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# Take up rates of means-tested benefits for the elderly in Spain

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## Abstract:

The objective of this paper is to contribute to the study of benefit take up by providing some tentative evidence of take-up rates for means-tested benefits for the elderly in Spain. The benefits evaluated are the *Pension Supplements* and the *Non-Contributory Pension* available for people aged 65 or more. We use cross-sectional data from the 2005 wave of the EU-SILC. Our study estimates take-up rates for pension supplements in a range between 76 and 80 percent and a substantially lower take up for the non-contributory pension, between 34 and 40 percent. Although the results are plausible and in line with the international evidence, our analysis suggests that a more accurate eligibility screening test based on more reliable micro-data might increase the take up estimates. Nevertheless, given the consistency and magnitude of the estimates contrary to the widespread view in Spain we cannot reject the premise that non-take up may be an issue of political concern in the design of welfare programmes in Spain.

**Keywords:** take up, social assistance, microsimulation.

**JEL Classification:** D31, H31, H53, I38

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## 1. Introduction

A considerable part of the expenditure on social protection in Spain is devoted to income related programmes targeted to particular groups such as the elderly, disabled, survivors and unemployed. Often these programmes complement the amount or extend the coverage of contributory schemes (Mercader and Levy, 2003). Being one of the key beneficiary groups of selectivity, the elderly (throughout this paper we use “elderly” to refer to people aged 65 or more) enjoy two alternative means-tested programmes: a Pension Supplement (PS) to top up pensions falling below a guaranteed minimum pension level, and an Old-age Non Contributory Pension (NCP) for low income elderly who are not entitled to an insurance pension. Despite the low level of benefits and relatively tight income requirements, the combination of these schemes provides the elderly in Spain benefit a quasi-universal low income safety net which is not always available to other age groups. As a result, there seems to be a general consensus in Spain that there is no elderly in need without a pension.

However, the use of selectivity and means testing rises the question of how well targeted such benefits are. Targeted benefits may be subject to inefficiencies due to (a) failure to cover eligible persons who do not claim (“take up”) the benefits to which they are entitled to, and (b) “leakage” or the payment of social benefits to non-eligible households (Atkinson, 1996). This paper is concerned with the first of these issues: the problem of non-take up of means-tested benefits for the elderly in Spain.

International evidence on welfare benefits suggest low levels of take-up welfare benefits, both across countries and programmes (see Hernanz et al, 2004, and Currie, 2004 for surveys) – even if this evidence is based on a variety of approaches not always strictly comparable and it relies only on a few countries for which estimates are available. Focussing on the elderly, take-up has been extensively studied in countries such as the United States and the UK. Studies on the US Supplemental Security Income (SSI), a means-tested benefit for the elderly, estimates participation rates between 45 and 60 percent (Warlick, 1982 and McGarry, 1996). Regarding the UK, the rate of take-up of Pension Credit is estimated by the Department of Work and Pensions. In 2006-07, it ranges between 59% and 67% on a caseload basis and between 69% and 76% on an expenditure basis (DWP, 2008). Studying the 2001 reform of means-tested benefit for pensioners (Minimum Income Guarantee), Pudney et al (2006) find that take up rates increases significantly with higher entitlement level. Hernandez et al (2006) compute the cash-equivalent cost of claiming income support for pensioners is about £3 to 4 per week. Finally, one of the few studies on non-take-up in Southern European countries focuses also on the elderly. Matsaganis et al. (2001) found that the non-contributory social pension in Greece was taken up in 2000 by 44% of those eligible for it, while later estimates raised take-up to 58% in 2001.

If these figures are accurate, there are many elderly eligible for public benefits that do not take up that coverage; an issue of clear policy concern. As far as we know evidence on the take up of social benefits is inexistent in Spain. The main reason for this lack of studies is mainly the lack of appropriated data. However, there is also a general believe in Spain that there is no need to studying non-take up as no one entitled to a given free-cost public benefit would rationally not to take up that benefit. Using data from the 2005 wave of the EU-SILC, this paper aims to contribute to the study of take up by providing a tentative measure the take-up of 2004 means-tested benefits for the elderly in Spain.

This paper is structured as follows. Section 2 provides an overview of different benefits available for the elderly in Spain. Section 3 describes in detail the *Pension Supplements* and the *Non-Contributory Pension* to be analysed. Section 4 presents the methods and data and explains the data adjustments made for our analysis to be undertaken. Section 5 brings in the take-up estimates for pension supplements and non-contributory pensions. The paper ends up with some concluding comments.

## 2. Benefits for the elderly in Spain

### 2.1 Benefits available

Social benefits available for people aged 65 or more in Spain can be grouped into two main categories: social insurance pensions (and associated pension supplements) and non-contributory pensions. There are also two old age programmes that are now extinct but that still have some remaining recipients: SOVI and FAS. The main characteristics of these schemes are described below.

At the centre of social protection to the elderly are social insurance pensions. Old-age pensions are paid to retired workers who have contributed at least the minimum number of years required. The amount of the pension depends on the amount of contributions paid in the 15 years previous to retirement as well as on the number of years the person has contributed. Survivor pensions are paid to the widow/er and/or dependent relatives of workers and pensioners. The amount of the benefit depends on the late spouse/relative's previous contributions (if was a worker) or pension (if was a pensioner).

Old-age, disability and survivor insurance pensioners can have their pensions be topped up to an official minimum level. For those aged 65 or more, the minimum level depends on whether the pensioner has a *dependent spouse*. A spouse is considered *economically dependent* if she/he does not receive a pension and if the income of the couple (pensioner and spouse) is below a certain limit.

Low income individuals aged 65 or more who are not entitled to an insurance pension may be eligible for a non-contributory old age pension. This means-tested pension, established as a safety-net for the old age, replaced the now extinct social assistance fund (*Fondo Nacional de Asistencia Social, FAS*) and disability benefit (*Ley de Integración Social de los Minusválidos, LISMI*). Some recipients of FAS and LISMI still remain in the system. There are also some recipients of another extinct program, the so called SOVI (*Seguro de Vejez e Invalidez*) paid to individuals not entitled to an insurance pension but who contributed enough days under this extinct pension regime before 1967. SOVI is not income tested.

## 2.2 Distribution of benefits for the elderly by programme

The relative importance of the different programmes received by the elderly is shown in Table 1. In 2004, approximately 7 million pensions were paid to those aged 65 or more in Spain. The vast majority of those were old-age insurance pensions (4.5 million) and widow insurance pensions (1.9 million) paid by the Social Security, SOVI and the especial regimes for public servants. About 28 percent of these insurance pensions (1.9 million) are topped up to the minimum pension level. The non-contributory old-age pension scheme covers 4 percent (0.28 million) out of the total number of pensions. Altogether the phasing out regimes of FAS and LISMI cover almost 90 thousand people.

Thus, pensions subject to an income-test represent almost a third (2.2 million) of all benefits received by people aged 65 or more, most of them paid through the social insurance minimum pension supplement.

**Table 1. Number of contributory and non contributory pensions among those aged 65 or more, 2004**

	Total	Public Servants*	Social Security All	Minimum Pension**	Non contributory	Other
Old-age	4,838,518	207,937	4,340,646	1,211,958	281,447	8,488
Disability	112,697	0	31,744	730	0	80,953
Survivors	2,069,619	292,474	1,777,145	673,992	0	0
Widow	1,930,730	195,081	1,735,649	633,599	0	0
Orphan	99,468	81,636	17,832	30,139	0	0
Family	26,789	3,125	23,664	10,254	0	0
Other	12,632	12,632	0	0	0	0
<b>Total</b>	<b>7,020,834</b>	<b>500,411</b>	<b>6,149,535</b>	<b>1,886,680</b>	<b>281,447</b>	<b>89,441</b>

\* 2003 annual average, \*\* estimated assuming same proportion of pension complements as for whole population

Sources: IMSERSO (2004), INSS (2005), MTAS (2005) and MTAS (2006)

### 3. Means-tested benefits for the elderly in Spain

#### 3.1 Old-age and survivor pension supplements

##### 3.1.1 Eligibility and income test

Pension supplements are paid to recipients of contributory pensions (indistinctly from Social Security or the regime for public servants) with pension amounts below an official minimum level (*minimum pension*) and meeting an income test.

- **Income test**

All sources of income, except the pension to be complemented, are included in the income test. Tax deductions for employment and self-employment income (e.g. social insurance and trade-union contributions) can be deducted. The test is applied at the individual level. In 2004, individual income (before the pension to be complemented) could not be greater than €5,915.49 per year.

The income test applies to annual income. Pension supplements are assigned according to the previous year income information although the income test legally refers to current income. In 2004, it was assumed that the income test was fulfilled if annual income in 2003 was not greater than €5,754.37.

### 3.1.2 Amount

The amount of the supplement is equal to the difference between the minimum pension and the entitled pension. In 2004, the minimum pension for pensioners aged 65 or more was €4,486 spread in 14 payments of €411.76.<sup>1</sup>

The minimum pension amount rises to €5,765 (14 payments of €484.89) if the pensioner cohabits with a *dependent spouse*. A spouse is considered *economically dependent* if (a) she/he does not receive a public pension (including non contributory pensions) of her/his own and (b) the income of the couple (before the pension to be complemented) was, in 2004, below €6,900.49 per year.

$$PC = MP - P \quad \text{if } Y < IL \quad (1)$$

where, PC is pension complement, MP minimum pension, P entitled insurance pension, Y individual income, and IL income limit.

Pensioners with income above the individual income limit are entitled to pension supplement when the sum of their income and the entitled insurance pension are lower than the sum of the income limit and the minimum pension. In this case, the supplement consists on the difference between these sums, as long as the resulting sum of pension and supplement is not greater than the amount of the minimum pension.

$$PC = (IL + MP) - (Y + P) \quad \text{if } Y > IL \text{ and } (IL + MP) > (Y + P) \quad (2)$$

### 3.1.3 Administrative process

New pensioners do not need to apply for pension supplement. The eligibility is automatically calculated by the Social Security agency from the information provided in the insurance pension application form.

Pensioners who have had changes in some of the criteria that determine the eligibility or who have not provided all the information or documents when applied for the pension need to claim for the supplement separately.

The only document required in order to calculate the eligibility for pension supplement is the marriage certificate. No proof of declared income is required. Nevertheless, the Social Security crosses the data presented in the application form with data from the Inland Revenue to check the authenticity of the income information. The pensioner should notify on a regular basis to the social security changes in their financial situation.

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<sup>1</sup> The same minimum pension amount applies to old-age, disability and survivor pensioners aged 65 or more. The amount of survivor pensions other than widow/ers is divided by the number of recipients.

## 3.2 Non-contributory pension

### 3.2.1 Eligibility and income test

This income-tested benefit is paid to low-income individuals aged 65 or more who have lived at least 10 years in Spain (or EU in the case of EU citizens). In order to be eligible the individual must fulfil a personal and a family income test.

- **Income test**

The income test depends on the type of “economic unit” in which the pensioner lives. For pensioners not cohabiting with relatives (up to second degree), individual income must be below the maximum benefit amount (see below). If the claimant cohabits with relatives then, in addition to the individual test, the overall income of the “economic unit” (i.e., the individual plus their relatives) must not exceed a threshold set as the maximum amount of the benefit increased by 70 percent for each relative.

$$IL = MB * (1 + 0.7 * N) \tag{3}$$

where, IL is income limit, MB maximum benefit amount, and N number of relatives.

The income limit is multiplied by 2.5 if at least one member of the economic unit is a first-degree relative (i.e., parent or child) of the claimant. Therefore, the income test threshold varies quite arbitrarily according to the family *liens* of members living with the pensioner. For example, in 2004 while the income limit for a claimant living with the spouse was €6,576 per year; it was €23,209 for pensioners living with their spouse and a child.

All sources of income are included in the income-test. Tax deductions for employment and self-employment income (e.g. social insurance and trade-union contributions) can be deducted from the income test. The test applies to annual current income.

### 3.2.2 Amount

In 2004, the maximum amount was €3,868 per year spread in 14 payments of € 276.30. The amount of the benefit is equal to the maximum amount as long as the individual income is not greater than 25 percent of this amount. In the case more than one person in the economic unit is entitled to the benefit, the amount increases by 70 percent for each additional claimant and the resulting amount is equally shared across claimants.

$$NCP = (MB * (1 + 0.7 * (NC - 1))) / NC \quad \text{if } Y < 0.25 MB \text{ and } HY < IL \tag{4}$$

where, NCP is non contributory pension, Y individual income, NC is the number of claimants and HY is the economic unit's income.

If the income of the individual exceeds 25 percent of the maximum benefit amount, the pension amount is reduced by the income that exceeds this amount.

$$NCP = NPC - (Y - 0.25MB) \text{ if } Y < 0.25 MB \text{ and } HY < IL \quad (5)$$

Similarly, if the income of the economic unit including the non contributory pension exceeds the income limit, the pension is reduced by the amount of the excess.

$$NCP = NCP - (HY - IL) \text{ if } (HY + NCP) > IL \quad (6)$$

In any case, eligible individuals should not receive less than 25 percent of the maximum benefit:

$$NCP = \max(NCP, 0.25 MB) \text{ if } Y < MB \text{ and } HY < IL \quad (7)$$

### 3.2.3 Administrative process

This benefit is administered by the Institute for Migration and Social Services (IMSERSO) and the by regional governments (Autonomous Communities). Claimants need to present an application form personally (or by an authorised representative) to the administration and documents proving the income declared in the application form (e.g., income tax form, payslip, etc.). In the case of absence of income, the claimant must present a certificate from the Institute for Employment (INEM).<sup>2</sup>

## 4. Methods and Data

### 4.1 Take up measurement

Following previous international studies, two different take up definitions are used in this paper: caseload and expenditure take up. The caseload take up rate is defined as the ratio between the number of individuals who are entitled recipients (ER) and the sum of the number of ER and entitled non recipients (ENR):

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<sup>2</sup> Interviewed officials refused to confirm whether the administration cross-checks the documents presented by claimants with other official sources of data.

$$TU(N) = \frac{N(ER)}{N(ER) + N(ENR)} \quad (8)$$

where,  $TU(N)$  is the take up rate of caseloads,  $N(ER)$  is the number of entitled recipients and  $N(ENR)$  is the number of entitled non recipients

Expenditure take up is computed as the ratio between the sum of benefits of individuals who are entitled recipients (ER) and the sum of benefits of entitled recipients and non recipients (ENR):

$$TU(B) = \frac{B(ER)}{B(ER) + B(ENR)} \quad (9)$$

where,  $TU(B)$  is the take up rate of expenditure,  $B(ER)$  is the sum of entitlements of entitled recipients and  $B(ENR)$  is the sum of entitlements of entitled non recipients

The number and expenditure on ER can be observed directly in survey data as the number and amount of benefits reported by individuals in the survey. On the other hand, the number and expenditure on entitled non recipients is un-known and not directly observable from survey data. As a result, in order to assess the number and amount of ENR, one must simulate the theoretical eligibility and entitlement of individuals in the data. Following the same approach used in tax-benefit microsimulation, the entitlement is calculated through the application of the precise rules of the benefit on each and every individual in the sample. Thus, it is essential for a reliable simulation of entitlements that all information necessary for the application of the policy rules is available and accurately reported in the survey data.

Although the number and expenditure of entitled recipients can be obtained from published administrative statistics, we follow the approach used in most studies of assessing take up rates based on the ER observed from the survey data. The main reason for this is that it ensures consistency on the measurement of ER and ENR.

## 4.2 Data

The most recent database with the type of information necessary to assess and simulate the entitlement of recipients and non recipients of social benefits in Spain is the European Union Statistics on Income and Living Conditions (EU-SILC). This “general purpose” survey is designed by the Statistical Office of the European Community (Eurostat) and collected by the Spanish National Statistics Institute (INE). Despite of the limitations of this kind of survey in general and of the EU-SILC in particular (further detailed below), we consider it the most suitable database available to study the take up of current social benefits in Spain. Alternative databases such as the Taxpayers Panel (*Panel de Declarantes del IRPF*) and the Household

Budget Survey (*Encuesta Continua de Presupuestos Familiares*) either do not include part of the targeted population or do not provide all the information needed to identify the recipient or eligible individuals.

In our work we use data from the 2005 wave of the EU-SILC. The income reference period is the year of 2004. The original sample includes 12,996 households (37,491 individuals), the working sample, after eliminating observations with missing non-response inflation factor, is 12,937 households (37,276 individuals). The information available in the database is representative of the Spanish population at the national and regional (NUTS2) level. The data contains detailed information on income, housing and other demographic, social and economic characteristics of respondents. The interviews are carried out to all individuals in the household who are aged 16 or more. The information available for individuals below that age is restricted to basic demographic characteristics such as age, gender and relationship to other household members.

#### **4.2.1 Data reliability**

The reliability of take up estimates depend critically on the accuracy of the survey data on representing the population of interest and their incomes, in particular, the studied social benefits. The accuracy of the survey can be tested by contrasting aggregates produced with it against published statistics based on the census and administrative records. However, when making this comparison one must bear in mind that figures may not be identical for a number of reasons:

- (a) Population: while administrative statistics report all paid benefits, some of which may be received by individuals not living in private households (e.g., hospital or institutions) or living abroad, household surveys, such as the EU-SILC, are representative only of the population living in private households in the country.
- (b) Time period: there is a mismatch between the date of interview (in our case the second quarter of 2005) and the income reference period in the EU-SILC (2004). Thus, part of the population of the income reference period may not be represented at the time of the interview.
- (c) Accounting unit: while most administrative statistics are published in terms of the number of benefits, the EU-SILC reports the number benefit recipients and no information is provided about the number of benefits received. According to INSS (2007), in 2006 903,810 pensioners received two or more pensions. In average, the number of pensions exceeds the number of pensioners by 9.7 percent.

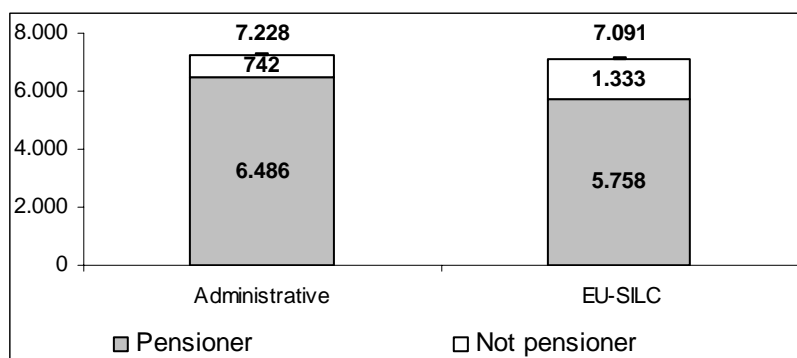
- (d) Statistical representativeness of sample: although the sample is representative of the overall population it is not necessarily representative of population groups such as recipients of particular social benefits.

Therefore, making EU-SILC aggregates and administrative statistics comparable is not a task that can be done without uncertainties and difficulties. Our main aim here is to illustrate the similarities or dissimilarities between the pensioner’s populations provided in both datasets. Our findings should throw some light in the strengths and limitations of the EU-SILC for our particular purpose and provide some warnings about the care on interpreting the take up estimates.

- **Old age population receiving and not receiving pensions**

Figure 1 shows that, weighting the sample with the cross sectional factors, the population aged 65 or more in the EU-SILC is slightly underestimated in comparison to Spanish National Statistics Institute estimate (based on 2001 census) for 2004. As already mentioned, this may be due in part to the mismatch between the date of interview (second quarter of 2005) and the income reference period of the EU-SILC (2004). What is more striking is that the number of pensioners aged 65 or more in the EU-SILC is about 10 percent lower than in the administrative statistics. Although bearing in mind that the administrative figures are not official but an estimate (see notes to Figure 1), it seems that the number of people aged 65 or more receiving a pension is underestimated in the EU-SILC.

**Figure 1** Number of people aged 65+ receiving and not receiving pensions in Spain, 2004 (in thousands)



**Note:** Administrative number of recipients calculated based on numbers from Table 1 and the ratio between pensions and pensioners (1.084) published by the Social Security.

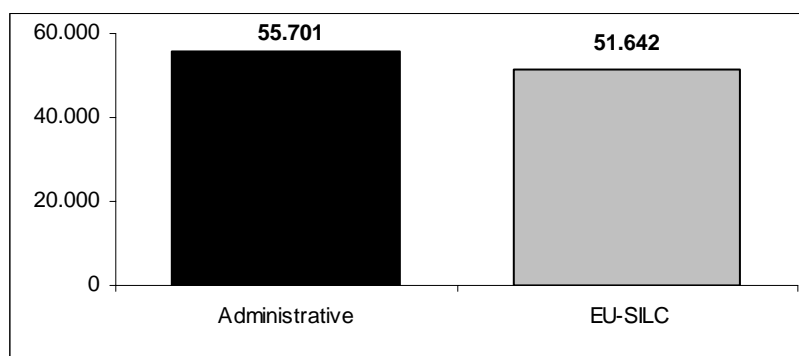
**Source:** INE (2008), IMSERSO (2004), INSS (2005), MTAS (2005), MTAS (2006) and own calculations with EU-SILC 2005

This conclusion is reinforced by Figure 2 which shows that the aggregate pension expenditure on people aged 65 or more is underestimated by about 7 percent. It is worth noticing that similar results were obtained in a previous study. Using 1999 data from the European Community Household Panel (ECHP), Levy and Mercader, (2005) have found that the proportion of individuals aged 65 or more receiving old-age benefits in the ECHP (64 percent) is about the same as in the administrative statistics. However, the proportion of those receiving other

benefits (i.e., social benefits excluding old-age benefits, mainly survivor benefit) is significantly smaller (about 10 percentage points) in the ECHP.

As a result, EU-SILC seems to considerably outnumber the proportion of individuals aged 65 or more without any benefit. This is an important finding that must be taken into account when analysing take up results as it may be a source of downward bias in our estimates.

**Figure 2 Pension expenditure on people aged 65+ per year (millions of euro)**



Source: IMSERSO (2004), INSS (2005), MTAS (2005), MTAS (2006) and own calculations with EU-SILC 2005

- **Number of elderly pensioners by age and gender**

Table 2 shows that the EU-SILC mainly underestimates the number of older (aged 80 or more) female pensioners. This finding highlights that while take up estimates for this particular population group may be subject to significant bias, estimates for other groups may be more reliable.

**Table 2. Number of elderly pensioners by age and gender**

	Administrative	EU-SILC	Adjustment
<b>Total</b>	<b>6.486.025</b>	<b>5.758.201</b>	<b>88,8%</b>
65	1.384.459	1.419.617	102,5%
70	1.586.837	1.462.508	92,2%
75	1.419.359	1.399.101	98,6%
80	2.095.370	1.476.975	70,5%
<b>male</b>	<b>2.954.800</b>	<b>2.932.510</b>	<b>99,2%</b>
65	762.315	834.181	109,4%
70	826.118	836.616	101,3%
75	643.319	673.290	104,7%
80	723.048	588.423	81,4%
<b>female</b>	<b>3.531.225</b>	<b>2.825.691</b>	<b>80,0%</b>
65	622.144	585.436	94,1%
70	760.719	625.892	82,3%
75	776.040	725.811	93,5%
80	1.372.322	888.552	64,7%

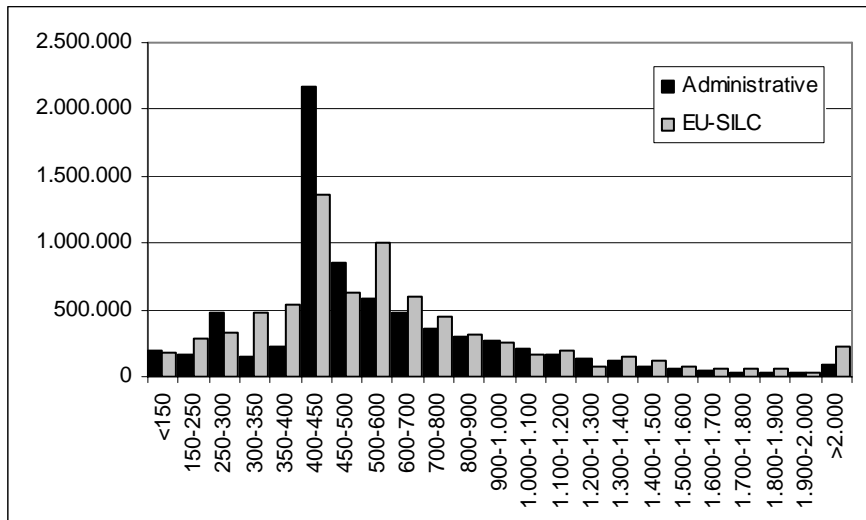
Note: Administrative number of recipients calculated based on numbers from Table 1 and the ratio between pensions and pensioners (1.084) published by the Social Security.

Source: INE (2007), IMSERSO (2004), INSS (2005), MTAS (2005), MTAS (2006) and own calculations with EU-SILC 2005 Distribution of pensioners by pension level

Figure 3 compares the distribution of pensioners by pension level. Although the EU-SILC and administrative statistics are not strictly comparable, in general the shape of both distributions is

rather similar with coincident ups and downs. The correlation coefficient between these distributions is 87 percent. Despite that, the EU-SILC considerably underestimates the number of pensioners in the lower part of the distribution. This is consistent with the previous finding as, in average, older female have quite low contributory pensions (€364 against an overall average of €581).

**Figure 3** Number of pensioners (all ages) by pension level



**Note:** Includes all Social Security contributory pensions (old-age, survivors and disability) at all ages. Public servant, non contributory, FAS and LISMI pensions are not included.  
**Sources:** IMSERSO (2005), and own calculations based on EU-SILC 2005.

In sum, we have described and tried to understand the possible sources of divergence between the EU-SILC and the official administrative records. We have shown that with the exception of older female the representation of elderly pensioners in the survey data is satisfactory. Also the shape of the distribution of pensioners by pension level is quite close between the two sources. The EU-SILC data tends to underestimate the number of low income pensioners probably due to the underestimation of older female pensioners.

### 4.3 Data Imputation

The main difficulty with using the EU-SILC for studying the take up of social benefits is that the data made public is not in the appropriate format. The most important problem is that social benefits are merged into variables according to ESSPROSS classification. As this classification considers all old-age, survivor and cash disability benefits paid after the standard retirement age (65 years in Spain) as old-age benefits, all such benefits are reported in a single variable. No additional information is provided about the type of benefits included in the variable.

Naturally, this aggregate level of information is inadequate to identify the receipt and entitlement to the different benefits. Hence, in order to use this data to estimate the take up of social benefits in Spain one must split the old-age benefit variable into the different types of benefits an elderly person could receive. Furthermore, income variables in the 2005 Spanish wave of the

EU-SILC are reported net of taxes and social contributions. Again, as this format is not suitable for the simulation of benefit entitlement, gross incomes need to be imputed.

### **4.3.1 Imputing gross income**

The income data in the EU-SILC is collected net of withholding income tax and social contributions. However, the income test of analysed benefits is carried out on gross capital income and earnings net of social contributions (but not net of income tax). Hence, in order to compute benefit entitlements one needs to observe gross income and the amount of social contributions. Following an approach first used to adjust the ECHP data to the Spanish tax-benefit model EspaSim (Levy et al., 2001), an “iterative algorithm” is applied to convert net income into gross income for each observation and source of income available in the data (c.f., Appendix 1 for details).

### **4.3.2 Splitting benefits by type**

As already mentioned, all old-age, survivor and cash disability benefits (including means-tested and non means-tested benefits) of people aged 65 or more are reported in a single variable in the EU-SILC, and therefore need to be split. Some benefits cannot be distinguished as they share similar or identical amounts and the information available in the survey is not sufficient to identify them in terms of the eligibility conditions. This is particularly the case of old-age, survivor and disability insurance pensions. As these benefits can be received by anyone aged 65 or more and the amount can be virtually any, the only way of separating one from another would be if we knew the “cause” of the benefit (retirement, disability or widowhood). However, the information available in the data is not sufficient to accurately identify those causes.. As a result, old-age, survivor and disability pension supplements are considered in the analysis below as one.

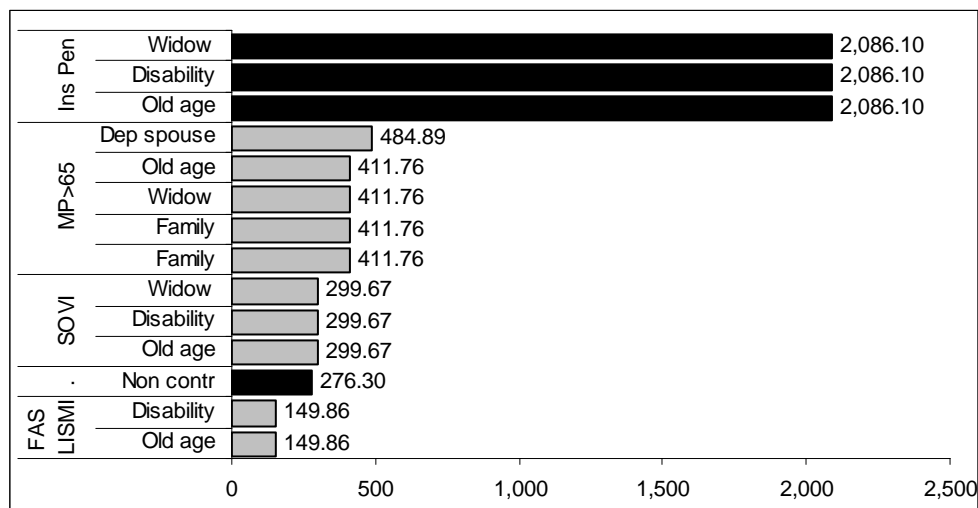
On the other hand, some benefits differ substantially in terms of amount and eligibility conditions and therefore, under some assumptions, can be identified. Figure 4 shows that, with the exception of contributory and non contributory pensions, all benefits available to the elderly are paid as fixed amounts<sup>3</sup>. Moreover, there is a graduation in the level of the different programmes. Insurance pensions can be any amount up to €2,086 per month. The minimum pension level of old-age, survivor and disability pensions of people aged 65 or more is the same, although larger with the presence of dependent spouses. Therefore, although cannot be distinguished pension supplements by schemes (old-age, disability or survivor) we can identify them from other benefits. As seen before, depending on the income test the non-contributory

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<sup>3</sup> Although pension supplements may vary, the final pension (i.e., the sum of the original contributory pension and the supplement) is the same.

pension can be up to €276 per month, whereas FAS and LISMI benefits are fixed in €150 per month.<sup>4</sup>

**Figure 4 Pension level by programme for individuals aged 65 or more (monthly euro)**



- **Procedure**

Assuming that all individuals fulfilling the eligibility conditions and with old-age benefits equal or similar to the value of the minimum pension are recipients of pension supplement, pension supplement recipients can be identified by simply observing the benefit amount and eligibility criteria in the data. Similarly, old age non contributory pensions can also be distinguished from the other benefits by checking the benefit amount and eligibility conditions.

In practice, the identification is complicated by the fact that in most cases the annual income reported in the data is not exact but the average monthly income multiplied by the number of payments during the year. Aiming to partly reduce the error margin, the identification of benefits is performed observing benefit amounts on a monthly basis. Although the number of payments is not available in the data they can be approximated by the monthly activity status of the individual.

Despite the adjustments, the analysis of the data suggests that incomes (including benefits) are reported as a rough approximation of the “true” monthly income. Therefore, benefits cannot be identified by their exact amounts or precise fulfilment of the income tests, but within intervals around them. We have used an iterative procedure for the identification of recipients of each benefit. Taking as given the “official” number of recipients published in administrative statistics, we set out an interval (determined endogenously) around the official amount of the benefit, such that the proportion of identified recipients in the dataset is as close as possible to that in

<sup>4</sup> This amount has not been updated since 1990 to encourage FAS and LISMI recipients to migrate to the non-contributory pension. There is a general perception that most remaining recipients are not really entitled to these benefits (i.e., do not fulfil the eligibility conditions), as the income test limit is tighter and the benefit amount lower than for the non-contributory pension.

administrative statistics. This is illustrated in Figure 5. The shaded area represents the interval where benefits observed in the data (and fulfilling the eligibility conditions) are assumed to be the benefit "B".

**Figure 5 Benefit identification procedure**

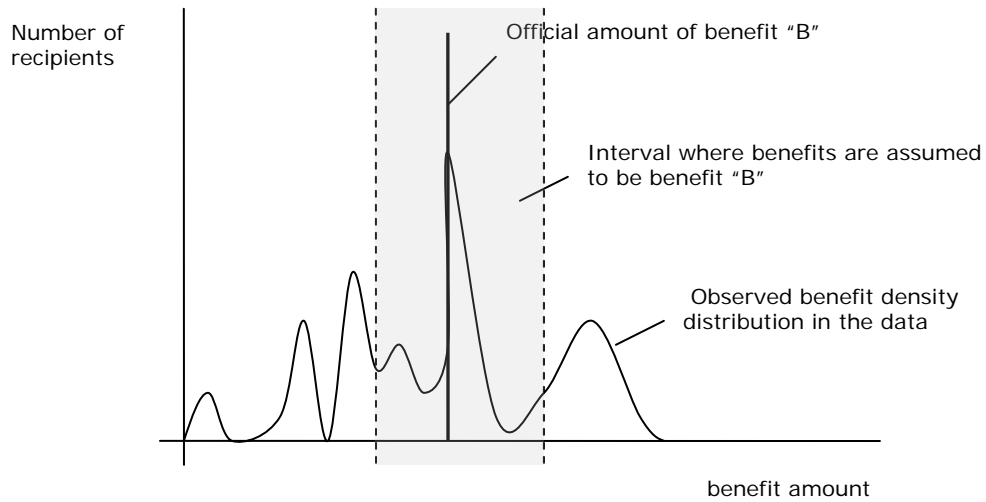


Table 3 shows the accuracy of the split benefits in comparison to the administrative statistics. By design, the adjustment of the number of recipients between the two sources is high for all schemes. However, the quality of results is reassured by the good fit by gender (which is not controlled in the splitting procedure). The main exception is female recipients of supplementary pension with dependent spouses which is highly overestimated. Notice that these figures are subject to sampling error which is particularly high in some cases.

**Table 3. Distribution of old-age pensioners by schemes and gender**

	Administrative	EU-SILC	Adjustment	Std Err
<b>Total</b>	<b>6,486,042</b>	<b>5,758,201</b>	<b>89%</b>	
Minimum Pension	1,846,287	1,589,496	86%	52,102
With dependent spouse	289,858	247,208	85%	18,872
Without dependent spouse	1,556,430	1,342,288	86%	37,702
Non contributory pension	281,430	243,478	87%	18,551
Other pensions	4,358,325	3,925,227	90%	71,718
<b>Male</b>	<b>2,954,800</b>	<b>2,932,510</b>	<b>99%</b>	
Minimum Pension	702,309	659,697	94%	25,303
With dependent spouse	287,337	223,014	78%	19,871
Without dependent spouse	414,972	436,683	105%	27,498
Non contributory pension	45,685	48,683	107%	7,521
Other pensions	2,206,806	2,224,130	101%	64,872
<b>Female</b>	<b>3,531,225</b>	<b>2,825,691</b>	<b>80%</b>	
Minimum Pension	1,143,978	929,799	81%	39,861
With dependent spouse	2,521	24,194	960%	5,927
Without dependent spouse	1,141,458	905,605	79%	34,822
Non contributory pension	235,745	194,795	83%	16,769
Other pensions	2,151,501	1,701,097	79%	47,857

**Note:** Administrative number of recipients calculated based on numbers from Table 1 and the ratio between pensions and pensioners (1.084) published by the Social Security.

**Source:** INE (2008), IMSERSO (2004), INSS (2005), MTAS (2005), MTAS (2006) and own calculations based on EU-SILC 2005.

## 5. Take-up estimates

Pension supplement is a benefit that tops up the difference between minimum insurance pensions and the pension the individual is entitled to. As we have described in detail in Section 2, only insurance pension recipients are eligible to this benefit. Here, we compute as eligible non-recipients (ENRs) people aged 65 or more who receive insurance pension and are eligible to this supplement but whose observed pension is below the minimum pension. Expenditure take-up is measured as the difference between the legal amount of the minimum pension the person is entitled to and the insurance pension reported in the data. This is only measured among entitled non-recipients. Among recipients, the differences between the amount reported in the data and the legal amount are assumed as data measurement error and, therefore, are not included in the take-up estimates.

Since the approach used in our work to identify supplement recipients sets an interval around the legal amount of the benefit, only those with pensions below this interval are identified as eligible non-recipients. We must emphasize that the precision of the estimates relies decisively on the accuracy of the splitting procedure and, also, on the quality of the income data reported in the data.

We compute as eligible non-recipient to non-contributory pension any person aged 65 or more without any old-age benefit that fulfils the individual and family income tests of the non contributory scheme. Expenditure take-up is measured as the benefit the person would be entitled to. Again, differences between the theoretical benefit entitlement and the amount reported in the data by those identified as recipients of non-contributory pension are assumed as data measurement error and, therefore, are not included in the take-up estimates.

According to our results, summarised in Table 4, and taking into account sampling error there are between 400 and 500 thousand pensioners eligible to pension supplements not receiving this benefit. As a result, the take up rate is between 76 and 80 percent. The largest groups of entitled non recipients are single females and married males with dependent spouses. Take up rates are particularly high among married males and females without dependent spouses. On the other hand, take up is especially low among married males with dependent spouses<sup>5</sup>. The poorer level of adjustment of the splitting procedure (c.f., Table 3) may partly explain this result.

Although the overall take up rates of pension supplements are slightly higher than the international evidence for similar types of benefits, we consider them somewhat low given that claiming process is almost automatic. Moreover, under this programme we expect administrative errors to be rather small as non pension incomes of low-income pensioners do not tend to fluctuate much from one year to the next. Thus, for this scheme we cannot reject the interpretation that much of the estimated non-take up (20 to 24 percent) may be due to our own measurement error when assessing entitlement. Particularly, taking into account that those results are mainly driven by single females and married males with dependent spouses, both of which have entitled recipients underestimated in the data.

**Table 4. Caseload take-up rates and number of entitled recipients and non recipients (in thousands) of pension supplements for the elderly**

	<b>all pensioners</b>	<b>married male</b>	<b>married female</b>	<b>single male</b>	<b>single female</b>
<b>Pension supplements</b>					
Number of recipients	1,589	544	243	116	687
Range of entitled non recipients	395 - 505	125 - 177	55 - 93	11 - 35	167 - 237
<b>Take-up ranges</b>	<b>76 - 80</b>	<b>75 - 81</b>	<b>72 - 82</b>	<b>77 - 91</b>	<b>74 - 80</b>
<b>Pension supplements with dependent spouse</b>					
Number of recipients	247	223	24		
Range of entitled non recipients	158 - 214	110 - 163	34 - 65		
<b>Take-up ranges</b>	<b>54 - 61</b>	<b>58 - 67</b>	<b>27 - 42</b>		
<b>Pension supplements without dependent spouse</b>					
Number of recipients	1,342	321	218	116	687
Range of entitled non recipients	225 - 303	5 - 23	14 - 35	13 - 34	169 - 235
<b>Take-up ranges</b>	<b>82 - 86</b>	<b>93 - 98</b>	<b>86 - 94</b>	<b>77 - 90</b>	<b>75 - 80</b>

Source: own calculations using EU-SILC

In line with the evidence in most studies, Table 5 shows that the average amount pension supplement unclaimed is lower than the amount claimed. This supports the widespread

<sup>5</sup> Estimated take up rates for females with spouses may not be consistent due to small number of observations.

hypothesis that in average take-up rates increase with the amount of the entitlement. In average, the unclaimed amount is €39 per month. The average benefit not received varies considerably between those with and without a dependent spouse. The expenditure take up rates is quite high ranging between 91 and 93 percent. With the exception of married males with dependent spouses, the rate is well above 90 percent.

**Table 5. Expenditure take-up rates and average entitlement (in monthly euro) of pension supplements for the elderly**

	all pensioners	married male	married female	single male	single female
<b>Pension supplements</b>					
Amount claimed	123	122	124	125	124
Amount unclaimed	39	51	69	17	22
<b>Take-up ranges</b>	<b>91 - 93</b>	<b>88 - 91</b>	<b>82 - 89</b>	<b>96 - 99</b>	<b>94 - 96</b>
<b>Pension supplements with dependent spouse</b>					
Amount claimed	118	118	116	0	0
Amount unclaimed	64	54	91	0	0
<b>Take-up ranges</b>	<b>68 - 74</b>	<b>75 - 81</b>	<b>49 - 65</b>		
<b>Pension supplements without dependent spouse</b>					
Amount claimed	124	125	124	125	124
Amount unclaimed	21	23	23	17	22
<b>Take-up ranges</b>	<b>96 - 97</b>	<b>99 - 100</b>	<b>97 - 99</b>	<b>96 - 99</b>	<b>94 - 96</b>

Source: own calculations using EU-SILC

As for the old-age non contributory pension, results presented in Table 6 suggest that between 360 and 460 thousand entitled individuals do not receive it. This implies that the take up rate would range between 34 and 40 percent. An alternative estimate, computed assuming a tighter income test limit<sup>6</sup>, suggests a higher but still quite low rate of between 51 to 60 percent. Under both scenarios, non take is concentrated mainly among females, in particular those who are married. These results could be reflecting either that married females do not claim these as they are (or consider to be) supported by their partners' income or, following the discussion in section 4.2.1, that married females receiving elderly benefits are underestimated while married females not receiving benefits are overestimated in the sample.

<sup>6</sup> Under this assumption the income limit is not multiplied by 2.5 when the pensioner cohabits with a first degree relative.

**Table 6. Caseload take-up rates and number of entitled recipients and non recipients (in thousands) of old-age non contributory pension**

	<b>all pensioners</b>	<b>married male</b>	<b>married female</b>	<b>single male</b>	<b>single female</b>
<b>Non contributory pension</b>					
Number of recipients	243	32	98	16	97
Range of entitled non recipients	360 - 463	5 - 20	293 - 373	0 - 15	37 - 80
<b>Take-up ranges</b>	<b>34 - 40</b>	<b>61 - 85</b>	<b>21 - 25</b>	<b>53 - 100</b>	<b>55 - 72</b>
<b>Non contributory pension *</b>					
Number of recipients	243	32	98	16	97
Range of entitled non recipients	164 - 230	1 - 5	131 - 183	0 - 14	17 - 45
<b>Take-up ranges</b>	<b>51 - 60</b>	<b>86 - 100</b>	<b>35 - 43</b>	<b>55 - 100</b>	<b>68 - 85</b>

Source: own calculations using EU-SILC

Differently from the pension supplement and most international evidence, in average unclaimed non contributory pension entitlements (€207 per month) are slightly higher than claimed amounts (€205). This result is reversed under the assumption of a tighter income limit, falling, in average, to €181 per month. The fall is particularly significant among married females. Therefore, while under the first scenario the expenditure take up ranges between 34 and 40 percent, under the second it is between 55 and 63 percent.

**Table 7. Expenditure take-up rates and average entitlement (in monthly euro) of old-age non contributory pension**

	<b>all pensioners</b>	<b>married male</b>	<b>married female</b>	<b>Single male</b>	<b>single female</b>
<b>Non contributory pension</b>					
Amount claimed	205	181	208	231	206
Amount unclaimed	207	129	210	175	212
<b>Take-up ranges</b>	<b>34 - 40</b>	<b>69 - 89</b>	<b>21 - 25</b>	<b>60 - 100</b>	<b>54 - 72</b>
<b>Non contributory pension (*)</b>					
Amount claimed	205	181	208	231	206
Amount unclaimed	181	146	178	169	204
<b>Take-up ranges</b>	<b>55 - 63</b>	<b>88 - 100</b>	<b>39 - 47</b>	<b>62 - 100</b>	<b>69 - 85</b>

Source: own calculations using EU-SILC

The complexity of the income test as well as the information required on income of family members involved for this scheme tend to make the benefit claiming difficult and the administrative process more prone to error, thus increasing the probability of non take up. However, complexity may also increase the analyst measurement error. In particular, it is well known that capital income, which is particularly relevant for the elderly, is underreported when compared to fiscal sources (Andres and Mercader, 2001). Also, the splitting procedure of the old-age pension variable, even if it has been done using an iterative procedure and taking into account as much information as we had, cannot be perfect. Error in the splitting procedure would also tend to bias our take up estimates in a direction which is a priori difficult to predict.

The strategy followed in this work seems to us the most adequate in order to make progress on the knowledge of this issue. However, we do not expect to come out with reliable estimates of take up in Spain. This is mainly because it is difficult to conceal our difficulties as analysts to both “rightly” split pension benefits and “rightly” assess eligibility from our data. On the second

of these issues, Duclos (1995) was pioneering in recognising the difficulties of analysts in measuring real entitlement perfectly. Not all the information required to assess entitlement is contained in the survey, and as important in our case, answers provided by households are not always exact.

## 6. Concluding comments

Our objective in this paper has been to contribute to the study of take up by attempting to measure take-up rates of means-tested benefits for the elderly in Spain. The schemes evaluated have been the *Pension Supplements* and the *Non-Contributory Pension*. Our work has used the 2005 wave of the European Union Statistics on Income and Living Conditions (EU-SILC) referred to 2004 incomes.

Our analysis estimates take-up rates for pension supplements in a range between 76 and 80 per cent while a substantially lower take up for the non-contributory pension scheme, between 34 to 40 or 51 to 60, depending on assumptions about the income test limit. According to these estimates, non-take in Spain is as important as in other countries for which evidence is available.

One of our main findings is that pension supplements automatically assigned by the administrative officials show a take up substantially higher than non-contributory pensions which require active action by the recipient in the claiming process. Thus, we confirm one of the main lessons taken from the study of the variation in take-up across programmes in the empirical literature: “Programmes for which no “extra action” is required have the highest take-up rates. In contrast, other programmes, which do require extra action, have much lower take-up rates.” (Remler et al, 2001).

Secondly, our analysis emphasises that our estimated take up rates are likely to be underestimated. A more accurate eligibility screening test based on more reliable micro-data might significantly increase the take up estimates. This is particularly the case for the more complex test applied to the non-contributory scheme. The fact the average unclaimed non-contributory pension is not significantly lower than the average claimed benefits reinforces this view and highlights the importance of dealing with “analysts” measurement error. In the words of Duclos (1995) “The greater the inaccuracy of the analyst’s measurement of eligibility relative to the own inaccuracy of the agency, the more estimated take-up tend to underestimate the true take up”. This is likely to apply in our take up estimates. In this paper there has been not attempt to correct for the possible inaccuracies of the analyst’s measurement error, but we have pointed out some of those. These are topics that would certainly deserve more research in the future. Richer data than the one used here would naturally add to our understanding of the size and determinants of take-up.

Finally, having emphasised our measurement error problem, the essential question reminds: To what extent poor old age people get in fact the benefit they are entitled? While not having a satisfactory answer to it, our analysis does not allow us to reject the premise that non-take up should be an issue of political concern in Spain.

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## APPENDIX

### A.1. Imputing gross income:

Gross income ( $y$ ) is the sum of net income ( $x$ ), social contributions ( $c$ ) and income tax withholding ( $t$ ).

$$y = x + c + t \quad (10)$$

In order to convert net into gross incomes one must use the social contribution  $c(\cdot)$  and income tax withholding  $t(\cdot)$  functions. The simpler is the structure of these functions the easier is the solution. In Spain, these functions differ across type of income. Self-employment incomes have very simple functions. Social contributions are lump sum and withholdings are collected using a flat rate. As a result, the conversion from net to gross self-employment income is rather trivial.

$$x_{se} = y_{se} - c_{se} - y_{se} * t_{se} \longrightarrow y_{se} = \frac{x_{se} + c_{se}}{1 - t_{se}} \quad (11)$$

These functions are much more complex in the case of employment incomes. The base and the rate of social contributions on employment income depend on the worker's earnings and employment characteristics 'z' (type of activity, occupation, contract and number of months worked during the year). Income tax withholdings on employment income depend on the expected annual income and other personal characteristics 'k' (mainly marital status and number of children).

$$y_e = x_e + c_e(y_e, z) + y_e * t_e(y_e, k) \quad (12)$$

Given the complexity of these functions, a numerical iterative method becomes necessary. A way of solving the equation is to iterate according to the following fixed-point algorithm:

$$y_e^{n+1} = f_x(y_e^n) = x_e + c_e(y_e, z) + y_e * t_e(y_e, k) \quad \text{with} \quad y_e^0 = x_e \quad (13)$$

The existence of a fixed point is guaranteed if  $f_x(y_e)$  is continuous. The solution will be unique if, in addition,  $|f'_x(y_e)| < 1$ . Figure 6 represents the function  $f_x$  for a worker without children. The function is not continuous and, in some intervals, the solution is not unique. Despite that,  $f_x$  could be easily approximated by a continuous and derivable function having a derivative lower than one, without any remarkable empirical implication (Levy and Mercader, 1999).

**Figure 6** Gross and net employment income for a worker without children

