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Changes in the characteristics of Spanish poor households: the case of Imputed Rent

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Abstract

Poverty has been an important area of study in Spain for a long period of time. Many authors have analyzed the number and characteristics of Spanish poor population. Nevertheless, one of the most important criticisms to Spanish studies is related to the variable selected to calculate household's income. Until 2007 the Survey on Income and Living Conditions (SILC) did not include an estimation of the value of house's ownership. The lack of that estimation could provoke biased results at least by two ways: it underestimates some incomes and, at the same time, it affects families' distribution around the poverty line. In 2007 this variable, called *Imputed Rent (IMRENT)*, was calculated for the first time in Spain. Therefore, it was possible to use it and compare the results obtained following the traditional methodology or introducing a new calculation of Income per Unit of Equivalent Consumption in Spanish households taking into account IMRENT. We present a descriptive analysis and a probit estimation to calculate the probability of leaving poverty when the variable is considered. The results show the relevance of this proxy to households' wealth since its incorporation change the profile of Spanish poor: if we do not consider it most people older than 65 years are under poverty line, especially women. But if we include it a big share of widows and retired people cross the border and leave poverty. There is a clear economic policy implication: in the actual situation, with problems to finance Public Pensions' System, it should be necessary to take into account not only current income but wealth to calculate Spanish widow's and retirement pensions. Nevertheless, this policy orientation must be conditioned to changes in Spanish property market to be able to realize those assets. We also obtain a positive effect of been the house owners or if the family is paying a mortgage.

Poverty is an important area of study in Spanish Economic Science. From Plan CCB (1965) to Sánchez (2010) many authors have analyzed families' income and/or expenditure in order to obtain the number and characteristics of poor people in Spain. The results are very heterogeneous, as we could see in Appendix I.

One of the main criticisms to Spanish poverty studies is related to the variable selected to compute household income. Until 2007 the Spanish Statistics on Income and Living Conditions (SILC) did not include an estimation of *Imputed Rent (IMRENT)*. This is a variable associated to house property, and since more than 80% of Spanish families are house owners it is almost sure that the exclusion of this variable biases the results at least by two ways: it underestimates some incomes and, at the same time, it affects families' distribution over and under the poverty line[1].

In 2007 the Spanish National Institute of Statistics (INE) changed the methodological approach to SILC and included, for the first time, an estimation of *Imputed Rent*[2]. Since the data provided by INE calculate income including and excluding IMRENT, we noticed the possibility of comparing the results obtained using the traditional methodology, without this variable, and a new approach incorporating it. Therefore, in this study we evaluate the number and characteristics of Spanish poor households taking into account the differences introduced by considering or not IMRENT. The results are presented in the rest of the article.

Previous to any poverty analysis is necessary to establish a selection criterion in order to identify the poor. As Amartya Sen (1976) first pointed out, one of the problems in poverty measurement consists in identifying the share of the population that could be classified as poor. That obliges to define a criterion, usually the *poverty line,* to separate poor people from the rest of the population. In this study we work with a *poverty line* obtained from an economic variable, the income per unit of equivalent consumption (IUEC), using European criteria. To work out IUEC we employ modified OECD equivalence scales and we establish the poverty line as the 60% of IUEC median. Additionally, that income is calculated in a double way: with and without *Imputed Rent*.

The article structures as follows: the first section describes the methodology we have employed to obtain IUEC and how this is affected by including or not IMRENT; in the second section we carry out a descriptive analysis of Spanish poverty taking into account family features and the differences between considering *Imputed Rent* or not; in the third one we

[1] One of the inconsistencies of Spanish poverty studies is that more than 60% of Spanish poor are house owners whit their house completely paid. The inclusion of IMRENT allows homogenizing incomes, it avoids the presence of enormous differences between house owners and not owners and it permits to obtain a new set of Spanish poor population characteristics (Sanchez (2010)).

[2] INE (2007)

estimate a probit model in order to determine how household characteristics can explain the change from been classified as poor without IMRENT and been no poor including this variable; section four concludes.

2. Household Income per Unit of Equivalent Consumption

As we have said in the Introduction, data come from the Statistics on Income and Living Conditions (SILC) in 2007 (observations from 2006) conducted by the Spanish Statistics National Institute (INE). The survey has a sample of 12,329 observations representing 16,116,202 Spanish households[3]. It is also significant at regional level.

The most important methodological change INE introduced in 2007 SILC was to take into account *Imputed Rent*. This variable refers to the value that would be attributed to any household which do not declare to pay a complete rent, whether the family is occupant-owner or because it lives in a house rented at a price smaller than market price o because it occupies it free of charge. This *Imputed Rent* is only calculated in the case of houses –and other associated places such as garages- used as the main residence.

The value attributed to IMRENT is obtained from the market rental paid for a similar house, taking away some concepts: if the house is rented at a smaller than market price then the rent already paid must be subtracted. If the tenant receives any Administration or ONG economic aid it should be taken away; if the family is the owner it must be deducted any Administration or ONG economic aid as well as maintenance or renovation expenditures. As for the market rental, it is the amount that should be paid for an unfurnished house in the private market without including house expenses.

Imputed Rent adds to other revenues to obtain total family's income[4]. In order to calculate the income per unit of equivalent consumption we divide household's income by the number of members using modified OECD equivalence scales. Its formula is:

$$e_h = 1+0.7(a_h - 1)+0.5m_h$$

Where e_h is the equivalent scale; a_h the number of adults in h household; and m_h the number o children under 16 years.

[3] We exclude those households with non positive income since it does not have any economic meaning.
[4] In Calvo, Martinez & Suarez (2008, pp 107-116) total household income as well as income per unit of equivalent consumption without Imputed Rent are worked out. Sanchez (2010) calculates personal income with and without IMRENT.

We define *poverty line* following EUROSTAT criterion as 60 per cent of the median of IUEC. Therefore, those families whose income per unit of equivalent consumption is under the 60 per cent of the distributional median have been classified as poor households.

3. Descriptive analysis of Spanish poor population

The median of Spanish households' income per unit of equivalent consumption in 2007 was 11,900€ per year without *Imputed Rent* and 14,723.35€ if we include that amount. In consequence, the poverty line was established in 7,140€ without IMRENT and 8,834.01€ with it. The results for Spanish population are summarized in Table 1.

Table 1.- Main features of poverty in Spain.

	Households			
	Without Imputed Rent		With Imputed Rent	
Median of income per unit of equivalent consumption	11,900 €/year		14,723.35€/year	
Poverty line 60% of the median	7,140 €/year		8,834.01€/year	
Households with IUEC under the poverty line	*Absolute Value*	*Share*	*Absolute Value*	*Share*
	3,189,622	20	2,223,001	14

Source: Drawn up by authors from SILC (2007)

As we can see in Table 1, the first result associated to IMRENT incorporation is the reduction in Spanish poor population. If we do not consider this variable the share of poor households reaches 20%, with more than 3 million families under the poverty line; meanwhile, if we include Imputed Rent the share reduces to 13.9% and the total number of households with an IUEC smaller than 60% of the median decreases by almost a million.

In fact, IMRENT incorporation implies movements in two ways: those households that transform from been poor when we do not consider this variable to be over the poverty line when we include it, and the contrary. Table 2 resumes those changes.

More than a million of Spanish households (1,152,926) *overcome* the poverty line when we include IMRENT in their Income per Unit of Equivalent Consumption, and only 186,304 go on the reverse direction. Therefore, the incorporation of this variable significantly changes the population and probably the characteristics of Spanish poverty.

In the following subsections we study the Spanish poor households depending on their features and how poverty distribution is affected by IMRENT.

Table 2.- Households changes due to IMRENT inclusion (number of).

		With Imputed Rent	
		Poor	No Poor
Without Imputed Rent	Poor	2,036,696 (12.8%)	1,152,926 (7.2%)
	No Poor	186,304 (1.2%)	12,597,519 (78.9%)

Source: Drawn up by authors from SILC (2007)

3.1. Location characteristics

The first variables we are going to consider are those related to household location. Two features can be analyzed in this case: the Autonomous Community the family lives; and the size of the town it is located.

3.1.1. Autonomous Communities

Spain is divided in 17 Autonomous Communities and 2 Autonomous Cities. The main results for this administrative classification are included in Table 3.

Table 3.- Poor households' distribution classified by Autonomous Communities.

	Without Imputed Rent				Without Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Andalucía	759174	28.4	23.8	1.4	527806	19.8	23.7	1.4
Aragón	69676	14.8	2.2	0.7	48481	10.3	2.2	0.7
Asturias	62511	15.4	2.0	0.8	45071	11.1	2.0	0.8
Canary Islands	187026	27.2	5.9	1.4	157805	22.9	7.1	1.6
Cantabria	29280	14.6	0.9	0.7	17584	8.8	0.8	0.6
Castilla-La Mancha	216124	32.3	6.8	1.6	157916	23.6	7.1	1.7
Castilla & León	240166	25.5	7.5	1.3	167559	17.8	7.5	1.3
Catalonia	350523	13.4	11.0	0.7	249869	9.5	11.2	0.7
Ceuta & Melilla	10534	25.1	0.3	1.3	9940	23.6	0.4	1.7
Community of Madrid	258680	12.0	8.1	0.6	143463	6.6	6.5	0.5

Community of Valencia	317810	17.8	10.0	0.9	210914	11.8	9.5	0.9
Extremadura	151839	40.2	4.8	2.0	136662	36.2	6.1	2.6
Galicia	214748	22.3	6.7	1.1	146569	15.3	6.6	1.1
Balearic Islands	61658	15.9	1.9	0.8	37234	9.6	1.7	0.7
La Rioja	21920	19.0	0.7	1.0	17785	15.4	0.8	1.1
Navarra	16767	7.6	0.5	0.4	10869	4.9	0.5	0.4
Basque Country	101188	12.7	3.2	0.6	61173	7.7	2.8	0.6
Murcia	119998	25.9	3.8	1.3	76302	16.5	3.4	1.2
TOTAL	3 189 622	20.0	100.0	1.0	2 223 001	13.9	100.0	1.0

Source: Drawn up by authors from SILC (2007)

(1) Number of poor households

(2) Share of poor households in Autonomous Community's total population.

(3) Share of Autonomous Community poor households in national poor households. Percentage contribution to poverty

(4) Ratio between the share of Autonomous Community poor households and the share of national poor households. Relative contribution to poverty.

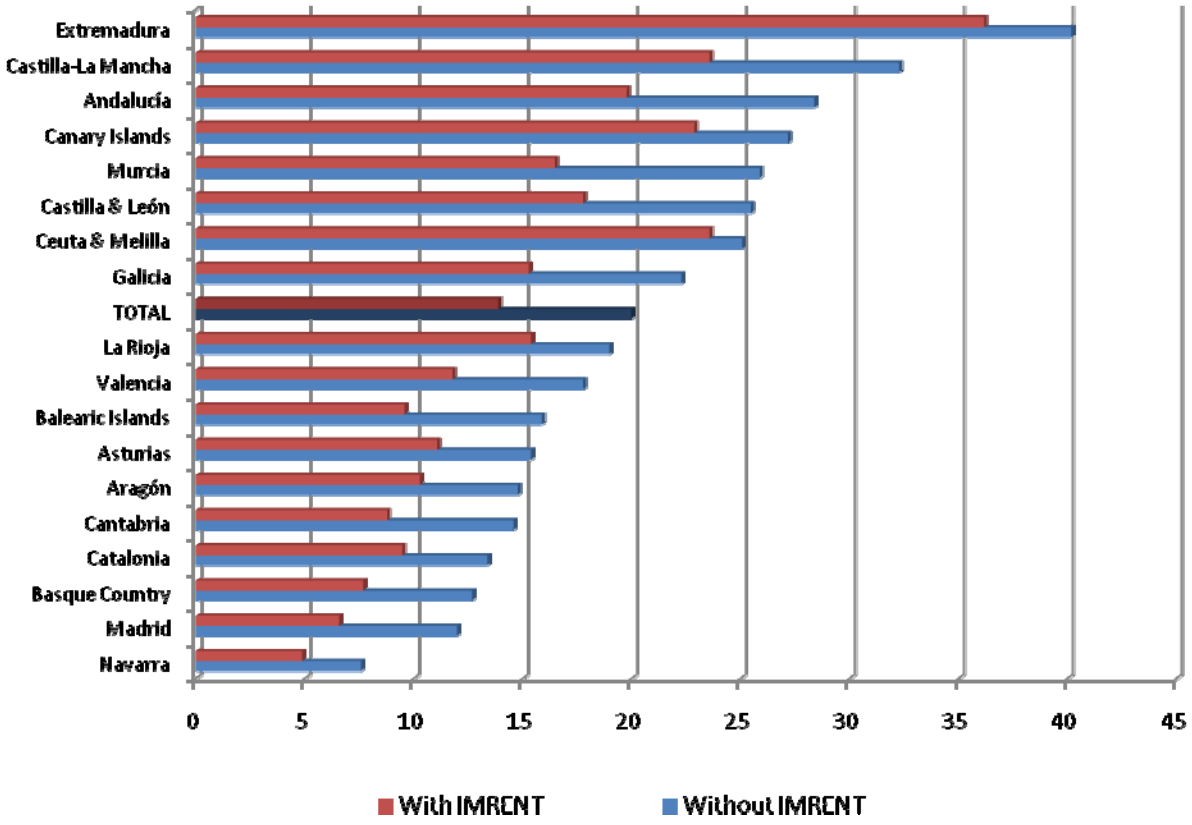
We would concentrate our analysis in columns (2) to (4). Column (2) refers to the share of poor households in Autonomous Community's total population. If that share is bigger than national mean -20% without IMRENT and 14% with it- then there would be an overrepresentation of this Community in total poor population and, therefore, column (4) would reach a value bigger than 1; on the contrary, if the share in column (2) is smaller than national mean the value in column (4) would be smaller than 1 and the Community would be underrepresented. Column (3) shows the share of a specific Autonomous Community in national poor households.

As we could see in Table 3 the introduction of IMRENT does not change neither the percentage distribution of Spanish poor nor the relative contribution. Andalucía concentrates almost a quarter of Spanish poor households, followed by Catalonia with more than 10%. On the other side Navarra stand for 0.5% of Spanish poor. In terms of percentage contribution the only relevant changes occur in Extremadura, where the contribution increases from 4.8% to 6.1 when we introduce IMRENT; Canary Islands with a 1.1 participation augment and Madrid, where the percentage contribution reduces by 1.6 points from 8.1% without IMRENT to 6.5 with it.

Nevertheless, it is important to notice the very heterogeneous behavior of Spanish Communities: in Extremadura –where around 40% of the families are poor- Castilla-La Mancha, Canarias, Andalucía, Castilla & León and Murcia the share of poor households in total population is bigger than Spanish mean; on the contrary, in Navarra, Basque Country, Madrid, Catalonia, Aragón, Asturias and Balearic Islands is smaller. The case of Navarra is very significant since less than 8% of families is poor if we do not consider IMRENT and the share reduces to 5% if we include the Imputed Rent.

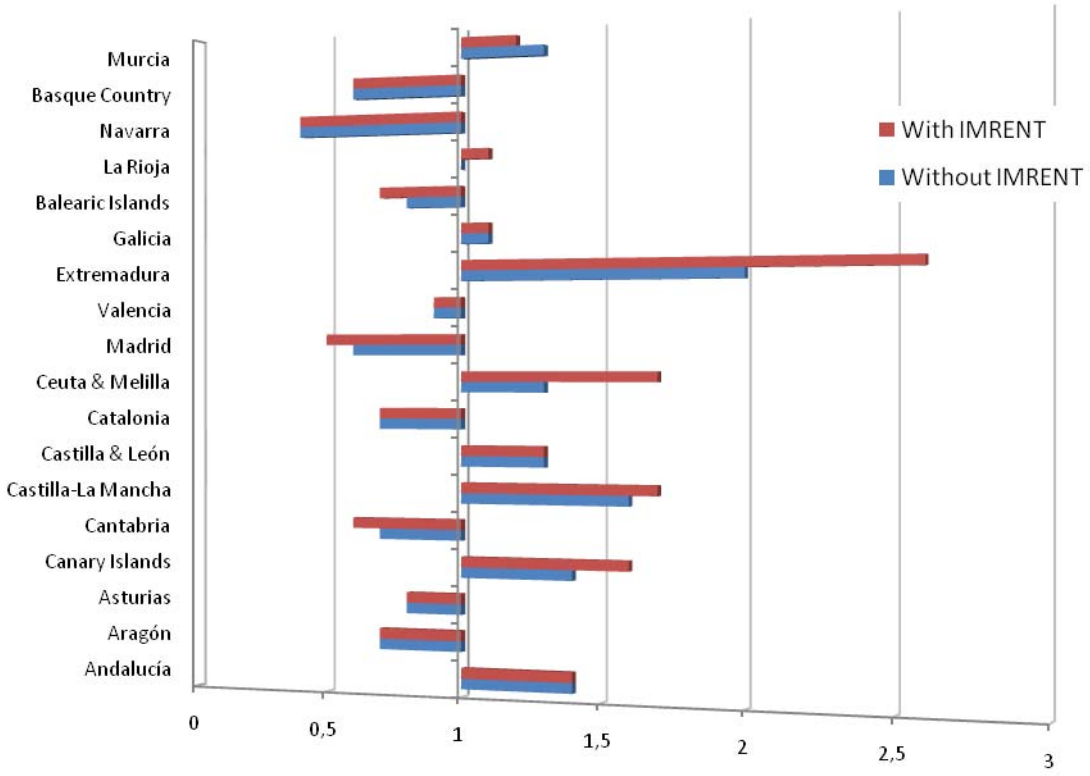
Graph 1 resumes the share of poor households in total Autonomous Community households for both cases, with and without IMRENT. Graph 2 specifies the Relative Contribution to Poverty[5].

Graph 1.- Share of poor families in total Autonomous Community households.



[5] As we have said, if the value is bigger than 1 then poor are overrepresented in total Autonomous Community population (the share is bigger than national mean). On the contrary, values smaller than 1 imply an underrepresentation.

Graph 2.- Relative Contribution to Poverty by Autonomous Community.



3.1.2. Size of the town.

The other location variable we consider refers to the size of the town household lives. SILC 2007 classifies them in three groups: densely[6]; medium[7] and sparsely populated. The results are included in Table 4 and Graphs 3 and 4.

Table 4.- Poor households' distribution classified by the size of the town family lives.

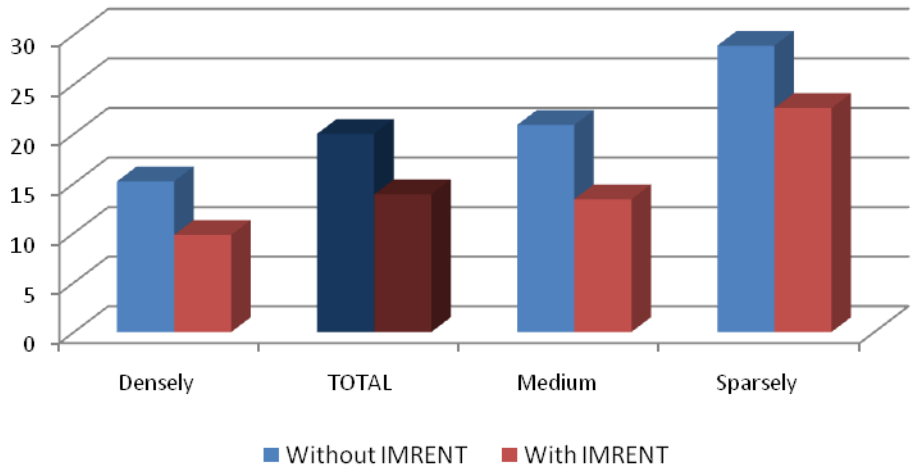
	Without Imputed Rent				With Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Densely populated area	1298346	15.2	40.7	0.8	837248	9.8	37.7	0.7
Medium populated area	654391	20.9	20.5	1.0	417666	13.4	18.8	1.0
Sparsely populated area	1236884	28.9	38.8	1.4	968086	22.6	43.5	1.6
TOTAL	3 189 622	20.0	100.0	1.0	2 223 001	13.9	100.0	1,0

Source: Drawn up by authors from SILC (2007)

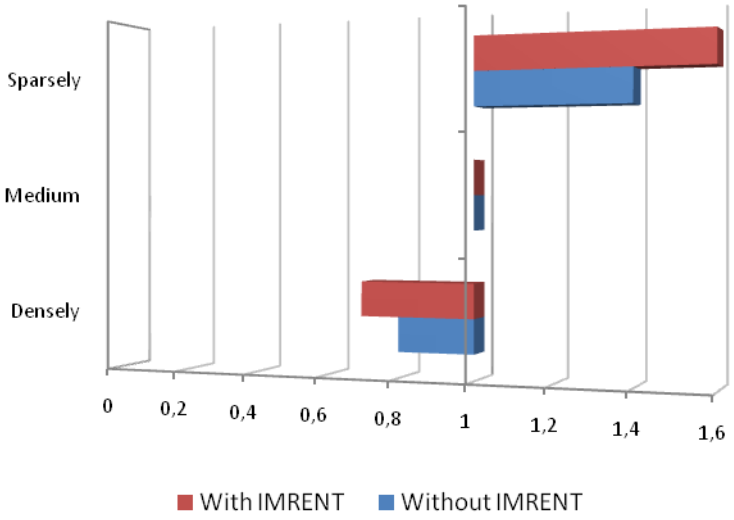
[6] Population density bigger than 500 inhabitants per Km^2 and total population bigger than 50.000 inhabitants.

[7] Population density bigger than 100 inhabitants per Km^2 and total population smaller than 50.000 inhabitants.

Graph 3.- Share of poor families in total households



Graph 4.- Relative Contribution to Poverty.



There are not significant changes in percentage and relative contribution to Spanish poverty if we consider or not IMRENT for densely and medium populated areas. Poverty is a rural feature since its relative contribution is bigger than 1, which means that this group is overrepresented and, at the same time, most of the people under the poverty line live in sparsely populated villages with an increase in its percentage contribution by almost 5 points.

3.2. Socioeconomic characteristics

We now include some socioeconomic variables related to household characteristics.

3.2.1. Number of members.

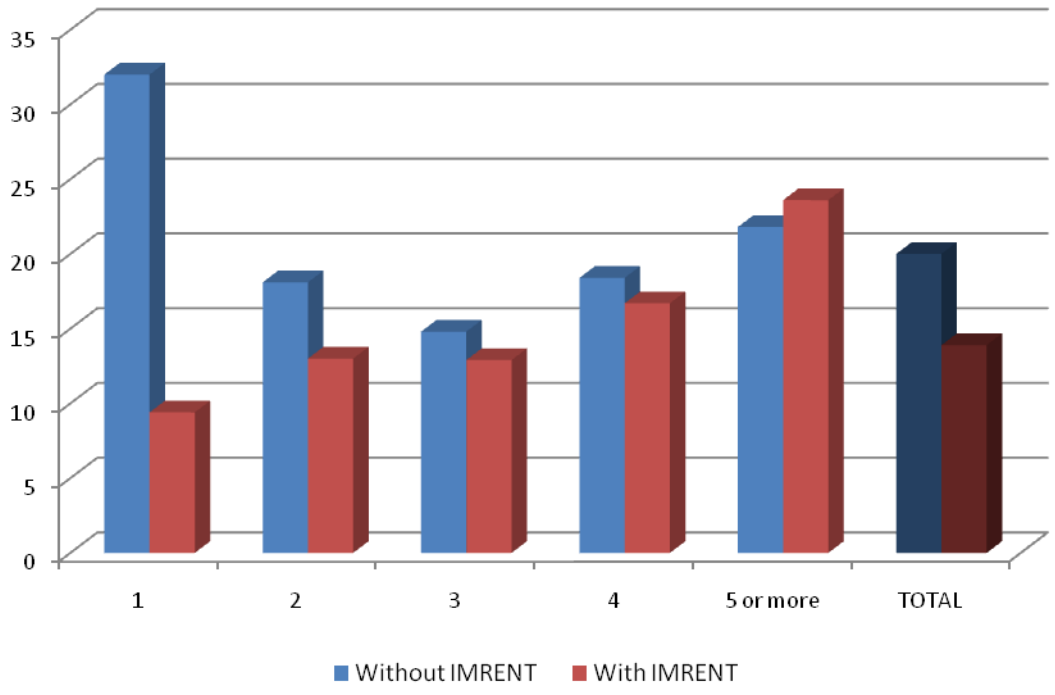
Table 5 and Graphs 5 & 6 show the Spanish poor population classified depending on the number of members who make up household.

Table 5.- Poor households' distribution classified by the number of members.

	Without Imputed Rent				With Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1 member	864783	32.0	27.1	1.6	255178	9.4	11.5	0.7
2 members	840648	18.1	26.4	0.9	604596	13.0	27.2	0.9
3 members	552218	14.8	17.3	0.7	481310	12.9	21.7	0.9
4 members	723691	18.4	22.7	0.9	656564	16.7	29.5	1.2
5 members or more	208281	21.8	6.5	1.1	225352	23.6	10.1	1.7
TOTAL	3 189 622	20.0	100.0	1.0	2 223 001	13.9	100.0	1.0

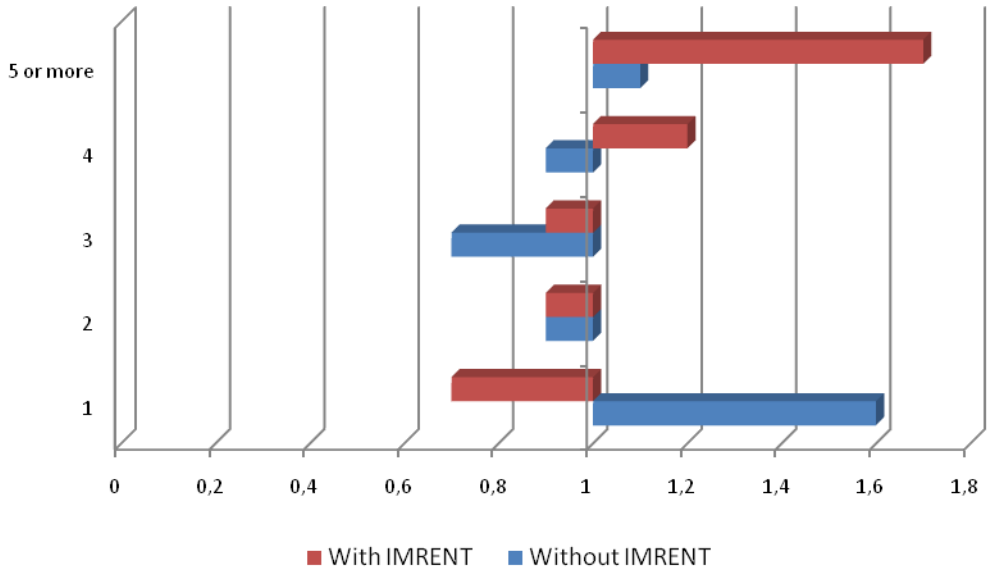
Source: Drawn up by authors from SILC (2007)

Graph 5.- Share of poor families in total households depending on the number of members



In this case the introduction of IMRENT is really significant since it changes the percentage and relative contribution for some classifications, especially those on the extremes, modifying the distribution of Spanish poverty.

Graph 6.- Relative Contribution to Poverty by household's number of members.



Poor households composed by a unique member reduce their share in total population of this type of families and national poverty: they go from absorbing 32% of one member households when we do not consider IMRENT to less than 10% if we take it into account. This implies a change from been overrepresented in Spanish poor (1.6) to an underrepresentation (0.7); their relative contribution to Spanish poverty also decreases from 27.1 to 11.5%.

On the contrary, families with 3 or more members increase their percentage and relative contribution. The share of poor in total population of households with 4 or more members is around national mean if we do not introduce IMRENT, but they are overrepresented if we consider this income. Taking into consideration IMRENT, households with 3 or more members represent 61% of total Spanish poor population, with an increase of 16 percentage points.

3.2.2. Type of household

The next variable we consider is the kind of household depending on how it is made up. The results are included in Table 6 and Graphs 7 & 8.

Table 7.- Poor households' distribution classified by kind of household.

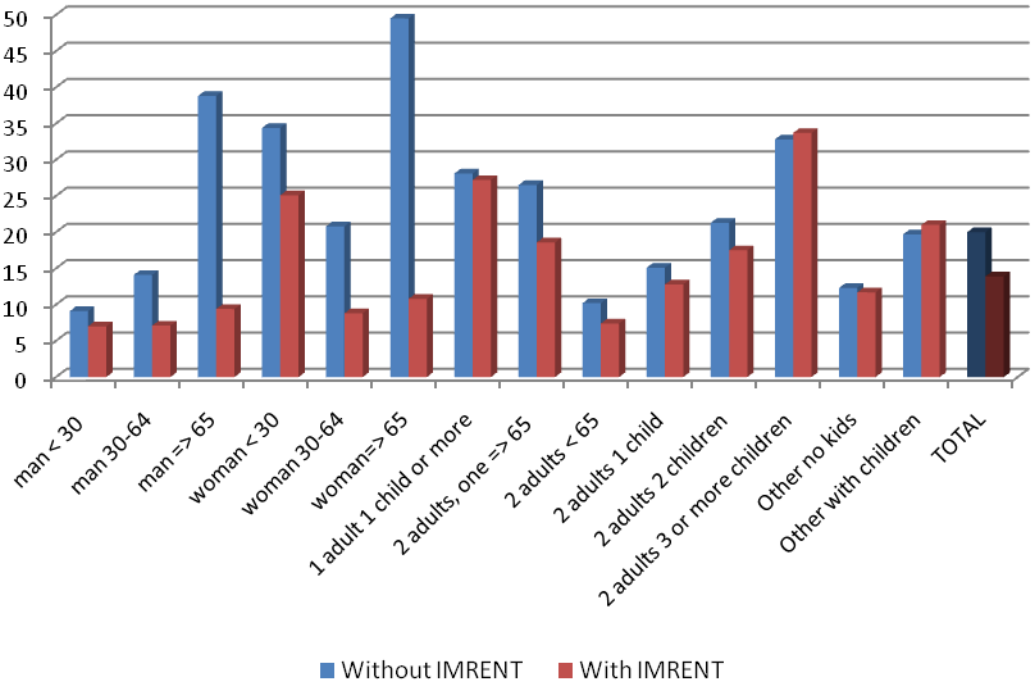
	Without Imputed Rent				With Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1 man younger than 30 years	14173	9.1	0.4	0.5	10917	7.0	0.5	0.5
1 man with 30 to 64 years	96402	14.1	3.0	0.7	48402	7.1	2.2	0.5
1 man older than 65	118292	38.8	3.7	1.9	28788	9.4	1.3	0.7
1 woman younger than 30 years	18775	34.4	0.6	1.7	13679	25.1	0.6	1.8
1 woman with 30 to 64 years	92425	20.8	2.9	1.0	38979	8.8	1.8	0.6
1 woman older than 65	524715	49.5	16.5	2.5	114413	10.8	5.1	0.8
1 adult with at least 1 dependent child	72306	28.1	2.3	1.4	69838	27.2	3.1	2.0
2 adults with no kids, at least one of them older than 65	563022	26.5	17.7	1.3	394681	18.6	17.8	1.3
2 adults with no kids, both of them younger than 65 years	238343	10.2	7.5	0.5	174078	7.4	7.8	0.5
2 adults with 1 dependent child	288418	15.1	9.0	0.8	245158	12.8	11.0	0.9
2 adults with 2 dependent children	461117	21.3	14.5	1.1	379392	17.5	17.1	1.3
2 adults with 3 or more dependent children	86000	32.8	2.7	1.6	88560	33.7	4.0	2.4
Other households without kids	352279	12.3	11.0	0.6	336099	11.7	15.1	0.8
Other households with dependent children	258637	19.7	8.1	1.0	275298	21.0	12.4	1.5
TOTAL	3 189 622	20.0	100.0	1.0	2 223 001	13.9	100.0	1.0

Source: Drawn up by authors from SILC (2007)

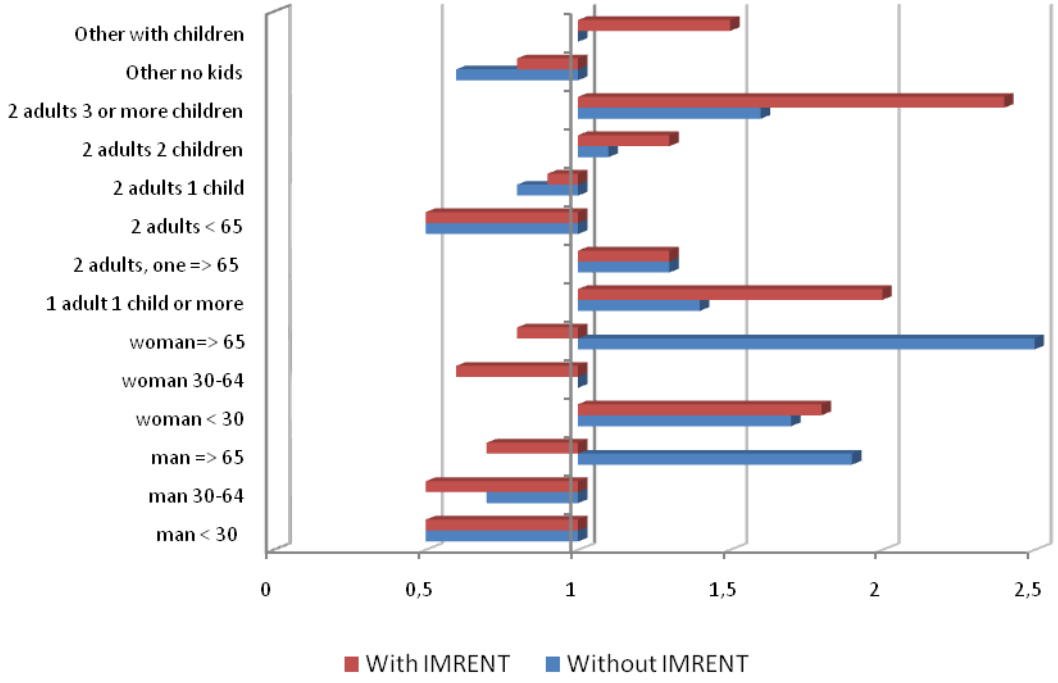
Once more IMRENT modifies relative and percentage contributions of different types of households, especially for those with a unique member, as we saw in the last subsection. The most important changes occur for those households made up by a person with more than 65 years. For the case of men the share of poor people in this group goes from 39% without IMRENT to 9.4% if we take into account this income; for women the improvement is even bigger since almost half of them were under the poverty line when we did not care about IMRENT and they reduce to 10% if we include it. The result is a complete variation in relative and percentage contribution to poverty, since they are overrepresented without IMRENT and underrepresented with it, and their percentage contribution reduce to a third in both cases.

The same happens with men and women from 30 to 64 years old living alone, but the differences are not so spectacular.

Graph 7.- Share of poor families in total households depending on the type of household



Graph 8.- Relative Contribution to Poverty by type of household



As we said at the beginning, Spain is a country of house owners. More than 80% of Spanish families live in their own house. Most people with more than 65 years are retired and,

at the same time, have completely paid their house. So, if we do not include IMRENT we assume that their retirement pension is their basic income, and this implies that they are under the poverty line since those pensions are not as big as salaries. But if we include IMRENT as a wealth proxy then their income increases and a relevant amount of them *beat* poverty threshold and become not poor people.

This revolutionizes the definition of Spanish poor household. Calvo, Sánchez & Martinez (2009) defined the *typical* Spanish poor as a widow more than 65 years old living in a small town of Andalucía, Extremadura, Castilla-La Mancha… That definition changes radically if we include IMRENT since now only 10% of widows are poor and they reduce their percentage contribution from 16.5% to 5.1%.

3.2.3. Household economic activity situation

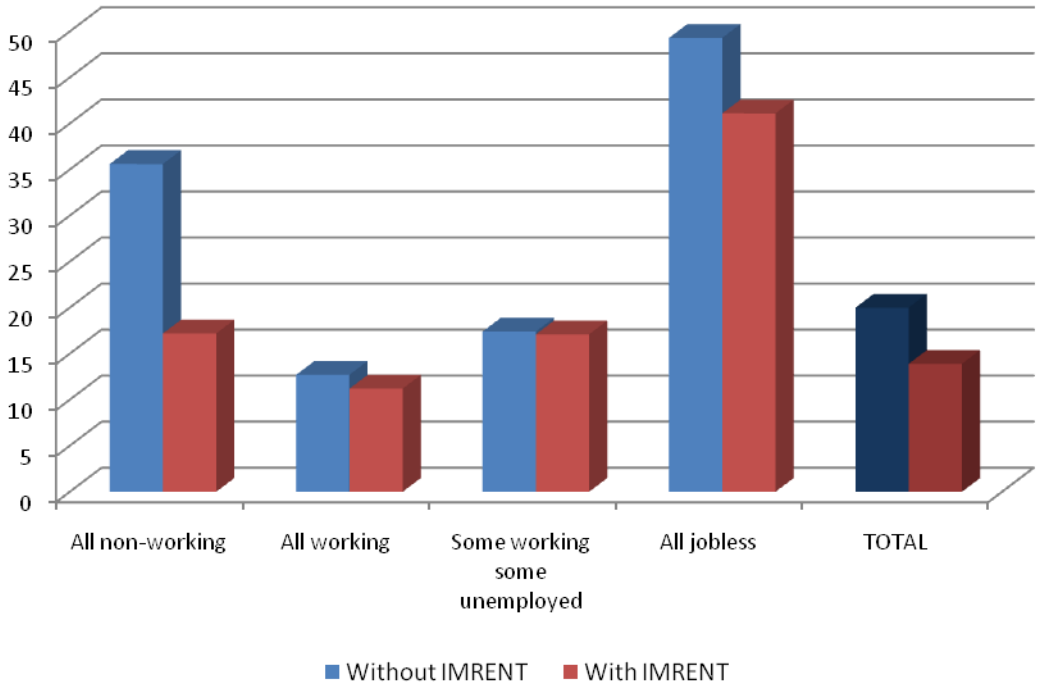
One of the characteristics that defines household situation is the economic activity of its members. In this case INE classifies households in four categories: all family members belong to non-working population; all of them are actively working; some are working and others are unemployed or all of them are jobless. The results to this categorization are presented in Table 7 and Graphs 9 & 10.

Table 7.- Poor households' distribution classified by members' relationship with economic activity.

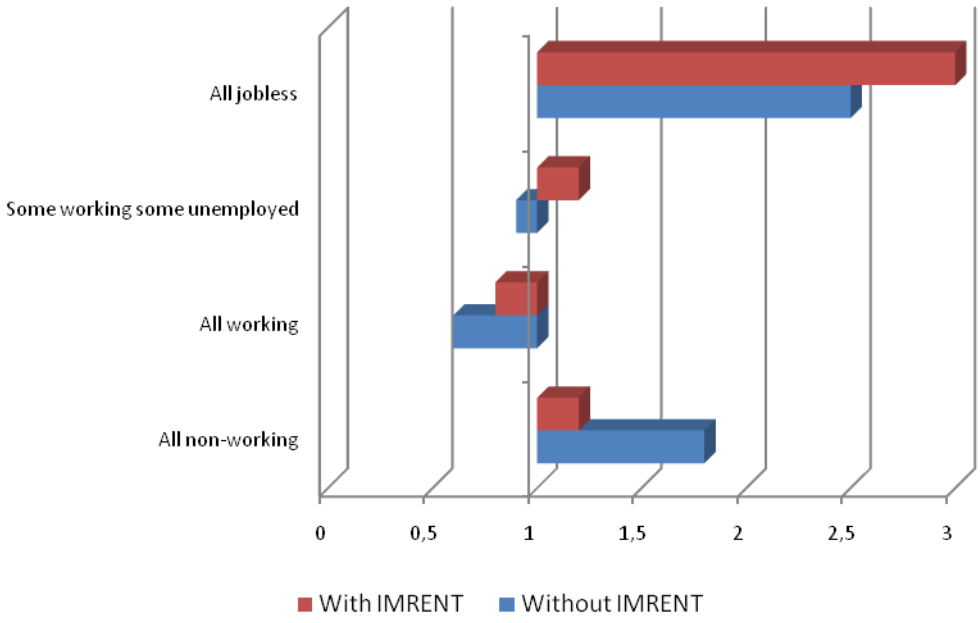
	Without Imputed Rent				With Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
All non-working	1483374	35.6	46.5	1.8	717168	17.2	32.3	1.2
All working	1280182	12.7	40.1	0.6	1124001	11.2	50.6	0.8
Some working some unemployed	186091	17.4	5.8	0.9	183029	17.1	8.2	1.2
All jobless	204966	49.3	6.4	2.5	171085	41.1	7.7	3.0
TOTAL	3 189 622	20.0	100.0	1.0	2 223 001	13.9	100.0	1.0

Source: Drawn up by authors from SILC (2007)

Graph 9.- Share of poor families in total households depending on members' relationship with economic activity.



Graph 10.- Relative Contribution to Poverty



The results elaborate the remarks we have done about households composed by people older than 65. When we do not take into account IMRENT most of them, who belong to "all no working" category, are under poverty line; but when we include IMRENT their situation

radically changes and around half of those who were classified as poor become no poor. Their percentage contribution also reduces from 46.5 to 32.3

Another interesting result is related to those households composed by members on the job. IMRENT excluded, they represent 40% of total Spanish poor households, but if we include it their share increases to 50%.

3.2.4. System of house tenancy

The last element we are going to analyze is the system of house tenancy. As we have said Spain is an owners' country since more than 80% of families live in a house of their property. But there are other possibilities SILC includes: rented at market price; rented at a price smaller than market rent; living in a house free of charge; and having to pay a mortgage. The results for this classification are included in Table 8 and Graphs 11 & 12.

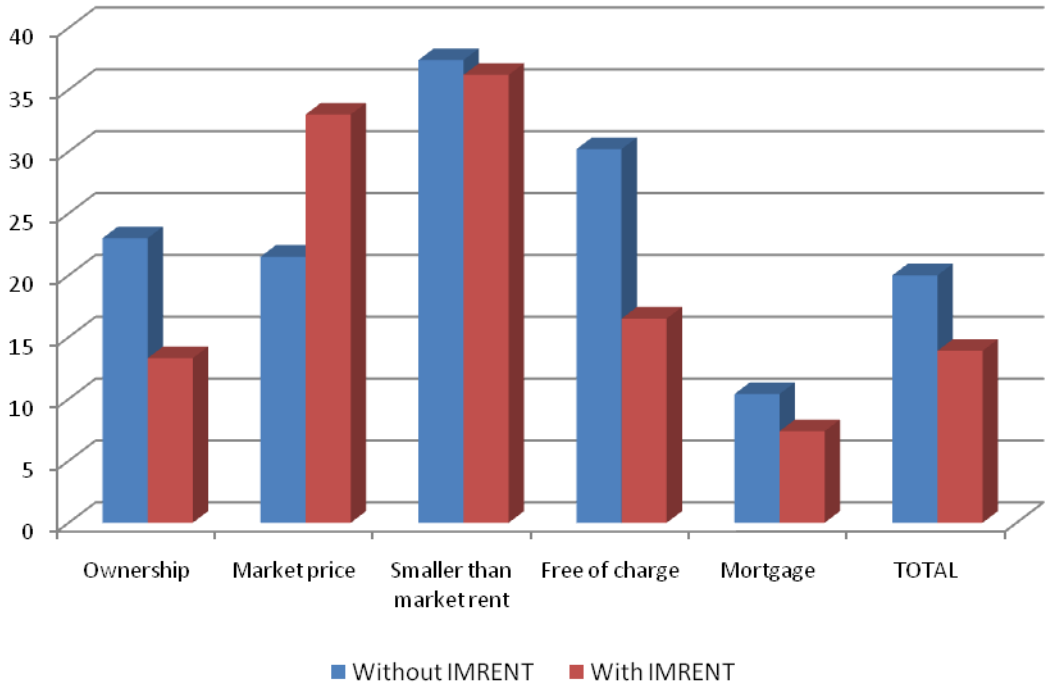
Table 8.- Poor households' distribution classified by the system of house tenancy.

	Without Imputed Rent				With Imputed Rent			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ownership	1924264	23.0	60.4	1.1	1112871	13.3	50.1	1.0
Market price	261463	21.5	8.2	1.1	401825	33.0	18.1	2.4
Smaller than market rent	183442	37.4	5.8	1.9	177423	36.2	8.0	2.6
Free of charge	313811	30.2	9.8	1.5	171222	16.5	7.7	1.2
Mortgage	504305	10.4	15.8	0.5	359659	7.4	16.2	0.5
TOTAL	3 187 285	20.0	100.0	1.0	2 223 001	13.9	100.0	1.0

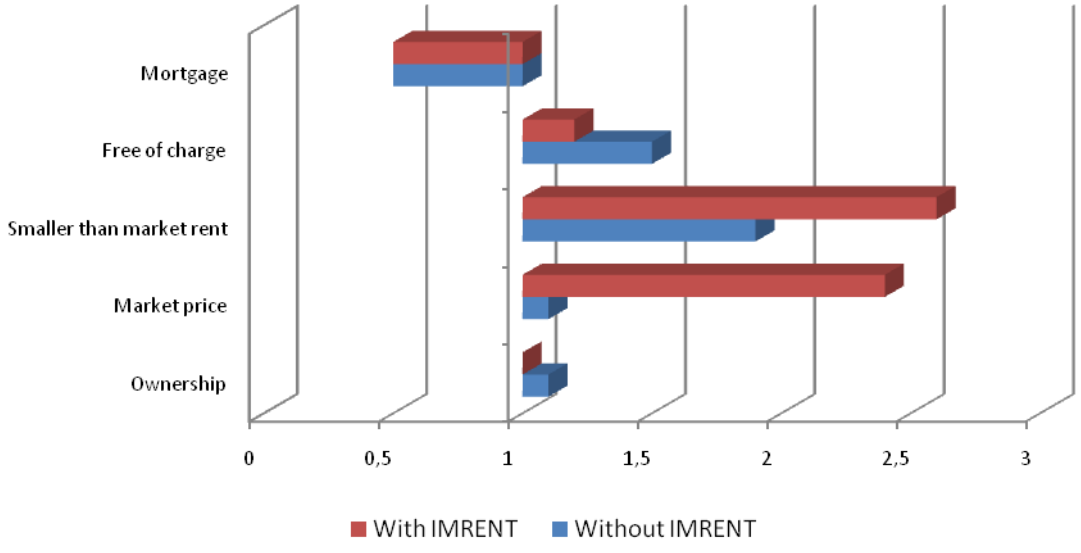
Source: Drawn up by authors from SILC (2007)

One of the most important weaknesses of the results obtained in Spanish studies about poverty when we do not take into account IMRENT is the big share owners represent in total poor households. If we saw column (3) in the left side of Table 8 we can observe than more than 60% of Spanish poor families have their own house and it is already paid. This percentage reduces by 10 points if we include IMRENT.

Graph 11.- Share of poor families in total households depending on the system of house tenancy.



Graph 12.- Relative Contribution to Poverty by household tenancy



It is also very relevant the change in the distribution in poverty depending on tenancy system derived by IMRENT. People paying a market rent double their share in total household

poverty from 8 to 18% and those who live free of charge reduce to a half the share that poor households represent in total population (30.2 to 16.5%). Finally, those with a mortgage do not significantly alter their situation.

In conclusion, the introduction of IMRENT changes the distribution of Spanish households' poverty. In the next section we estimate a probit model in order to formalize the results we have obtained in this descriptive analysis.

4. A probit estimation of the changes of Spanish poor households due to Imputed Rent.

In this section we estimate a probit model of the changes introduced by the inclusion of IMRENT. Since most of those changes are related to households who move from been under the poverty line to be over it, the dependent variable takes value 1 if the household was poor when IMRENT was not taken into account and it is not poor when we include it –a sample of 1,152,926 families- and values 0 if it maintains its poor condition.

We incorporate all the variables we have analyzed in previous section and, after excluding those no significant, the results in terms of change in the probability of being poor are presented in Table 9.

Table 9.- Probit estimation of the change in poor state with the inclusion of IMRENT.

Number of members	-.1373517** (9.12)
Madrid	.1440632** (2.52)
Extremadura	-.1108769** (2.67)
Canary Islands	-.1374991** (2.49)
Sparsely populated area	-.2183184** (8.05)
Man older than 65 years	.3726367** (4.42)
Woman 30 to 64 years old	.1618828* (1.86)
Woman older than 65 years	.3504333** (7.49)
House ownership	.1837929** (5.62)
Mortgage	.2681125**

	(5.33)
Log. Pseudolikelihood= -1306.5646 Wald χ^2 (10) = 423.46 Pseudo R^2 = .2731	

***Significant at 99%; *significant at 90%*
Coefficients expressed in terms of probability change

Table 9 shows how every new member of the households reduces the probability of *crossing* poverty line by 14% when we incorporate IMRENT. Negative effects also appear in two Spanish Autonomous Communities, Extremadura which decreases the probability by 11% and Canary Islands with 13%. The biggest negative effect is associated to rural areas: if the household lives in a sparsely populated area the probability of maintaining the condition of poor increases by 22%.

On the contrary, to be a woman or a man older than 65 years increases the probability of been over the poverty line when we take into account Imputed Rent coming from under that threshold if we do not include it. The percentages are really important, since the probability augments by 37% in the case of men and 35% for women.

The ownership of the house or having a mortgage are positively associated to the probability of changing from poor to no poor. The logical of these results is faultless since having wealth cannot be associated to poverty.

Finally, been a woman 30 to 64 years old or live in Madrid also augments the probability of moving from poverty to non poverty when we include IMRENT.

5. Conclusions

In this article we have studied the effects on Spanish poverty of taking into account *Imputed Rent.* This is a variable related to house property, and since more than 80% of Spanish families are house owners we have supposed that it would affect Spanish poor households' distribution. The results support this assumption.

The main conclusions we can obtain from this study are associated to retired people and house owners. If we do not compute IMRENT most of the people over 65 years could be considered poor. This is logical since their most important imputed income was their retirement pension. But if we add IMRENT, in some sense a proxy of household's wealth, then a big share of them cross poverty line and become no poor. In fact, as we have demonstrate in the last section, the probability of leaving poor state increases by more than 30% for both men

and women. This result has a clear economic policy implication: in the actual situation, with problems to finance Public Pensions' System, it should be necessary to take into account not only current income but wealth to calculate Spanish widow's or retirement pensions. Nevertheless, this new policy orientation must be conditioned to changes in Spanish property market to be able to realize those assets[8].

The same approach of the relationship "house property/wealth" is in the base of the explanation for the other positive probabilities obtained in the probit model: those who live in a house of their own or can afford a mortgage usually cannot be included among the poor, and the estimation supports this assertion.

[8] *Reverse mortgage* would be a good option.

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APPENDIX I. Main results of Spanish poverty studies

Author	Data base	Subject of the study	Variable	Poverty line	Results/poverty
Plan CCB (1965).	Secondary data bases	To know the extension of poverty in Spain. They consider absolute poverty	People with less than 2,100 kal. Per day. People without a house. People perceiving Social Aid Areas without equipment	Absolute poverty line: combination of different variables	Families in poverty: 3 millions
FOESSA(1976)	Family Survey 1963 Secondary data bases	To know the extension of poverty in Spanish households.	Income per household	Less than 2,500 ptas./month per family.	1,630,00 households 7 million people
INE (1983).	Survey on Family Budgets[9] 1980/81	First estimation of poverty coming from the EPF	Income per household	n.d.	21.8% households 19.2% people
EDIS (1984).	National Survey 1983.	Analysis of poverty and social alienation in Spain	Income per head	50% of monthly income (mean) 12,500 ptas./month	18% urban zones 24% in towns with less than 250,000 h. total: 8 millions
Ministerio de Trabajo (1985)	National Survey 1983-84.	Verify the extension of Spanish poverty. It includes criteria of subjective and objective poverty	Income per head	50% of monthly income (mean) 17,488 ptas/month	16.7 households 22.7% people
Ruiz-Castillo (1987).	EPF1980/81	It applies different sensibility indicators to the microdata	Expenditure per head	50% of expenditure per head 110,188 ptas./year	14.4% households 17.0% people
Bosch *et al*. (1989).	EPF 1973/74 & 1980/81	Evolution of Spanish poverty in the seventies applying Ruiz-Castillo methodology	Expenditure per head	50% of expenditure per head	1973=17.9% people 1980=16.8% people

[9] From now on EPF

O'Higgins & Jenkins (1989).	EPF 1973/74 & 1980/81 Continuous Survey on Family Budgets[10] (ECPF)	International comparisons of poverty evolution	Income per head	50% of income per head	1973 Households= 20.5%; People = 20.0% 1980 Households= 19.5%; People = 20.5% 1985 Households= 20.0%; People = 20.0%
Equipo de Economía Cuantitativa del Bienestar de la Universidad de Málaga (1989).	Survey on Family Budgets 1980/81 (EPF)	Geographical distribution of poverty	Income per household	50% of income per household	Province analysis: Álava (7.4%), Guipúzcoa (7.7) & Vizcaya (9.6%) Cáceres (49%), Zamora (44%) & Badajoz (44%)
Escribano (1990).	EPF 1973/74 &1980/81. ECPF 1985, 86, 87 & 88	Evolution of poverty and inequality	Expenditure per head	50% expenditure per head	16.0% people
EUROSTAT (1992).	ECPF1987	International poverty comparison and sensibility analysis	Expenditure per equivalent adult	50% mean of expenditure per equivalent adult	16.9% people 17.5% households
INE (1993).	EPF 1990/91	Study of the households less fortunate	Mean of equivalent expenditure	50% mean of equivalent expenditure: 426,320 ptas/year	18.9% people 19.7% households

[10] From now on ECPF

Ayala, Martínez & Ruiz-Huerta (1993).	EPF 1980/81 & 19990/91. Luxemburg Income Study.	International poverty comparisons with homogeneous data	Expenditure per equivalent adult Income per equivalent adult	1980 50% expenditure per equivalent adult: 141.720 ptas/year 50% income per equivalent adult: 119.523 ptas/year 1990 50% expenditure per equivalent adult: 427.315 ptas/year 50% income per equivalent adult: 349.048 ptas/year	a) Expenditure 1980: households = 19.7%; people = 19.6%. 1990: households = 18.6%; people = 17.6% b) Income 1980: households = 16.2%; people = 18.4% 1990: households = 13.0%; people = 15.1%
García Lizana & Martín Reyes (1993).	EPF 1980/81 & 1990/91.	Geographical distribution of poverty	Household income (national mean)	50% national mean of household income: 555,092 ptas/year	Province analysis: Álava (6.8%), Madrid (8.9), Navarra (10.3) & Vizcaya (11.9%). Salamanca (40.4%), Badajoz (39.4), Ávila (38.6) & Cáceres (34%).
FOESSA (1994)	National Survey 1993.	Extension and composition of poverty distinguishing different levels	Income per equivalent adult	50% income per equivalent adult: 453,504 ptas/year	a) People: (U: 25%) = 3.64%. (U: 50%) = 20.16%. b) Families: (U: 25%) = 2.26%. (U: 50%)= 16.44%
Ruiz-Huerta & Martínez (1994)	EPF 1980/81 & 1990/91.	Exhaustive analysis of Spanish poverty patterns. Relationships between poverty and house equipment.	Expenditure per equivalent adult Income per equivalent adult	50% equivalent expenditure 415,935 ptas/year 50% equivalent income : 349,575 ptas/year	a) Expenditure (people): 1980: (U: 25%) = 3.5%; (U: 50%) = 19.6%. 1990: (U: 25%) = 2.3%; (U: 50%) = 17.9% b)Income (people): 1980: (U: 25%) = 3.3%; (U: 50%) = 18.4%. 1990: (U: 25%) = 2.3%; (U: 50%)=15.0%.

Martín-Guzmán et al. (1996).	EPF 1973/74, 1980/81 & 1990/91	Poverty evolution from 1973 to 1990.	Expenditure per head. Income per head	25 & 50% of expenditure per head 25 & 50% income per head	Expenditure: EPF 73/74: 25%=3.1 ; 50%=22.0 EPF 80/81: 25%=2.9; 50%=20.6 EPF90/91: 25%=2.1; 50% = 19.0 Income: EPF 73/74: 25%=3.0; 50%=21.4 EPF 80/81: 25%=2.9; 50%=19.9 EPF90/91: 25%=2.1; 50% = 16.6
FOESSA (1998)	Survey EDIS-FOESSA. 1994-1996.	Study about the extension and composition of Spanish poverty distinguishing different levels	Expenditure per equivalent adult Income per equivalent adult	50% net disposable income	19.4% households 22.1% people: 8,509,000
Poza Lara (mimeo)	Households European Panel[11] (1996-2001)	Levels and evolution of relative poverty. Differentiation by socioeconomics characteristicss	Net equivalent income	50% median	Poverty rate (2001) = 17%. Increase of poverty from 1996 to 1999 and decrease until 2001. From 1996 to 2001 invariable. The worst situation: unemployed; without studies; couples without children; people with less than 16 years and older than 65; women
Pérez Mayo, Fajardo & Sánchez Rivero (2000)	PHOGUE	Privation indicator and analysis of heterogeneous population	Different variables: lack of goods and services related to household necessities and economic capabilities	Poverty line elaborated by a model of latent classes: three population groups	17.5% Most Spanish families can afford food and clothing necessities
Martínez & Ruiz Huerta (2000)	PHOGUE	Comparison between monetary and non monetary poverty. Multidimensional privation indicator	Different variables: presence or lack of goods and services related to the household and economic capabilities	Generated by data. Nontraditional weights	Correlation between monetary poverty and multidimensional privation indicator but not significant. Population has a no homogeneous behavior
Oliver, Ramos & Raymond (2001)	ECPF	Income distribution from 1985 to1996	Real net equivalent income	Deciles of distribution	Improvement of the concentration of income in favor of the poorest. Decrease of inequality especially from 1985 to 1989

[11] From now on PHOGUE

Adiego Estrella & Moneo Ocaña (2002)	PHOGUE	Evolution of poverty and persistent poverty differentiating by population segments.	Income per unity of equivalent consumption	60% income median. Multidimensional privation of living conditions	1994 = 19.6% 2001 = 18.8% The worst situation (poverty and persistent poverty): women, without studies; unemployed; 2 adults without children.
Navarro & Ayala (2004)	PHOGUE	Evaluate household welfare from housing point of view	Variables related with household equipment and living conditions	Non arbitrary differentiation by groups: Latent classes' model	Probability of lack of basic equipment = 16% The worst situation: CC.AA.: Northwest zone, Center, South and Canary Islands Characteristics: low income level; unemployed; no house on property; over 65 years; low studies level; bad health situation; woman
Ayala & Navarro (2004)	PHOGUE	Definition of a multidimensional privation index based on household elements. They obtain transversal poverty levels depending on socioeconomic characteristics	Household elements and conditions	Non arbitrary differentiation by groups: Latent classes' model	Probability of suffering privation basic problems = 16% Different privation behavior depending on region and population characteristics
Ayala, Jurado & Pérez Mayo (2006a)	PHOGUE	Relationship between monetary poverty and privation focused in Spanish Autonomous Communities (CC.AA)	Presence or lack of some goods and services	Non arbitrary differentiation by groups: Latent classes' model	Global privation = 16.8% Monetary poverty = 18.8% CC.AA. with the worst situation (privation): Canary Islands, Extremadura, Andalucía, Murcia, Galicia, Cantabria & Asturias CC.AA. with the best situation (privation): Aragón, Navarra, La Rioja, Madrid & Cataluña
Ayala, Jurado & Pérez Mayo (2006b)	PHOGUE	Relationship between monetary poverty and social privation	Basic necessities, house conditions and secondary necessities	Non arbitrary differentiation by groups: Latent classes' model	Global privation = 7,7% CC.AA. situation: similar to the preceding study Different order depending on privation or monetary poverty

Jurado & Pérez Mayo (2006)	ECPF e INEM	Proxy to a multidimensional welfare index by r CC.AA.	Adjusted consumption, real wealth, equity and economic security by inhabitant	Uniform group differentiation (arbitrary) by factorial analysis	The most favored CC.AA: Navarra, Vasque Country, Catalonia & Madrid The less favored CC.AA. Extremadura, Andalucía & Canary Islands
Poza Lara (2007)	Technique of data reduction PHOGUE 1994-2000	To create a multidimensional model to explain poverty. To elaborate an indirect index of personal poverty (factorial analysis)	It includes seven variables: three objective and four subjective variables.	Limits, ranks and scales to inform individual situation	Poverty is a multidimensional concept Gender inequality. Immigrants are in a worsen situation than nationals
Calvo; Martinez & Sánchez (2008)	Statistics on Income and Living Conditions 2005 (ECV) FOESSA 1998	To compare the situation of Spanish poverty in 1996 and 2004. To analyze the changes in poverty patterns	Income per unit of equivalent consumption	50% of income per unit of equivalent consumption	2, 912,031 households (19.2%) 7, 772,678 people (18.1%)
Calvo, Sánchez y& Martínez (2009)	Statistics on Income and Living Conditions 2005 (ECV)	To obtain a multidimensional index to analyze the behavior of Spanish Autonomous Communities	Income per unit of equivalent consumption	60% of median of income per unit of equivalent consumption (6,292.80€)	20.3% (3 millions) households are under poverty line.

Source: Drawn up by authors