royal Decree Law 1207/2006 on the regulation of the Health Cohesion Fund) .

very similar to EU-SILC 2005 and includes information on household income in 2003.[15] Finally, it is worth mentioning that some civil servants in Spain can opt between the National Health System and private health services funded by the state. Since in the NHS there are serious difficulties to identify private services publicly funded from private services paid by individuals, those civil servants opting for private services were removed from the sample.

One relevant decision to be made *ex ante* the empirical analysis is to define who is an immigrant. In principle, one could choose between two alternatives: country of birth and nationality. The existence of different naturalization rules according to the country of origin (fewer years of residence for citizens from Latin American countries, for example) makes us favour the former criterion. Furthermore, the country of birth criterion is a common choice followed in other studies (Brücker *et al.*, 2002; Bird *et al.*, 1999; Hansen and Lofstrom, 2003; Anastassova and Paligorova, 2006). Therefore, we adopt the criterion of country of birth to define immigrant status in the analysis from EU-SILC. However, as in the NHS only information on citizenship is available, we followed the nationality criterion when working with this second database.

Another important point to address is whether to consider all foreign born population as immigrants. According to the local perception, one should consider as immigrants people born outside EU-15, a choice made for example, by Brücker *et al.* (2002). Unfortunately, both the EU-SILC 2005 and the NHS 2003 contain little information about the specific country of immigrants and it is only possible to distinguish between Spanish, EU-citizens (i.e., from a country belonging to the EU-25), other Europeans and people from other foreign countries. Therefore, we have defined nationals as people born in Spain or the present EU-25 and immigrants as people whose country of birth is outside of the EU. Fortunately, this criterion, although not the optimum, does not exclude Romanians or Bulgarians, two very important groups among immigrant workers according to Census data.

A final remark to be made has to do with our decision, when working with household data, of considering that the immigrant or the native status of a household is

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[15] The procedure followed here basically consists in estimating by OLS the determinants of log household income from the EU-SILC 2004 using a set of variables also present in the NHS 2003. The estimated coefficients are then used to predict and impute log income of households in the NHS 2003. All these calculations are available on request.

determined by its head, as it is commonly assumed in the literature (Borjas and Trejo, 1991; Hansen and Lofstrom, 2003; Anastassova and Paligorova, 2006).

5. IMMIGRANTS AND THE WELFARE STATE

5.1. Social transfers in cash

The take-up of cash benefits by immigrants *versus* locals is the obvious starting point in the discussion on the Welfare State implications of immigration. A first glance at take-up rates for the different social benefits available in Spain shows that a lower proportion of immigrants than nationals receive transfers (Table 1). However, if pensions are excluded, there is no statistical difference in take-up rates between both population groups. Considering the transfers individually, significant differences in the reception of benefits can be found only in pensions and sickness benefits, with a higher percentage of recipient households among local population. Regarding the rest of the benefits, although the proportion of immigrant households receiving some transfers (unemployment benefits, family assistance, social assistance and housing) is higher than among locals, the percentages are not statistically different. The low proportion of households (among both groups) receiving any social transfer apart from unemployment benefits and pensions can be observed. With relation to the average transfer received by households, a similar pattern arises.

In order to test to what extent the recorded differences between locals and immigrants in the receiving of social benefits are related to differences in the personal and occupational characteristics of both groups, we carry out several different econometric analyses. A detailed description of the variables considered in them is presented in Table A1 in Annex I. In the first place, we focus our attention on total social cash transfers, including and excluding pensions. This analysis is carried out at a household level, since most of these kinds of benefits are assigned on a household basis. Secondly, we analyse take-up rates for the two most important welfare programs in Spain: unemployment benefits and pensions. This second exercise is performed at an individual level and only people aged 16 or more are included.

TABLE 1 HERE

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As mentioned, the first step is to determine whether being an immigrant is a factor contributing, *ceteris paribus*, towards receiving cash transfers. With this aim, we estimate a *tobit* model, since social income (transfers received by each household) is a continuous variable with a high proportion of zero values. The use of hurdle or two-part models is not appropriate in this case since a household receiving 1 euro from social transfers is not essentially different from another one not receiving social transfers at all. Furthermore, if we considered health or education expenditures along with social transfers, there would probably not be any zero values, so we are not really working with a model with two variables (participation in the program and size of the transfer received). Letting y_i be a continuous variable denoting social benefits received by household I, the *tobit* model can be expressed as

$$y_i = \max(0, y_i^*) \qquad [1]$$

where y_i^* is a latent variable generated by the following process:

$$y_i^* = X_i \beta + u_i \qquad [2]$$

where

$$u_i \mid X_i \sim N(0, \sigma^2) \qquad [3]$$

X_i denotes a vector of observable socio-demographic characteristics of household i, including immigrant status, household size, household size squared, number of children in the household, and sex, age, marital status, education and main activity of household head. β is a vector of coefficients for each characteristic. We present average characteristics by household for welfare participation in Table 2. The results of these econometric exercises are showed in Tables 3 and 4. It can be observed that, even after controlling for several household and household head characteristics, being an immigrant household has a negative effect on cash transfers received (Table 3). If pensions are excluded from computed social income, once we control for observable

characteristics, the results found are very similar (table 4). These outcomes, like the ones reported above, may be explained by the non-universal nature of most Spanish social transfers and the important role played in the Spanish Welfare State by benefits related to the employment record of the beneficiary, like pensions and unemployment insurance.

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TABLE 2 HERE

TABLE 3 HERE

TABLE 4 HERE

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In the second step to studying social transfers in Spain, that is, analysing the take-up rates for the most important social programs, we closely follow the work of Brücker *et al.* (2002). By formulating a *probit* model, we aim to determine if being a non-EU citizen influences the probability of receiving unemployment benefits or pensions. The dependent variable is a binary variable, *Pi*, which adopts value 1 for individuals receiving unemployment benefits/pensions and value 0 otherwise. The model can be described as:

$$P_i = \Phi(X_i\beta) \qquad \forall\, i = 1, 2, ..., N \tag{4}$$

where $\Phi(.)$ is the normal cumulative density function, i is subscript that denotes the ith individual, X_i is a vector of observable socio-demographic characteristics of each individual, including immigrant status, household size, household size squared, number of children in the household, sex, age, marital status, education and main activity and β is a vector of coefficients for each characteristic. Table 5 shows the main descriptive statistics of variables used in the regression and econometric results are presented in Tables 6 and 7. Results are not surprising and agree with those reported above. While immigrant status is not relevant in explaining the reception of unemployment benefits, the probability of receiving pensions is lower for non-EU citizens, even after controlling by observable characteristics. Although eligibility for pension benefits mainly depends on age, portability problems (i.e., people who work for a long time outside Spain) can also help to explain this residual effect.

5.2. Public health expenditure

Using the NHS 2003 and following the methodology described in detail above, rates of public health services use for immigrants and locals are calculated and, then, a weighted public health spending is imputed to each individual. As it is presented in Table 8, according to the data, immigrants receive lower health expenditure than locals, but the difference is not significant in statistical terms. With respect to the use of health services, only significant divergences are detected for visits to the general practitioner and emergency services use, with locals showing slightly higher rates of use.

In order to see if the condition of immigrant *per se* is an explanatory variable of the use of health services, we perform a multivariate analysis. As in the previous sub-section, a *tobit* model is estimated, although other econometric techniques were also used to test the robustness of the results (see Annex II). Variables used in the analysis are described in detail in Table A2 in Annex I and the main descriptive statistics are presented in Table 9.

The model formulated here is very similar to the one presented above, but the analysis is carried out at an individual level. Imputed public health spending is the dependent variable and, apart from the immigrant status, the covariates are a set of need variables (self-perceived health status and variables associated with accidents, chronic and acute illnesses, smoking, drinking alcohol, practising sport and limitation of activity) and several socio-demographic variables (sex, age, age squared, educational

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level, marital status, main activity status, household income, household size, household size squared, number of children in the household, number of earners in the household and having or not private insurance).

The results of the econometric analysis (Table 10) indicate that, once we control for age, sex, different variables of health risk and a set of socioeconomic variables of the individuals, statistically speaking, immigrants do not consume more health services than locals (in addition, though non-significant –p-value is above 0.4-, the marginal effect of being immigrant is of only 50€). Furthermore, the application of other econometric techniques widely used in health economics, particularly, several sorts of two-part models (*probit*-OLS, *probit*-log OLS and *probit*-GLM) do not show different results. Therefore, the hypothesis of an over-consumption of health services by immigrants should be rejected.

<div align="center">**TABLE 10 HERE**</div>

6. CONCLUSIONS

Our aim in this paper has been to deal in a comprehensive way with the topic of immigration and Welfare use in Spain. The analysis presented here includes two different dimensions: social benefits in cash and use of public health services. By means of two representative household surveys, it was found, firstly, that immigrant households receive fewer cash transfers than local ones, even after controlling for observable characteristics, and this result holds even if pension income is excluded. The profile of the Spanish Welfare State, with one of the lowest levels of social spending in the EU-15 and its emphasis on contributory benefits, may contribute to explain these findings. In the second place, regarding the use of public health services, the results presented here have shown that health spending received by immigrants is not statistically higher than that allocated to natives. These results do not necessarily imply that immigration will not put more pressure on the Spanish Welfare State. It is possible that in a few years, when the immigrant population has aged and satisfies to a larger extent requirements and eligibility conditions for pensions and unemployment benefits, a phenomenon of migrant Welfare dependency will arise. Anyway, because of the scant

priority given to means-tested programs by Spanish governments, the relevance of this issue would be smaller than in other countries with more generous Welfare regimes.

This work also shows several limitations. The most important one is the sample sizes of the household surveys used. Although the study uses the most recent and largest databases, which are of substantially higher quality than those used in previous literature, only a few hundred observations of immigrants are available. Furthermore, the definition of immigrant is far from being optimal. As a consequence, this work could be extended in several directions. Firstly, the release of new health databases (such as the NHS 2006) will make it possible to check the robustness of some of the results presented here. In the second place, a separate study on the different determinants of the demand of public health services is required in order to better understand potential behaviour differences between immigrants and locals. Finally, future waves of the EU-SILC will allow studies to be carried out on Welfare recipiency from a (much richer) longitudinal perspective.

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ANNEX I

TABLE A1 HERE

TABLE A2 HERE

ANNEX II

TABLE A3 HERE

Figure 1. GDP per capita and public social spending as % of the GDP in the EU-25 and the EES (2004)
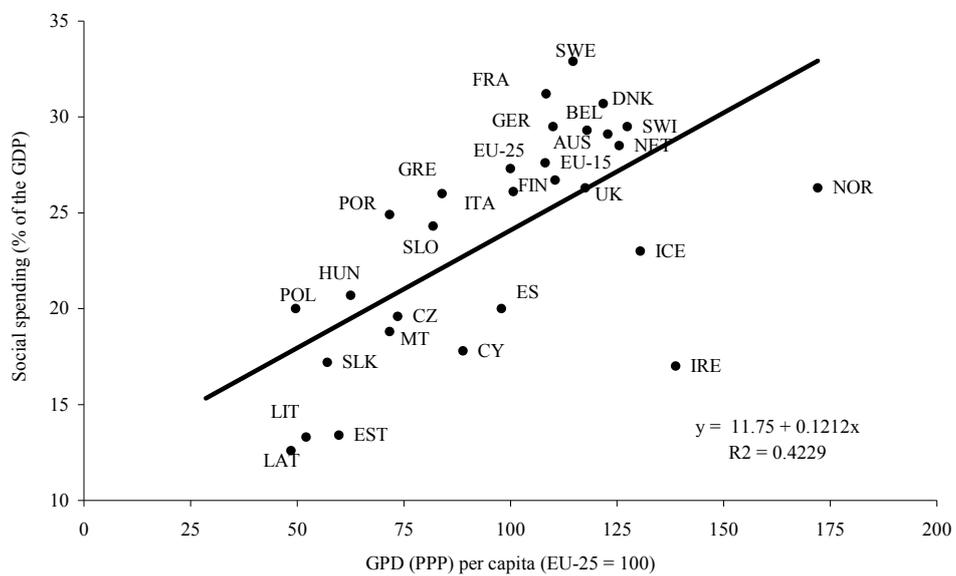
Source: Authors' analysis from Eurostat database.

Figure 2. Social spending by category in Spain (as % of the GDP) as % of the EU-15 equivalent (2004)
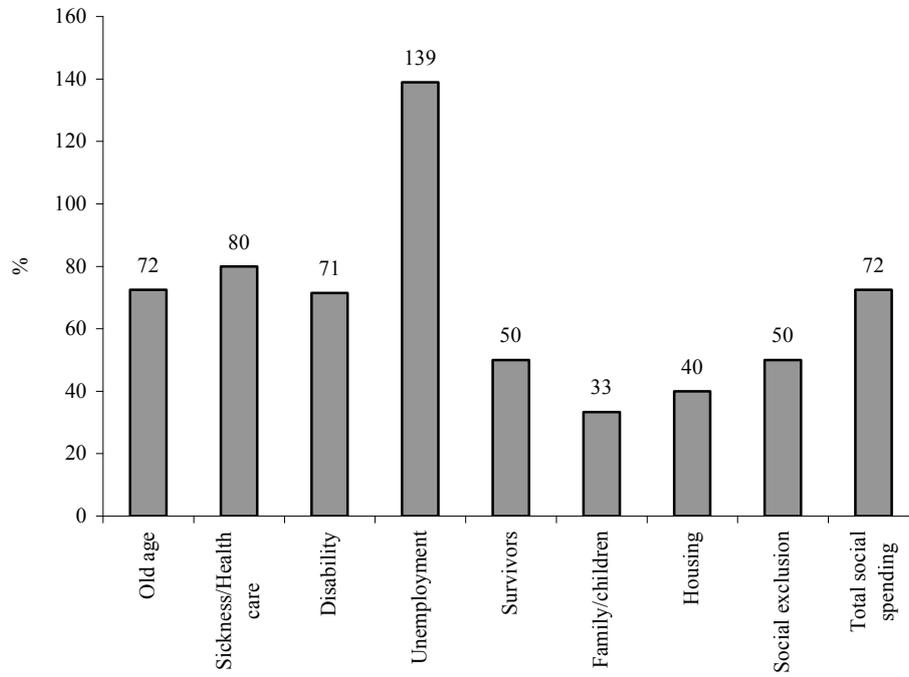
Source: Authors' analysis from Eurostat database.

Table 1. Estimates of the take-up rates of social cash benefits and average transfers for locals and immigrants in Spain (2004)

	% household receiving cash transfers				Average cash transfer received (euros, all households)				Average cash transfer received (euros, only recipient households)			
	Total	Locals	Immigrants	Means test	Total	Locals	Immigrants	Means test	Total	Locals	Immigrants	Means test
Any social benefit	56.6	57.6	32.4	***	5,092	5,234	1,787	***	8,999	9,084	5,512	***
Any social benefit (except pensions)	23.2	23.2	23.6		1,040	1,054	712	***	4,489	4,554	3,018	***
Pensions	41.7	43.0	11.3	***	4,399	4,539	1,168	***	10,592	10,593	10,484	
Unemployment benefits	11.0	10.9	13.4		409	409	409		3,780	3,817	3,092	
Sickness benefits	3.1	3.2	1.6	***	132	136	44	***	4,584	4,615	3,080	**
Family assistance	3.0	3.0	3.6		58	58	42		1,910	1,947	1,178	***
Social assistance	0.7	0.6	1.4		15	14	31		2,190	2,185	2,250	
Housing	0.8	0.8	1.9		41	40	72		4,880	5,000	3,741	
Scholarships	4.0	4.0	3.9		44	45	24		1,161	633	1,184	*

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from EU-SILC 2005.

Table 2. Main observable characteristics by immigrant status and welfare recipiency

	Any social benefit				Any social benefit (except pensions)			
	Locals		Immigrants		Locals		Immigrants	
	Non rec.	Rec.	Non rec.	Rec.	Non rec.	Rec.	Non rec.	Rec.
Household characteristics								
Household size (mean)	3.0	2.7	3.4	3.3	2.7	3.3	3.3	3.5
Number of children (mean)	0.5	0.2	0.8	0.8	0.3	0.5	0.7	1.0
Number of earners (mean)	1.7	0.8	1.7	1.4	1.1	1.3	1.6	1.6
H.H. characteristics								
Sex (%)								
Man	75.7	62.9	70.0	75.3	67.9	69.8	69.2	80.0
Woman	24.3	37.1	30.0	24.7	32.2	30.2	30.9	20.0
Age group (%)								
25 or under	1.4	0.6	3.9	0.0	0.9	1.1	3.4	0.0
26 to 45	54.6	18.6	69.1	58.8	31.6	41.5	61.7	78.9
46 to 60	37.1	21.9	24.7	21.0	25.9	36.6	25.4	17.2
61 or over	6.9	58.9	2.3	20.2	41.7	20.8	9.4	3.9
Education (%)								
Elementary	24.7	60.3	24.3	20.0	45.8	43.2	24.7	17.2
Basic	21.3	13.8	10.8	8.6	16.1	20.0	9.9	10.8
Intermediate	23.3	12.1	35.5	33.1	16.5	18.0	35.7	31.3
High	30.7	13.8	29.4	38.3	21.6	18.8	29.7	40.7
Marital status (%)								
Single	17.4	10.6	27.6	17.4	13.8	12.7	25.6	20.0
Married	74.4	62.7	58.8	66.5	65.7	74.1	59.9	65.7
Divorced/separated	6.7	3.8	10.8	10.1	4.8	5.7	10.5	10.9
Widow/widower	1.5	22.9	2.8	6.0	15.7	7.4	4.0	3.4
Activity (%)								
Employed	72.6	25.2	79.5	61.7	43.7	50.6	74.8	70.4
Self-employed	18.7	5.3	11.4	3.3	11.6	8.9	10.3	3.9
Unemployed	2.8	5.8	5.0	13.0	2.2	12.2	4.5	17.4
Retired	0.0	44.0	0.0	13.6	29.4	12.0	5.3	1.4
Other inactivity	5.9	19.7	4.1	8.4	13.1	16.3	5.0	6.9
% of total households	95.9		4.1		95.9		4.1	
% receiving benefits	57.6		32.4		23.2		23.6	
Transfers received (euros) (mean)	5,234		1,787		1,054		712	

Source: Authors' analysis from EU-SILC 2005.

Table 3. Determinants of social benefits recipiency in Spain (*tobit* model) (2004)

	Coefficients	M.E.	Coefficients	M.E.	Coefficients	M.E.
Constant	1658.2 ***		1787.5 ***		-8156.0 ***	
Immigrant (Local = 0)	-7710.1 ***	-3272.0 ***	-3216.3 ***	-1600.3 ***	-1725.2 **	-970.9 ***
Household characteristics						
Household size			3934.2 ***	2208.8 ***	4600.5 ***	2768.2 ***
Household size squared			-47.0	-26.4	-301.8 ***	-181.6 ***
Number of children			-5889.1 ***	-3306.3 ***	-2402.4 ***	-1445.6 ***
Number of earners			-7331.5 ***	-4116.1 ***	-2388.4 ***	-1437.2 ***
Household head characteristics						
Women (man = 0)					-330.9	-198.2
Age of household head (61 or more = 0)						
25 or under					-4930.0 ***	-2375.7 ***
26 to 45					-3666.0 ***	-2106.1 ***
46 to 60					-2648.6 ***	-1517.8 ***
Marital status (married = 0)						
Single					2052.9 ***	1307.3 ***
Divorced/separated					-46.7	-28.0
Widow/widower					2701.6 ***	1751.1 ***
Education (Elementary = 0)						
Basic					1056.7 ***	653.7 ***
Intermediate					1553.3 ***	972.0 ***
High					2481.2 ***	1575.9 ***
Activity (Employed = 0)						
Self-employed					-882.3	-516.0 *
Unemployed					5315.2 ***	3768.9 ***
Retired					11857.1 ***	8541.8 ***
Other inactivity					7042.8 ***	5023.5 ***
R^2	0.01		0.29		0.44	
Wald χ	83.23***		1,501.2***		2,050.1***	
Observations	12,661		12,661		12,661	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from EU-SILC 2005.

Table 4. Determinants of social benefits recipiency (apart from pensions) (*tobit* model) in Spain (2004)

	Coefficients	M.E.	Coefficients	M.E.	Coefficients	M.E.
Constant	-7,247.3 ***		-15,752.5 ***		-17,442.7 ***	
Immigrant (Local = 0)	-517.4	-109.5	-736.1	-145.5	-1,822.6 **	-341.1 ***
Household characteristics						
Household size			4,686.1 ***	974.7 ***	4,433.8 ***	947.4 ***
Household size squared			-381.8 ***	-79.4 ***	-340.9 ***	-72.8 ***
Number of children			-263.8	-54.9	-1,115.5 ***	-238.3 ***
Number of earners			-930.3 ***	-193.5 ***	-786.2 ***	-168.0 ***
Household head characteristics						
Women (man = 0)					-1,686.9 ***	-343.7 ***
Age of household head (61 or more = 0)						
25 or under					2,622.5 **	682.0 *
26 to 45					4,052.3 ***	957.8 ***
46 to 60					2,927.0 ***	693.1 ***
Marital status (married = 0)						
Single					1,941.4 ***	462.7 ***
Divorced/separated					1,659.6 ***	397.9 ***
Widow/widower					-774.8	-158.3
Education (Elementary = 0)						
Basic					-662.5 *	-136.7 *
Intermediate					-925.6 **	-188.7 **
High					-854.0 **	-175.7 **
Activity (Employed = 0)						
Self-employed					-1,756.6 ***	-336.8 ***
Unemployed					7,625.3 ***	2,675.0 ***
Retired					-775.1	-160.6
Other inactivity					4,939.3 ***	1,390.9 ***
R^2	0.00		0.02		0.07	
Wald test			**		***	
Observations	12,661		12,661		12,661	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from EU-SILC 2005.

Table 5. Main observable characteristics by immigrant status and unemployment benefits and pensions recipiency

| | Unemployment benefits | | | | Pensions | | | |
| | Locals | | Immigrants | | Locals | | Immigrants | |
	Non rec.	Rec.	Non rec.	Rec.	Non rec.	Rec.	Non rec.	Rec.
Personal characteristics								
Sex (%)								
Man	48.8	48.7	47.9	61.2	47.7	52.6	48.6	49.0
Woman	51.2	51.3	52.1	38.9	52.3	47.4	51.4	51.1
Age group (%)								
25 or under	13.4	6.2	17.5	2.0	16.4	0.9	17.5	0.0
26 to 45	37.1	58.3	58.0	82.9	47.9	3.5	62.2	5.9
46 to 60	22.2	28.4	17.0	15.1	25.9	10.5	17.0	14.3
61 or over	27.2	7.1	7.5	0.0	9.7	85.2	3.4	79.7
Education (%)								
Elementary	38.7	35.6	23.5	15.7	28.0	76.3	21.9	46.7
Basic	19.7	27.5	16.9	9.6	23.2	8.7	17.1	4.7
Intermediate	20.1	19.1	34.5	32.7	23.7	7.0	34.2	38.8
High	21.6	17.8	25.1	42.0	25.1	8.0	26.9	9.7
Marital status (%)								
Single	30.2	28.5	34.9	32.0	35.9	9.6	36.2	6.5
Married	58.7	65.4	54.7	59.3	60.2	54.9	55.5	45.8
Divorced/separated	2.9	5.1	6.5	4.2	3.3	2.0	6.2	10.5
Widow/widower	8.2	1.0	3.9	4.6	0.6	33.6	2.2	37.3
Work experience	17.9	17.6	13.3	15.9	13.9	32.0	12.8	26.7
Household characteristics								
Household size (mean)	3.3	3.4	3.8	3.4	3.5	2.5	3.8	3.0
Number of children (mean)	0.3	0.5	0.8	0.9	0.4	0.1	0.8	0.2
Number of earners (mean)	1.4	1.4	1.8	1.6	1.7	0.5	1.9	0.8
% of total population	95.8		4.2		95.8		4.2	
% receiving benefits	5.2		5.7		21.8		4.9	

Source: Authors' analysis from EU-SILC 2005.

Table 6. Determinants of unemployment insurance dependency in Spain (*probit* model) (2004)

	Coefficients	M.E. (%)	Coefficients	M.E. (%)		Coefficients	M.E. (%)
Constant	-1.630 ***		-1.403			-1.366 ***	
Immigrant (Local = 0)	0.045	0.5	-0.033	-0.3		-0.010	-0.1
Personal characteristics							
Sex (Man = 0)			0.087 **	0.8	**	0.093 **	0.8 **
Age (26 to 45 = 0)							
25 or under			-0.533 ***	-3.3	***	-0.514 ***	-3.2 ***
46 to 60			-0.248 ***	-1.9	***	-0.258 ***	-2.0 ***
61 or over			-0.970 ***	-6.0	***	-1.097 ***	-6.6 ***
Education (Elementary = 0)							
Basic			-0.029	-0.2		-0.015	-0.1
Intermediate			-0.211 ***	-1.6	***	-0.193 ***	-1.5 ***
High			-0.312 ***	-2.3	***	-0.284 ***	-2.2 ***
Marital status (Married = 0)							
Single			0.024	0.2		0.030	0.3
Divorced/separated			0.129 *	1.2	*	0.100	0.9
Widow/widower			-0.511 ***	-3.1	***	-0.511 ***	-3.1 ***
Work experience			0.007 ***	0.1	***	0.009 ***	0.1 ***
Household characteristics							
Household size						0.056	0.5
Household size squared						-0.005	0.0
Number of children						-0.015	-0.1
Number of earners						-0.117 ***	-1.0 ***
Mc Fadden R^2	0.00		0.06			0.07	
Wald χ	0.3		449.3***			465.2***	
Observations	29,203		29,203			29,203	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from EU-SILC 2005.

Table 7. Determinants of pensions dependency in Spain (*probit* model) (2004)

	Coefficients	M.E. (%)	Coefficients	M.E. (%)	Coefficients	M.E. (%)
Constant	-0.777 ***		-0.634 ***		-0.595 ***	
Immigrant (Local = 0)	-0.875 ***	-16.9 ***	-0.366 ***	-7.1 ***	-0.398 ***	-5.4 ***
Personal characteristics						
Sex (Man = 0)			-0.093	-6.2	-0.104	-5.5
Age (26 to 45 = 0)						
25 or under			0.489 ***	-1.5 ***	0.351 ***	-1.3 ***
46 to 60			2.111 ***	9.7 ***	1.625 ***	5.5 ***
61 or over			-0.287 ***	57.0 ***	-0.217 ***	37.0 ***
Education (Elementary = 0)						
Basic			-0.279 ***	-4.3 ***	-0.182 ***	-2.7 ***
Intermediate			-0.395 ***	-4.2 ***	-0.260 ***	-2.3 ***
High			0.610 ***	-5.7 ***	0.537 ***	-3.2 ***
Marital status (Married = 0)						
Single			0.339 ***	12.0 ***	0.340 ***	8.6 ***
Divorced/separated			2.146 ***	6.9 ***	2.423 ***	5.8 ***
Widow/widower			0.023 ***	67.7 ***	0.029 ***	73.1 ***
Work experience			-2.310 ***	0.4 ***	0.241 ***	0.4 ***
Household characteristics						
Household size					-0.005	3.3
Household size squared					-0.245 ***	-0.1 ***
Number of children					-0.647 ***	-3.3 ***
Number of earners					-2.171 ***	-8.8 ***
Mc Fadden R^2	0.09		0.59		0.64	
Wald test	***		***		***	
Observations	29,203		29,203		29,203	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from EU-SILC 2005.

Table 8. Use of health services by locals and immigrants (2003)

	Total	Locals	Immigrants	Means test
Average total expenditure (euros)	852	857	714	
Visits to the general practitioner	7.45	7.53	4.99	***
Visits to the specialist	2.97	2.98	2.54	
Days of hospitalization	0.87	0.87	0.77	
Emergency room visits	0.44	0.44	0.37	**

*** significant at 1%; ** significant at 5%; * significant at 1%.

Source: Authors' analysis from NHS 2003.

Table 9. Main observable characteristics by immigrant status and public health spending recipiency

	Locals		Immigrants	
	Non rec.	Rec.	Non rec.	Rec.
Need variables				
Sex (%)				
Man	61.1	46.5	62.6	45.2
Woman	38.9	53.5	37.4	54.8
Age (mean)	35.6	41.1	28.8	28.5
Health status (%)				
Very good	22.8	10.9	22.0	15.8
Good	69.4	55.0	72.9	59.8
Not bad	7.0	24.6	4.6	21.7
Bad	0.8	7.2	0.5	2.2
Very bad	0.1	2.4	0.0	0.6
Accidents (%)	2.8	11.7	0.0	11.0
Chronic illnesses (%)	19.5	49.2	12.1	24.6
Acute illnesses (%)	5.2	26.6	3.5	22.4
Limitation of activity (last year) (%)	5.9	16.6	7.3	15.2
Limitation of activity (2 weeks) (%)	4.0	18.5	1.9	6.9
Smoker (%)	33.7	24.9	25.0	19.2
Alcohol (%)	17.7	14.4	7.5	5.1
Sport (%)	47.8	44.2	39.6	39.8
Socio-demographic variables				
Personal variables				
Education (%)				
Elementary	34.0	47.2	30.9	37.6
Basic	19.6	19.3	16.5	14.0
Intermediate	26.4	21.1	35.1	31.3
High	20.0	12.4	17.5	17.1
Marital status (%)				
Single	50.1	41.4	53.3	54.1
Married	45.3	49.1	44.4	39.9
Divorced/separated	2.3	2.2	2.2	4.1
Widow/widower	2.3	7.3	0.0	1.8
Activity (%)				
Aged 16 or under	11.4	16.4	11.5	21.2
Employed	55.6	35.8	65.3	49.8
Unemployed	6.1	4.9	6.4	6.0
Retired	6.5	18.8	0.5	2.4
Other inactivity	20.5	24.2	16.3	20.7
Household variables				
Household size (mean)	3.8	3.5	4.5	4.3
Number of children (mean)	0.7	0.6	1.1	1.1
Number of earners (mean)	1.6	1.3	2.3	1.9
Log household income (mean)	10.0	9.9	10.1	10.0
Private insurance (%)	20.6	11.1	14.3	4.7
% of total population	96.8		3.2	
% receiving health spending	81.4		79.1	
Health spending received (euros) (mean)	857		714	

Source: Authors' analysis from NHS 2003.

Table 10. Determinants of health care expenditure in Spain (*tobit* model) (2003)

	Coefficients	M.E.	Coefficients	M.E.	Coefficients	M.E.
Constant	410.0 ***		336.1 ***		-967.8	
Immigrant (Local = 0)	-211.5 *	-113.8 *	118.3	62.4	97.6	52.3
Need variables						
Women (Man = 0)			81.4	42.4	119.2 *	63.2 *
Age			-42.9 ***	-22.3 ***	-38.5 ***	-20.4 ***
Age squared			0.5 ***	0.2 ***	0.3 ***	0.2 ***
Health status (Good = 0)			-331.0 ***	-166.8 ***		
Very good			476.0 ***	256.4 ***	-292.2 ***	-150.7 ***
Not bad			1691.0 ***	1044.7 ***	441.0 ***	241.3 ***
Bad			3315.3 ***	2363.4 ***	1639.4 ***	1023.9 ***
Very bad			775.5 ***	435.7 ***	3238.6 ***	2324.7 ***
Accidents			430.9 ***	226.0 ***	798.4 ***	457.4 ***
Chronic illnesses			1213.8 ***	685.5 ***	420.2 ***	224.4 ***
Acute illnesses			448.5 ***	243.0 ***	1220.3 ***	701.4 ***
Limitation of activity (last year)			21.7	11.3	444.7 ***	245.2 ***
Limitation of activity (2 weeks)			-128.0 **	-66.1 **	-9.6	-5.1
Smoker			-99.9	-51.5	-106.9 *	-56.3 *
Alcohol			-127.3 ***	-66.1 ***	-119.1 *	-62.4 *
Sport					-106.7 **	-56.5 **
Socio-demographic variables						
Personal variables						
Education (Elementary = 0)						
Basic					76.5	40.8
Intermediate					68.2	36.3
High					102.3	54.7
Marital status (Married = 0)						
Single					312.6 ***	166.0 ***
Divorced/separated					355.9 ***	196.8 ***
Widow/widower					320.9 *	176.2 *
Activity (Employed = 0)						
Under 16 years old					198.0	106.8
Unemployed					-48.6	-25.6
Retired					606.8 ***	338.5 ***
Other inactivity					89.7	47.9
Household variables						
Household size					-46.8	-24.8
Household size squared					0.9	0.5
Number of children					7.6	4.0
Number of earners					-81.1 *	-43.0 *
Household income					144.9	76.8
Private insurance					-793.4 ***	-388.8 ***
R^2	0.00		0.12		0.13	
Wald test	*		**		**	
Observations	27,075		27,075		27,075	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from NHS 2003.

Table A1. Description of the variables used in cash transfers regressions

Variable	Description
Social benefits	Continuous variable: State income transfers (euros) received by the household in 2004.
UB recipient	Dummy variable: Unemployment benefit recipient (0=No; 1=Yes).
Pension recipient	Dummy variable: Pension recipient (0=No; 1=Yes).
Household size	Count variable: Number of people living in the household.
Household size squared	Count variable: Number of people living in the household squared.
Number of earners	Count variable: Number of people earning labour income in the household.
Number of children	Count variable: Number of children aged 14 or under in the household.
Household head	Dummy variable: If the individual is the head of the household (0=No; 1=Yes).
Sex	Dummy variable: Sex of the individual (0=Man; 1=Woman).
Age	Three dummy variables: Age of the individual (25 or under, 46-60, 61 and over; omitted category=26-45). Dummy variables are used because the age variable in the EU-SILC is top-coded at 80.
Marital status	Four dummy variables: Marital status of the individual (Single, Widowed, Separated or Divorced; omitted category=Married).
Education	Three dummy variables: Educational level of the individual (Basic, Medium, High; omitted category=Elementary).
Activity status	Three dummy variables: Main economic activity status of the individual in 2004 (Self-employed, Unemployed, Retired, Other inactivity; omitted category=Employed).
Work experience	Continuous variable: Number of years worked.
Immigrant	Dummy variable: Immigrant status (0=Local; 1=Immigrant).
HH sex	Dummy variable: Sex of the household head (0=Man; 1=Woman).
HH age	Three dummy variables: Age of the household head (25 or under, 26-45, 46-60; omitted category=61 and over). A continuous variable is not used because the variable "age" in the EU-SILC is top coded at 80.
HH marital status	Four dummy variables: Marital status of the household head (Married, Widowed, Separated or Divorced; omitted category=Single).
HH education	Three dummy variables: educational level of the household head (Basic, Medium, High; omitted category=Elementary).
HH immigrant	Dummy variable: Immigrant status of the household head (0=Local; 1=Immigrant).
HH activity status	Three dummy variables: Main economic activity status of the household head in 2004 (Self-employed, Unemployed, Retired, Other inactivity; omitted category=Employed).

Table A2. Description of the variables used in the public health care spending regressions

Variable	Description
HC expenditure	Continuous variable: Public health care expenditure received by the individual.
Health status	Four dummy variables: Health self-perception (Good, Regular, Bad, Very Bad; omitted category=Very Good).
Accidents	Dummy variables: Having suffered an accident in the last year (0=No; 1=Yes).
Chronic illnesses	Dummy variable: Having suffered a chronic illness in the last year (0=No; 1=Yes).
Acute illnesses	Dummy variable: Having suffered an acute illness in the last two weeks (0=No; 1=Yes).
Limitation of activity (last year)	Dummy variable: Limitation of the individual activity for more than ten days by an acute illness in the last year (0=No; 1=Yes).
Limitation of activity (last two weeks)	Dummy variable: Limitation of the individual activity in the last two weeks (0=No; 1=Yes).
Smoker	Dummy variable: Smoking (0=No; 1=Yes).
Alcohol	Dummy variable: Drinking alcoholic drinks daily (0=No; 1=Yes).
Sport	Dummy variable: Performing physical exercise daily (0=No; 1=Yes).
Sex	Dummy variable: Sex of the individual (0=Man; 1=Woman).
Age	Continuous variable: Age of the individual.
Age squared	Continuous variable: Age of the individual squared/100.
Marital status	Four dummy variables: Marital status of the individual (Married, Widowed, Legally Separated, Divorced; omitted category=Single).
Education	Three dummy variables: Educational level of the individual (Basic, Medium, High; omitted category=Elementary). If the individual is under 16 years old, the educational level of the household is reported.
Income	Continuous variable: Ln of equivalised household income/1000.
Activity status	Four dummy variables: Activity of the individual (Employed, Unemployed, Retired, Other type of inactivity; omitted category=individuals aged under 16).
Household size	Count variable: Number of people living in the household.
Household size squared	Count variable: Number of people living in the household squared.
Number of earners	Count variable: Number of people earning labour income in the household.
Number of children	Count variable: Number of children aged 14 or under in the household.
Private insurance	Dummy variable: Having a private health insurance plan (0=No; 1=Yes).
Immigrant	Dummy variable: Immigrant status (0=Local; 1=Immigrant).

Table A3. Determinants of health care expenditure in Spain (several specifications) (2003)

	Probit		OLS	Log OLS	GLM
	Coefficients	M.E. (%)	Coefficients	Coefficients	Coefficients
Constant	2.184 ***		-1091.6	6.332 ***	6.303 ***
Immigrant (Local = 0)	0.081	2.1	24.4	0.027	0.119
Need variables					
Women (Man = 0)	0.312 ***	8.2 ***	-131.2 **	0.008	-0.056 *
Age	-0.045 ***	-1.2 ***	-14.6 *	-0.024 ***	-0.026 ***
Age squared	0.000 ***	0.0 ***	0.1	0.000 ***	0.000 ***
Health status (Good = 0)					
Very good	-0.246 ***	-7.0 ***	-30.8	-0.122 ***	-0.091 **
Not bad	0.392 ***	9.3 ***	240.1 ***	0.262 ***	0.281 ***
Bad	0.524 ***	11.0 ***	1494.8 ***	0.539 ***	0.759 ***
Very bad	0.797 ***	14.0 ***	3079.5 ***	0.696 ***	1.061 ***
Accidents	0.776 ***	14.9 ***	441.0 ***	0.192 ***	0.312 ***
Chronic illnesses	0.535 ***	13.6 ***	-3.0	0.194 ***	0.180 ***
Acute illnesses	0.582 ***	13.1 ***	970.4 ***	0.446 ***	0.807 ***
Limitation of activity (last year)	0.139 ***	3.5 ***	404.2 ***	0.507 ***	0.457 ***
Limitation of activity (2 weeks)	-0.123 *	-3.4 *	128.2	-0.013	-0.005
Smoker	-0.011	-0.3	-120.0 *	-0.067 ***	-0.089 **
Alcohol	-0.106 ***	-2.9 ***	-66.1	-0.038	-0.049
Sport	0.050 *	1.3 *	-163.9 ***	-0.054 ***	-0.114 ***
Socio-demographic variables					
Personal variables					
Education (Elementary = 0)					
Basic	0.052	1.3	37.5	0.073 ***	0.035
Intermediate	0.073 *	1.9 *	5.1	0.050 *	0.009
High	0.063	1.6	85.6	0.029	0.039
Marital status (Married = 0)					
Single	0.289 ***	7.6 ***	80.4	0.218 ***	0.213 ***
Divorced/separated	0.168 **	4.1 **	209.9	0.262 ***	0.255 **
Widow/widower	0.056	1.4	276.6	0.125 **	0.172 **
Activity (Employed = 0)					
Under 16 years old	0.151 *	3.8 *	-61.4	0.086	0.034
Unemployed	-0.048	-1.3	-64.0	0.058	0.085
Retired	0.092	2.4	490.8 ***	0.234 ***	0.282 ***
Other inactivity	0.005	0.1	59.9	0.112 ***	0.145 ***
Household variables					
Number of children	0.074 *	2.0 *	-120.0	-0.065 **	-0.077 **
Number of earners	-0.010 **	-0.3 **	10.6	0.006 *	0.004
Household size	-0.037	-1.0	42.4	0.009	0.054 *
Household size squared	-0.018	-0.5	-82.2 *	0.007	-0.008
Household income	-0.121 **	-3.2 **	236.7 *	-0.022	0.042
Private insurance	-0.472 ***	-14.4 ***	-482.5 ***	-0.747 ***	-0.623 ***
R^2	0.17		0.11	0.27	
Wald test	***		***	***	
AIC					15.35
Observations	27,075		22,658	22,658	22,658

*** significant at 1%; ** significant at 5%; * significant at 10%.

Source: Authors' analysis from NHS 2003.