

# The tax unit in the Spanish Income Tax System: an empirical approach<sup>1</sup>

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### **Abstract for an Applied Paper**

Since 2003 we have been working on microsimulations related to the Spanish Income Tax System, through instructions programmed in STATA. We do not intend to produce a 'standardised model', where you can introduce some parameters in order to obtain direct results. Nevertheless, we develop a fitted version in each case to study each problem. As a database, we use in general the European Community Household Panel (ECHP), but sometimes we have used the Spanish Income Tax Taxpayers Survey. With these static models we have worked on several aspects of Spanish Income Tax, such as inflation, tax credits or regional policy.

In this paper our interest will be centred on the tax unit. Joint filing exists since the beginning of the Spanish Income Tax System in 1977, firstly as a compulsory measure, but more recently as an alternative to individual filing. However, until now there have not been any microsimulation studies in Spain with regard to alternatives in family taxation.

Our aim is to simulate the consequences of abolishing joint filing. We compare current Spanish Income Tax with universal individual filing, and we study the consequences of different proposals.

Area: static microsimulation model (income tax)

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# 1. Introduction

The choice of tax unit is one of the classic problems that income tax literature has more frequently tackled. At first it was thought that the family was the most adequate tax unit to configure the tax but the opinion that an individual tax would adapt better to the characteristics of the current society has kept gaining more followers. So, nowadays, there are many European countries that only allow taxpayers to do individual tax filing. In Spain there has also been an important evolution in our Income Tax (Impuesto sobre la Renta de las Personas Físicas, IRPF), as we have passed from compulsory joint filing to consider it as an optional regime and complementary of the individual tax filing. However, our country has not done yet the final step: the definitive abolition of joint filing.

The last reform of the income tax that has come into effect in 2007 considered once more the question of tax unit. It seems that the legislator, still admitting that there are sufficient arguments to eliminate the joint filing, prefers its maintenance in a temporary way because there is a group of families that would be economically “harmed” with this abolition. So that, it is very interesting to know with detail the characteristics of the individuals and the families who benefit from this optional regime and also to analyze how the tax structure might be modified. In this paper we use micro data from the European Community Household Panel (ECHP) to simulate the consequences derived from the abolition of joint filing and, therefore, to see how to implement universal individual tax filing in the Spanish Income Tax.

The main goal of this paper consists in identifying, first, which individuals and families benefit from the existence of joint filing. With this information we like, secondly, to implement tax alternatives where we remove the joint filing.

This paper is structured in the following way. After this introduction, the second section is devoted to describing which has been the methodology used in the microsimulation exercises that we carry out next, in the third section. The first of these exercises consists in doing the tax filing with 2004 Income tax regulation to the individuals of the sample and analysing who are those that will prefer to do joint filing.

This descriptive analysis allows us to compare the socio-economic characteristics of this group with those of the rest of taxpayers. Later, we simulate the consequences that the abolition of joint filing would have at present and, therefore, how to implement the universal individual tax filing in the Spanish case. As a measure of this type would cause an important increase of tax collection, we consider two alternative scenarios that would be added to this measure in order to maintain constant the tax collection: a homogeneous reduction of the tax rates and a constant tax credit. We devote the last section to present our main conclusions.

## 2. Methodology

Our empirical piece of work is based on several microsimulation exercises that we have carried out considering the Spanish Income tax on fiscal year 2004. We have used a static model without behavioural responses from tax payers.

In our microsimulation exercises we have used the European Community Household Panel (ECHP), carried out in Spain by the Instituto Nacional de Estadística (INE). We have used data from the seventh wave, corresponding to year 2000. This database covers a wide range of socioeconomic topics from year 2000 except from income sources, whose data correspond to 1999. The Panel corresponding to 2000 uses a wider sample of households and individuals, so that it is statistically representative of the households of each of the 17 Spanish Autonomous Regions. The ECHP includes not only information from households but detailed information from each one of the individuals of these households. We have used STATA Special Edition 9.0 in the programming of the simulations.

Our first task has been to merge the different data files in the ECHP. We started from the *Household Members Data file*, which provides basic socioeconomic information from the 46.046 individuals in the sample. Using the *merge* command, STATA adds to each individual the information contained in the rest of data files. First, we included the information contained in the *Adult Data file*. This file contains detailed information on individuals older than 16 years, including income information and the source of income. Then, we added to all individuals in each household the data contained in the *Household Data file*, including information on the physical and

socioeconomic characteristics of each household. We also included the data from the *Incidences Data file*, which will be useful further on to eliminate some problematic individuals and homes from the sample.

Finally, we added the data concerning family relationships from the *Relationship Data file*. This file contains codes that reflect the relation between the different members of a household. This information is detailed by pairs of individuals, showing the relative situation of a household member with the rest of the household members. Given how the data have been introduced in the data file this file has many more rows (62.503 family relationship codes) than the files with the rest of the information (46.046 individuals) so that it was not possible to merge both files without carrying out some modifications.

To solve this problem, we had to obtain only one code suitable to identify the absolute position of every member of each family in each household. This code should be added to each individual in the prior data file so that we could know the position of each individual in its family.

To go from relative to absolute reference codes we have programmed a STATA module that produced 52 different codes, depending on the absolute position in the family of each individual. These 52 codes reflect the complex reality of Spanish families; sometimes there are households with quite “traditional” families, but sometimes there are individuals in a complex relationship’s network that are difficult to fit in the concept of family.

However, the Spanish Income Tax does not take into account the family burdens derived from every individual living together with the tax payer, but only those coming from close relatives such as the married couple (allowing joint filing); the children (considered in the family allowance) and the ancestors (considered in the ancestors’ allowance). For this reason we decided to split the more complex households in several families, in order to taking into account these family burdens. After this procedure the number of codes felt dramatically to:

- 0: older person in the family
- 1: married couple of 0

- 2: single son/daughter of 0 and/or of 1
- 20: married son/daughter of 0 and/or of 1
- 21: married couple of 20
- 4: grandchildren of 0 and/or of 1

After ascribing these codes to the 46.046 individuals in the panel we have taken out those households whose economic data are not complete, based on the information from the *Incidences Data file*. When one individual in a household lacks some information, we have taken the whole household out from the data file.

Moreover, we have not used households in two specific regions (Vasque Country and Navarra) because they have different income tax regulations. Finally, we have not used de inhabitants of Ceuta and Melilla because the sample was not statistically representative in this Autonomous Cities. So that, the final number of individual results in 37.499, that are part of 13.581 families, living in 13.018 households. However, there is an additional aspect to consider. As Spanish Income Tax allows joint filing, we should identify the family tax units in each family. Using the criteria set in the Spanish regulation in 2004 we have identified the family tax units in the sample. They are 20.900 tax units, including those with only one member.

Alter refining the sample and set the family tax units we have carried out our first microsimulation exercise. This exercise consists in calculating the Spanish Income Tax for every tax unit in the sample using the regulations into force during the 2004 fiscal year. These results will be quite useful to make comparisons with some alternatives that we will introduce later. In the exercise we have calculated the tax duties of each individual in the sample and also the tax duties derive from individual filing, if it is the case. We suppose families behaving rationally, so they try to minimise the amount of tax paid, and consequently they choose the most favourable tax option (individual or joint filing). The results obtained are upgraded from sample level to population level using the weights included in the ECHP.

In the tax calculation process we have used the income data from the sample (corresponding to fiscal year 1999). These income data were collected net of taxes,

excluding withholdings, social security charges or deductible expenditures. To carry out the Microsimulation we need full income, so we needed to upgrade net income taking into account the different withholding percentages corresponding to fiscal year 1999. In the specific case of labour income we have also considered the Social Security duties paid by workers. To do so, we have designed an iterative process to determine the withholding percentages needed to upgrade net income to full income. This has been a quite hard work as withholding percentages depend not only on the income level but also on personal and family circumstances of taxpayers. In the case of capital income, the information corresponds to family income, so we have homogeneously split it between the adult members of each household.

Once we have the 1999 full income amounts we have updated them in order to calculate the tax duties on 2004. We have used GDP deflator between 1999 and 2004. We consider that this index is better than the Consumer Prices Index (CPI) as it takes into account price rises but also income increases. We have also converted pesetas into euros.

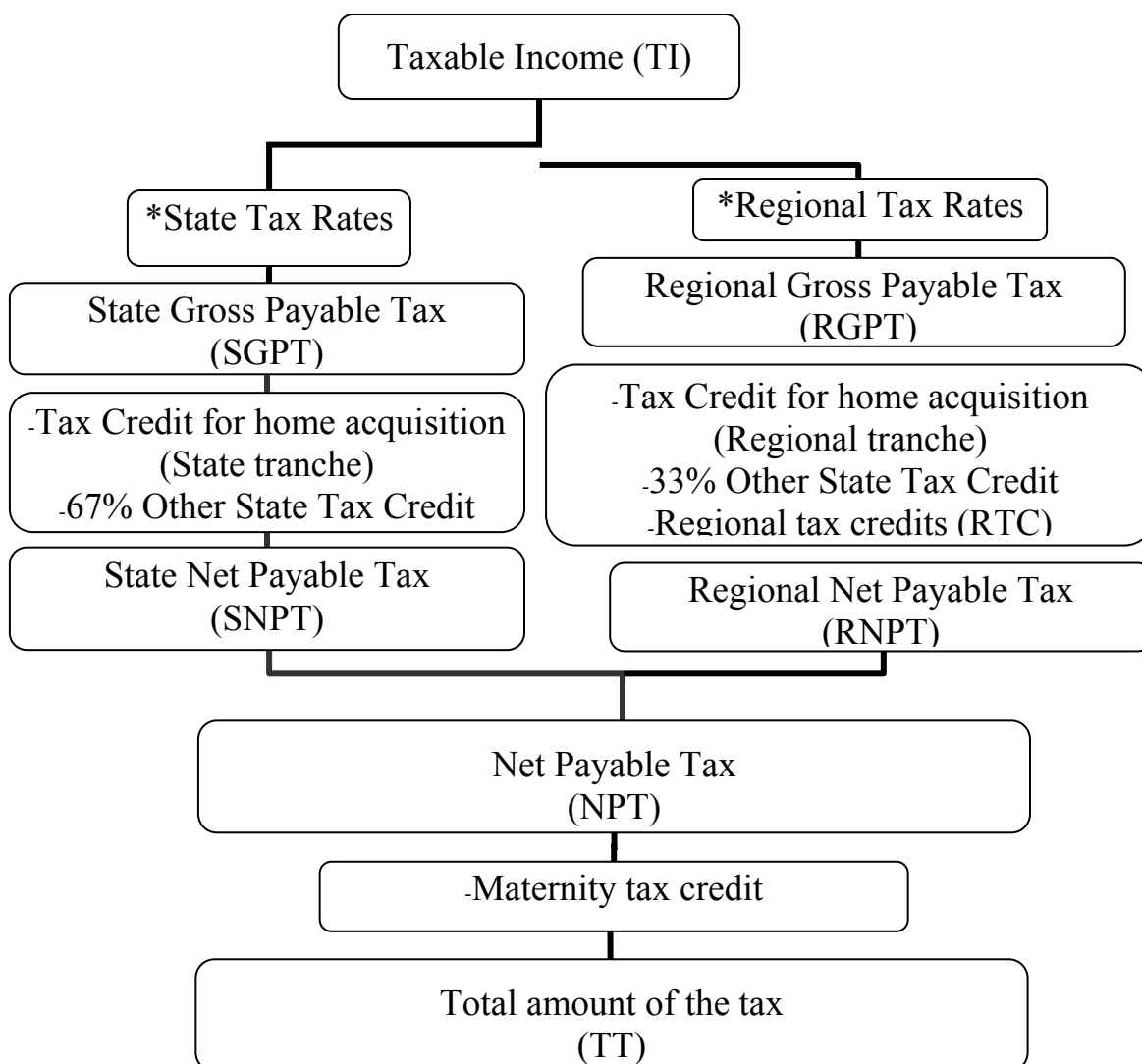
With these magnitudes we have calculated the total annual income by adding labour income, capital income, business income and financial support to home acquisition. To make calculation simpler we supposed that all data are annual income<sup>2</sup>. In the sample there is no information about some kinds of income, such as income assignment (i.e.: the owner of buildings has to add some quantity as an income in kind) or capital gains/losses, so we do not have simulated this income. Nevertheless, tax statistics published by the Agencia Estatal de Administración Tributaria (Spanish Tax Agency)<sup>3</sup> show that this type of income only represents a 6,2% of total income in fiscal year 2004.

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<sup>2</sup> If any income corresponds to a period wider than one year, the tax treatment differs. Unfortunately, we can't know if it is the case.

<sup>3</sup> [http://www.aeat.es/AEAT/Contenidos\\_Comunes/La\\_Agencia\\_Tributaria/Estadisticas/Publicaciones/sites/irpf/2004/total/2004.htm](http://www.aeat.es/AEAT/Contenidos_Comunes/La_Agencia_Tributaria/Estadisticas/Publicaciones/sites/irpf/2004/total/2004.htm)

**Graph 1: The 2004 Spanish Income Tax**



In the next step, after calculating income (at individual and family basis), we have calculated the personal and family allowances and also some tax reductions (only if there is available information), obtaining the net taxable income. Thus, we have applied the regional and the national tax schedules to the net taxable income to get gross payable tax (adding the state and local parts). We have subtracted from state gross payable tax, the state tranche of the tax credit for home acquisition; and from the regional gross payable tax, the regional tranche of the tax credit for home acquisition. Most regional tax credits have been calculated with the available data.

After this subtraction we obtain the state net payable tax and the regional net payable tax, which can be added up to get the net payable tax. From the net payable tax

we can subtract the maternity tax credit<sup>4</sup> to obtain the total amount of the tax. We must emphasize that income tax withholdings and prepayments have not been considered, so this amount is the total income tax paid for this individual (or family tax unit) for the income earned in year 2004.

We calculate these tax liabilities for every individual, no matter she was or not required to file her tax return. Actually we must expect that some people non required will not file their tax return, because the result would be to pay more taxes or because is not worth for them to do the filing due to the associate costs of tax filing. However, we consider that this difference is of no importance, as the actual system of withholdings and prepayments is very accurate to the real total amount of the tax.

As we have previously explained family tax units with more than one member have the option of file jointly. So we must calculate individual tax for every person and the joint tax of tax unit, choosing the most profitable system for taxpayers. With this data we could asses the socioeconomic characteristics of those families that have opted for joint filing. These families will be the losers if we eliminate joint filing. We devote the first part of third section of this work to make this assessment.

Once we get the main variables from the income tax we carry out a second microsimulation exercise in which families are not allowed to file jointly. With this exercise we could compare the current income tax structure with the alternative that we have designed in this piece of research: the universal individual tax filing.

If we abolish joint filing this will imply an increase the income tax collected, as every family that would have opted for joint filing will now pay more taxes applying for individual filing. However, this withdrawal will not affect those doing individual filing. So that, abolishing joint filing will produce losers but not winners.

To implement such a measure we must compare first equivalent situations, so we have carried out new simulations in a scenario in which tax collection remains constant after abolishing joint filing. In this new scenario, a so-called zero-sum scenario, we

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<sup>4</sup> The maternity tax credit is fully analysed in Fuenmayor, A.; Granell, R. e Higón, F.J. (2006a)

could find both losers and winners. The increase obtained in tax collection derived from making individual filing compulsory can be balanced in many ways: increasing tax deductions, increasing tax credits, increasing the personal allowance, etc... We have simulated two different mechanisms. First, we have modified the tax schedule, multiplying each tax bracket for a constant, less than one. This first option has an advantage: the tax decrease represents the same percentage for every taxpayer so that we could isolate the real effect for abolishing joint filing. Second, and with the purpose of increase tax progressivity we design a tax credit that every taxpayer could apply. To calculate both the constant and the tax credit amount we have programmed an iterative module with Stata, that modify de above mentioned amounts until the tax collection remains unchanged. Now we could check the effects on progressivity and income distribution of abolishing joint filing.

Before the progressivity analysis we need to set which economic units are we going to compare. We have there possibilities: individuals, households and families. First, we ruled out individuals, but it was not that easy to choose between households and families. Both could be consumption and income units, but finally we opted for households as we understood that it better fit the concept of economic unit. However this choice forced us to set equivalence scales to compare these households. We have several options but finally we opted for a parametric equivalence scale in which adults ( $n_1$ ) and minors ( $n_2$ ) are differently weighted.  $\beta$  represents the lower cost of minors and  $\alpha$  represents the economics of scale.

$$E = (n_1 + \beta n_2)^\alpha$$

We tried to approach this parametric equivalence scale to that of Oxford scale, one of the most common. For this reason, we took the following values:  $\alpha=0.77$  and  $\beta=0.80$ .

In order to evaluate the global distributive effects of a progressive income tax over income, we use the index proposed in Reynolds and Smolensky (1977), that is calculated using the Gini index before taxes ( $G_R$ ) and the Gini index after taxes ( $G_{R-I}$ ).

$$\Pi^{RS} = G_R - G_{R-I}$$

Kakwani (1977) decomposed  $\Pi^{RS}$  into three parts:

$$\Pi^{RS} = \Pi^K * (t/1-t) \cdot D$$

In this formula  $t$  is the effective tax rate,  $D$  is the re-ranking index of Atkinson-Plotnick that shows the re-ranking of individuals because of the redistributive effect and  $\Pi^K$  is Kakwani index of progressivity ( $\Pi^K = C_1 - G_R$ ), on which  $C$  is the concentration curve of the tax<sup>5</sup>.

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<sup>5</sup> To calculate inequality indexes we have used the Ineqdec0 STATA module, written by Jenkins (1999).

## 3. Results

### 3.1 Joint filing profile: the Spanish case

A quite important part of this paper consists on determining the group (or groups) that take profit from joint filing. They will be the losers in our microsimulation exercises based on abolishing joint filing. As we suppose individuals with optimal behaviour we could deduce that those families which opt for joint filing take this decision because is the most convenient for them.

To make this analysis we have calculated the total amount of joint and individual filings so that we can check in which cases joint filing is more frequently used and analyse the weight of joint filers with regard to the total number of taxpayers and with regard to individual tax filers.

**Table 1: Taxpayers by age**

|                        | Joint filings |            | Individual filings |            | All filings |            |
|------------------------|---------------|------------|--------------------|------------|-------------|------------|
|                        | number        | percentage | number             | percentage | number      | percentage |
| Till 25 years old      | 78,163        | 1.40%      | 4,809,226          | 29.44%     | 4,887,389   | 22.29%     |
| 26-35                  | 909,311       | 16.26%     | 3,521,965          | 21.56%     | 4,431,276   | 20.21%     |
| 36-45                  | 1,414,742     | 25.30%     | 1,817,804          | 11.13%     | 3,232,546   | 14.74%     |
| 46-55                  | 1,271,974     | 22.75%     | 1,467,530          | 8.98%      | 2,739,504   | 12.49%     |
| 56-65                  | 1,028,860     | 18.40%     | 1,232,207          | 7.54%      | 2,261,067   | 10.31%     |
| More than 65 years old | 888,639       | 15.89%     | 3,485,514          | 21.34%     | 4,374,153   | 19.95%     |
| TOTAL                  | 5,591,689     | 100.00%    | 16,334,246         | 100.00%    | 21,925,935  | 100.00%    |

Source: own elaboration

Before starting with the detailed analysis, it is important to remark that from our calculations there are two main figures to use in comparisons: the total amount of tax returns filings (21,925,935) and the amount of joint filings (5,591,689)<sup>6</sup>. This means that more than 25% of filings are joint filings and the rest (about 74%) individual filings.

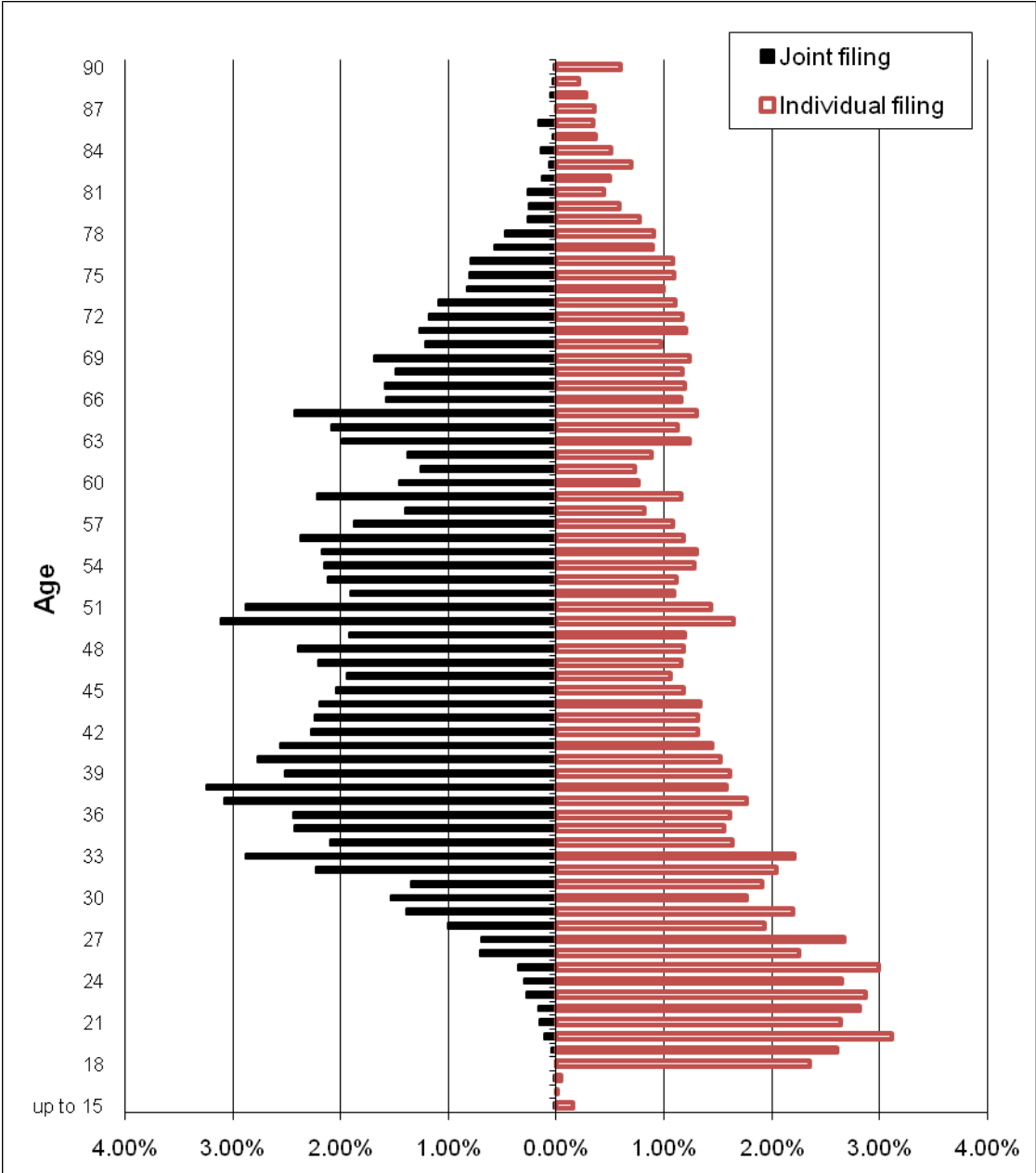
The first variable to analyse is the age of taxpayers<sup>7</sup>. Taking into account this

<sup>6</sup> Obviously these figures do not exactly coincide with official statistics (especially for individual filing) because we have done tax filing from everyone that is of age. In real life some of them do not file a tax return.

<sup>7</sup> In joint filings we have considered the age of the oldest individual.

aspect we could see that the group of taxpayers between 36 and 55 years old are the one with most use of joint filing. To support this result we could see that 48% of taxpayers doing joint filing are in this group of age but this group only represents a 20.11% of individual filings. It could be eye-catching if we consider the total amount of tax filings that these are mainly accumulated in the interval between 18 and 35 years old and in the interval of people older than 65 years old.

**Graph 2: Distribution of joint filing and individual filing, by age**



The graphic shows a kind of “population pyramid” in which we can see where

are the weight of joint filings and individual filings, by age groups. The shape of this graphic is quite illustrative and shows in which age intervals is joint filing more common and in which intervals is individual filing more frequent.

**Table 2: Taxpayers by retirement benefits<sup>1</sup>**

|                       | Joint filings |            | Individual filings |            | All filings |            |
|-----------------------|---------------|------------|--------------------|------------|-------------|------------|
|                       | number        | percentage | number             | percentage | number      | percentage |
| Without pension       | 4,259,437     | -          | 15,043,951         | -          | 19,303,387  | -          |
| 1000-5000             | 113,639       | 8.53%      | 300,268            | 23.27%     | 413,907     | 15.78%     |
| 6000-10000            | 669,211       | 50.23%     | 685,425            | 53.12%     | 1,354,636   | 51.65%     |
| 11000-20000           | 476,562       | 35.77%     | 261,386            | 20.26%     | 737,948     | 28.14%     |
| 21000-30000           | 65,179        | 4.89%      | 32,820             | 2.54%      | 97,999      | 3.74%      |
| More than 30000       | 7,661         | 0.58%      | 10,397             | 0.81%      | 18,058      | 0.69%      |
| Total with any income | 1,332,252     | 100.00%    | 1,290,296          | 100.00%    | 2,622,548   | 100.00%    |
| Total filings         | 5,591,688     | -          | 16,334,247         | -          | 21,925,935  | -          |

<sup>1</sup> We consider only tax filings including labour income from different pension schemes.  
Source: own elaboration

Another interesting variable is the labour income from different pension schemes. It could be striking that retired are not one of the groups most benefited from joint filing. In fact, more than three quarters of joint filings do not include pensions though it is also true that the amount of taxpayers with pensions in the total amount of tax filings is really small (less than 12%).

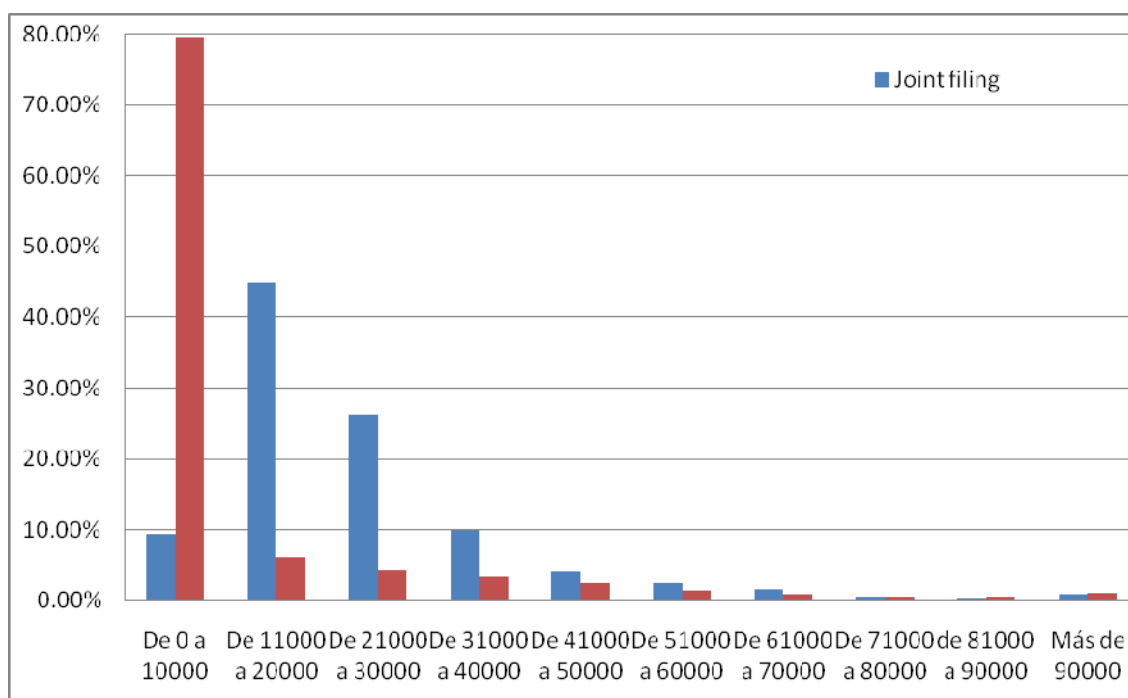
In Table 2 we could see the weight of this kind of income in the different types of tax returns. Tax filings with pensions between 6,000 and 10,000€ and tax filings with pensions higher than 30,000€ have more or less the same weight respect to joint filings than respect to individual filings. In the rest of income intervals the number of joint filings is bigger than the number of individual filings except in the lowest interval (pensions between 1,000 and 5,000€).

**Table 3: Taxpayers by family income**

|                     | Joint filings    |                | Individual filings |                | All filings       |                |
|---------------------|------------------|----------------|--------------------|----------------|-------------------|----------------|
|                     | number           | percentage     | number             | percentage     | number            | percentage     |
| From 0 to 10000     | 523,339          | 9.36%          | 13,000,697         | 79.59%         | 13,524,036        | 61.92%         |
| From 11000 to 20000 | 2,504,632        | 44.79%         | 1,011,160          | 6.19%          | 3,515,792         | 15.53%         |
| From 21000 to 30000 | 1,467,188        | 26.24%         | 673,068            | 4.12%          | 2,140,256         | 9.85%          |
| From 31000 to 40000 | 555,890          | 9.94%          | 537,453            | 3.29%          | 1,093,343         | 5.06%          |
| From 41000 to 50000 | 222,549          | 3.98%          | 393,279            | 2.41%          | 615,828           | 2.76%          |
| From 51000 to 60000 | 141,331          | 2.53%          | 225,075            | 1.38%          | 366,406           | 1.72%          |
| From 61000 to 70000 | 84,503           | 1.51%          | 143,882            | 0.88%          | 228,385           | 1.06%          |
| From 71000 to 80000 | 30,393           | 0.54%          | 97,539             | 0.60%          | 127,932           | 0.58%          |
| From 81000 to 90000 | 15,095           | 0.27%          | 79,847             | 0.49%          | 94,942            | 0.45%          |
| More than 90000     | 46,769           | 0.84%          | 172,246            | 1.05%          | 219,015           | 1.06%          |
| <b>TOTAL</b>        | <b>5,591,689</b> | <b>100.00%</b> | <b>16,334,246</b>  | <b>100.00%</b> | <b>21,925,935</b> | <b>100.00%</b> |

Source: own elaboration

Another common hypothesis is that families benefited by joint filing are the families with lower income levels. But the group of joint tax filings from families with income between 11,000 and 20,000 € represents about 44% of total joint filings, but only 6.19% of individual filings. Nevertheless, individual tax filings accumulate in the lowest income interval (0-10,000) almost 80% of total tax returns. If we compare individual and joint filings from 11,000 € and to 90,000 € the percentage of joint filings is higher than the percentage of individual filings. Only for income levels above 90,000 € the percentage of individual filings is higher than the percentage of joint filings.

**Graph 3: Taxpayers by family income**

Similarly to what we have just seen in the table above, the group of taxpayers with labour income (Table 4) that mainly uses joint filing is not in the higher intervals of income but in the group with net labour income between 1,000 and 30,000 € (85.10%) while this group of people only represents about 68.99% of total amount of tax filings.

**Table 4: Taxpayers by labour income**

|                          | Joint filings |            | Individual filings |         | All fillings |         |
|--------------------------|---------------|------------|--------------------|---------|--------------|---------|
|                          | number        | percentage | number             | number  | percentage   | number  |
| Without income labour    | 895,866-      |            | 12,164,535-        |         | 13,060,401-  |         |
| From 1000 to 10000       | 708,286       | 15.08%     | 1,133,956          | 27.20%  | 1,842,242    | 20.78%  |
| From 11000 to 20000      | 2,175,470     | 46.33%     | 1,111,481          | 26.66%  | 3,286,951    | 37.08%  |
| From 21000 to 30000      | 1,112,300     | 23.69%     | 630,931            | 15.13%  | 1,743,231    | 19.66%  |
| From 31000 to 40000      | 383,925       | 8.18%      | 454,355            | 10.90%  | 838,280      | 9.46%   |
| From 41000 to 50000      | 157,382       | 3.35%      | 314,933            | 7.55%   | 472,315      | 5.33%   |
| From 51000 to 60000      | 71,955        | 1.53%      | 162,092            | 3.89%   | 234,047      | 2.64%   |
| From 61000 to 99000      | 65,151        | 1.39%      | 286,614            | 6.87%   | 351,765      | 3.97%   |
| More than 99000          | 21,354        | 0.45%      | 75,349             | 1.81%   | 96,703       | 1.09%   |
| Total with income labour | 4,695,823     | 100.00%    | 4,169,711          | 100.00% | 8,865,534    | 100.00% |
| Total tax filings        | 5,591,689-    |            | 16,334,246-        |         | 21,925,935-  |         |

Source: own elaboration

We have analysed real state income (usually it represents the holding of property and/or land), the savings income and business income, but we did not find significant differences between joint filing and individual filing.

If traditional family is the most benefited by joint filing, we could expect that families with more children –corresponding to the sociological profile of the so-called traditional family- were the most benefited by joint filing, but our results are a bit ambiguous (Table 5). For instance 38.50% of joint filings are from families without children but this group represents 48.74% of individual filings. If we have a look on families with 1 or 2 children joint filings represent more than 53% in comparison with almost 44% of individual filings. Something similar happens with families with 3 children as they represent 6.29% of all joint filings but 4.66% of individual filings. More or less the same proportion could be seen with families with more than 3 children, but they represent a small number of Spanish families.

**Table 5: Taxpayers by number of children**

|              | Joint filings    |                | Individual filings |                | All filings       |                |
|--------------|------------------|----------------|--------------------|----------------|-------------------|----------------|
|              | number           | percentage     | number             | number         | percentage        | number         |
| <b>0</b>     | 2,152,737        | 38.50%         | 2,188,114          | 48.74%         | 4.485.838         | 43.09%         |
| <b>1</b>     | 1,444,977        | 25.84%         | 1,031,084          | 22.97%         | 2.550.415         | 24.50%         |
| <b>2</b>     | 1,531,906        | 27.40%         | 943,807            | 21.02%         | 2.551.130         | 24.51%         |
| <b>3</b>     | 351,688          | 6.29%          | 209,232            | 4.66%          | 591.323           | 5.68%          |
| <b>4</b>     | 87,705           | 1.57%          | 84,858             | 1.89%          | 176.858           | 1.70%          |
| <b>5</b>     | 15,481           | 0.28%          | 17,411             | 0.39%          | 32.892            | 0.32%          |
| <b>6</b>     | 3,351            | 0.06%          | 2,252              | 0.05%          | 5.603             | 0.05%          |
| <b>7</b>     | 3,844            | 0.07%          | 12,721             | 0.28%          | 16.565            | 0.16%          |
| <b>TOTAL</b> | <b>5,591,689</b> | <b>100.00%</b> | <b>4,489,479</b>   | <b>100.00%</b> | <b>10.410.624</b> | <b>100.00%</b> |

Note: In individual filings we have excluded singles without children, in order to make a more coherent comparison, as joint filing is an option only suitable for married couples and singles with children. For this reason the Total here is different from totals in the other tables.

Source: own elaboration

## 3.2. Microsimulation of tax reforms

### *The universal individual filing*

To assess the impact of joint filing first we have analysed what happens when we abolish joint filing giving only one filing option: the individual tax filing. We could first compare this option with the results derived from the real 2004 Income Tax, when it was possible to opt between individual and joint filing. The result can be seen in Table 6. This is an interesting way of checking the whole implications of joint filing.

As we seen in the Table 6, income remains unchanged as, obviously, the choice of tax unit does not affect the amount of income. The most important difference appears when we consider personal allowance. This variable falls 18,855 million € as a result of abolishing joint filing. This is a quite expected result, as one of the main differences between joint an individual filing is that personal allowance is doubled in joint filing. In the case of individual filing it seems that the amount of personal allowance would remain unchanged as both, husband and wife, could still apply it in their tax returns, but in the families in which income is concentrated in only one person, it could appear remarkable differences, as the family member with small or no income will not be able to make use of the total amount of personal allowance, as he/she has not enough income.

Although this difference is quite evident and is the most important in absolute terms there are also another important differences. In Table 6 we can see that the family allowance per descendants also decreases, being the reason the same introduced above (income is not enough in individual filing).

**Table 6: 2004 IRPF vs. universal individual filing (million of €)**

|                                | 2004 Income Tax | 2004 individual | Differences   | %             |
|--------------------------------|-----------------|-----------------|---------------|---------------|
| Income                         | 388,995         | 388,995         | 0             | 0.00%         |
| Personal allowance             | 98,177          | 79,322          | -18,855       | -19.20%       |
| Family allowance (Descendants) | 14,737          | 10,817          | -3,920        | -26.60%       |
| <b>Gross Taxable Income</b>    | <b>260,032</b>  | <b>282,809</b>  | <b>22,777</b> | <b>8.76%</b>  |
| Labour Deductions              | 54,060          | 57,159          | 3,099         | 5.73%         |
| Family Deductions              | 8,728           | 6,866           | -1,861        | -21.33%       |
| <b>Net Taxable Income</b>      | <b>197,244</b>  | <b>218,784</b>  | <b>21,540</b> | <b>10.92%</b> |
| <b>Gross payable tax</b>       | <b>49,184</b>   | <b>54,586</b>   | <b>5,402</b>  | <b>10.98%</b> |
| Home tax credit                | 2,284           | 1,970           | -314          | -13.77%       |
| Other tax credits              | 171             | 147             | -25           | -14.34%       |
| <b>Net payable tax</b>         | <b>46,728</b>   | <b>52,470</b>   | <b>5,741</b>  | <b>12.29%</b> |
| Maternity tax credit           | 509             | 509             | 0             | 0.00%         |
| <b>Final amount of the tax</b> | <b>46,219</b>   | <b>51,961</b>   | <b>5,741</b>  | <b>12.42%</b> |

Source: own elaboration

To assess the impact of universal individual filing on the amount of income deductions we have divided them into two groups as we have seen some contradictory results. On one hand we have joined the different labour deductions, including the general labour deduction, a deduction for working after retirement age and a deduction for handicapped workers. On the other hand we have put together under the label ‘family deductions’ the rest of deductions we have been able to simulate (care of children deduction, age deduction, helping deduction and the handicapped deduction).

As Table 6 shows, the amount of labour deduction increases when abolishing joint filing. The reason is that general labour deduction is unique per tax return, so when doing individual filing both husband and wife can apply it (if both obtain labour income) but in the case of joint filing it is not allowed to use it twice. Besides, the progressive character of this deduction (it decreases as net labour income increases) reinforces this fact.

However, family deductions are lower when individual filing is compulsory. In individual filing these deductions must be split into husband and wife, so that in some cases there is not enough income to make use of them.

The combined effect of personal and family allowances and deductions on taxable income (Labour deductions and Family deductions) implies that Net Taxable Income will be higher with individual filing (21,540 millions € higher than in 2004 Income Tax, a 10.92% increase). When we apply the tax schedule this increase implies a Gross Payable Tax almost 11% higher than in the case of individual filing.

To finish this analysis it would be interesting to check the effects of the reform on tax credits. If we consider the most important of them, the Home Acquisition Tax Credit, we could see two opposing effects. On one hand, we could expect an increase in individual filing as the limits of the tax credit base is doubled. On the other hand, it is also true that in some cases, when splitting the tax credit between husband and wife, part of this amount will be lost because of lack of Gross Payable Tax. If we look at our results this second effect is more important: the amount of the tax credit decreases 13.77%. The other tax credits behave more or less in the same way, but the maternity tax credit than remains constant as it is a refundable tax credit (it could make negative the payable tax).

All of these effects -frequently opposed- show that joint filing in Spain is in fact a complex mix of policy measures, so our analysis results really relevant. *A priori* is difficult to advance the final result on each different aspect of the income tax and only a microsimulation analysis could unveil some aspects.

### ***Alternative proposals with equivalent tax collection***

Abolishing joint filing would have a positive result for the tax collection department, but it would be quite harmful for those taxpayers doing joint filing as they must pay the increase in tax collection derived from the reform (12.42%, 5,741 million €). The rest of the taxpayers, as already did individual filing, will remain exactly in the

same position. From a different point of view, this amount can be seen as an approximate assessment of the annual cost of joint filing for our society.

No doubt, such a simple reform is not quite realistic, as there are only losers and no winners. For this reason, we are going to redesign our initial proposal. We are searching for alternatives based on universal individual filing but equivalent, in tax collection terms, to the initial situation. From our first proposal, changes will consist in decreasing the amount of tax paid, but in a different way. As we have stated before, theoretical questions, history and current state of our society suggest distributing tax burden taking into account individuals instead of families, considering children as the only family burden.

We have considered a few alternatives and finally we have chosen two. First, we propose a linear tax-cut and secondly, we propose a fixed-amount tax credit that we have called “universal tax credit”. In both cases the objective is to maintain unchanged tax collection from the reference situation (2004 income tax).

In the first case we have multiplied each tax bracket by a fixed amount less to one, maintaining the tax schedule framework. The effect is homogeneous for every taxpayer as the tax amount decreases in the same percentage but, of course, the absolute amount will be different as those individuals with higher income will save a higher amount of tax. However, a priori, we can not predict the results in terms of tax progressivity or in terms of the income tax redistributive effects.

After an iterative process the fixed amount that produces the same tax collection is 89.45%. In other words, if we abolish joint filing tax schedule could be deflated 10.55% in order to maintain tax collection unchanged. However, most families that did joint filing will result economically harmed, but those that file individual returns will save 10.55%. In Table 7 we could see the new tax schedule, along with the ‘real’ tax schedule for fiscal year 2004.

**Table 7: Alternatives to 2004 IRPF**

| <b>Reform (1): proportional decrease of tax rates</b> |                   |                        |                   |                                   |                   |                        |                   |
|---|-------------------|------------------------|-------------------|-----------------------------------|-------------------|------------------------|-------------------|
| <b>2004 Tax Schedule</b>                              |                   |                        |                   | <b>Modified 2004 Tax schedule</b> |                   |                        |                   |
| Taxable Income up to                                  | Gross Payable Tax | Rest of Taxable Income | Marginal Tax Rate | Taxable Income up to              | Gross Payable Tax | Rest of Taxable Income | Marginal Tax Rate |
| 0   | 0                 | 4.000                  | 15%               | 0                                 | 0                 | 4.000                  | 13.42%            |
| 4.000   | 600               | 9.800                  | 24%               | 4.000                             | 537               | 9.800                  | 21.47%            |
| 13.800  | 2.952             | 12.000                 | 28%               | 13.800                            | 2,641             | 12.000                 | 25.05%            |
| 25.800  | 6.312             | 19.200                 | 37%               | 25.800                            | 5,646             | 19.200                 | 33.10%            |
| 45.000  | 13.416            | from here              | 45%               | 45.000                            | 12,001            | from here              | 40.25%            |

**Reform (2): universal tax credit**

Increase in tax collection after abolishing joint filing: 5.741 million €  
Number of positive tax returns to share out the increase in tax collection: 15,760,380  
Provisional amount of universal individual tax credit: 367,65 €  
Final amount of universal individual tax credit (remaining tax collection constant): 398,51 €

Source: own elaboration

Our second proposal consists in implementing a tax credit for every taxpayer. It is designed to share out the increase in tax collection produced by abolishing joint filing between all taxpayers. The main results can be seen in Table 7. This measure is different the previous one, because in this case the effect of this measure is equal for every tax payer in absolute terms, but different in relative terms. Specifically, if we divide the increase in tax collection (5,741,481,858 €) by the potential number of tax filers (15,760,380 individuals with positive Net Payable Tax) the amount of the tax credit would be of 367.65 €. However, not every taxpayer could subtract this amount because some of them do not have enough Gross Payable Tax. For this reason, we have modified sequentially the amount of the tax credit until we have reached the same tax collection than in 2004 scenario. The final amount of the tax credit is 398.51 €. However this tax credit will be applied in full only by some taxpayers. Those with Gross Payable Tax less than this amount will only apply the tax credit till the former became zero<sup>8</sup>, so finally this tax credit will not be constant for every taxpayer. However, the final amount of the tax credit will not depend only upon income level as it happened with our first proposal, but also on personal and family circumstances that affect the amount of Gross Payable Tax.

<sup>8</sup> In this calculation we have allowed tax credit on maternity to be subtracted in its entirety, as it is refundable. What we make equal to zero is the payable tax previous to this tax credit.

As we have previously stated the adjusted tax schedule will produce a similar tax collection to the real one for year 2004. However, to get this amount of tax collection the Taxable Income and Intermediate Payable Tax will undergo important changes, as we can see in Table 8.

**Table 8: 2004 IRPF vs. individual filing, constant collection (million €)**

|                                   | 2004<br>IRPF   | Individual filing,<br>changing tax rates |               |               | Individual filing with tax credit |               |               |
|-----------------------------------|----------------|--|---------------|---------------|-----------------------------------|---------------|---------------|
|                                   |                | Results                                  | Difference    | %             | Results                           | Difference    | %             |
| Income                            | 388,995        | 388,995                                  | -             | -             | 388,995                           | 0             | 0.00%         |
| Personal Allowance                | 98,177         | 79,322                                   | -18,855       | -19.20%       | 79,322                            | -18,855       | -19.20%       |
| Family allowance<br>(Descendants) | 14,737         | 10,817                                   | -3,920        | -26.60%       | 10,817                            | -3,920        | -26.60%       |
| <b>Gross Taxable Income</b>       | <b>260,032</b> | <b>282,809</b>                           | <b>22,777</b> | <b>8.76%</b>  | <b>282,809</b>                    | <b>22,777</b> | <b>8.76%</b>  |
| Labour deductions                 | 54,060         | 57,159                                   | 3,099         | 5.73%         | 57,159                            | 3,099         | 5.73%         |
| Family deductions                 | 8,728          | 6,866                                    | -1,861        | -21.33%       | 6,866                             | -1,861        | -21.33%       |
| <b>Net Taxable Income</b>         | <b>197,244</b> | <b>218,784</b>                           | <b>21,540</b> | <b>10.92%</b> | <b>218,784</b>                    | <b>21,540</b> | <b>10.92%</b> |
| <b>Gross payable tax</b>          | <b>49,184</b>  | <b>48,827</b>                            | <b>-357</b>   | <b>-0.73%</b> | <b>54,586</b>                     | <b>5,402</b>  | <b>10.98%</b> |
| Home tax credit                   | 2,284          | 1,955                                    | -329          | -14.41%       | 1,970                             | -314          | -13.77%       |
| Other tax credits                 | 171            | 143                                      | -28           | -16.29%       | 147                               | -25           | -14.34%       |
| <b>Net payable tax</b>            | <b>46,728</b>  | <b>46,728</b>                            | <b>0</b>      | <b>0.00%</b>  | <b>52,470</b>                     | <b>5,741</b>  | <b>12.29%</b> |
| Universal tax credit              | -              | -  | -             | -             | 5,742                             | 5,742         | -             |
| Maternity tax credit              | 509            | 509                                      | 0             | 0.00%         | 509                               | 0             | 0.00%         |
| <b>Final amount of the tax</b>    | <b>46,219</b>  | <b>46,219</b>                            | <b>0</b>      | <b>0.00%</b>  | <b>46,219</b>                     | <b>0</b>      | <b>0.00%</b>  |

Source: own elaboration

In fact, until Net Taxable Income, the differences with the 2004 tax into force and the proposed reforms are the same that we can see in Table 6. However in the first proposal (tax schedule reform) the adjustment in tax rates produces that Gross Payable Tax narrows its difference until just 0.73%. The small differences, in absolute terms, between tax credits in both cases finally produce the same Final Amount of the Tax. But if we consider the universal tax credit proposal Payable Tax only converge when we introduce the 'Universal Tax Credit'. It is remarkable in both situations how part of the home acquisition tax credit is lost (around 14% of its initial amount).

With the presented reforms (both based of abolishing joint filing) the main changes will affect the different types of family. Families with only one income earner will be losers. Because of the effect of tax collection equalisation, families with more than one income earner and individuals will be winners. This can be seen as obvious because we are abolishing the current positive discrimination in favour of traditional families.

Another interesting result is the redistributive impact of our proposals. We can see the main results in Table 9 and in Table 10. In Table 9 we show income before taxes per deciles; the Final Amount of the Tax in the “real” tax and in our proposals, and the income after tax within the three scenarios<sup>9</sup>.

The total amount of the tax is different in the three scenarios. Let’s see first the results when we adjust the tax schedule. The negative impact on equality is clear cut. Considering the average tax amount in each decile we can see that taxpayers pay more as a result of the reform until the seventh decile, being third and fourth deciles the most harmed by the reform, as much in absolute terms (increase in average tax paid 184€ y 165€, respectively) as in relative terms (increase higher than 1,000% in the third decile and 108% in the fourth decile). Nevertheless, the last three deciles pay less tax, specially the last one, as its total amount of the tax falls in average 532 € (almost 8%). A similar behaviour can be seen when we check income after tax, but obviously the results are a bit less remarkable.

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<sup>9</sup> To make these calculations we have used households from the sample (but not family tax units) and we have used a standard equivalent scale (see Section 2). We have tried several scales of equivalence and the results are quite similar.

**Table 9: Income before taxes, Final Amount of the Tax and income after taxes (€). 2004 IRPF and proposals.**

| Deciles | Income before tax |            | 2004 IRPF |            | Income after tax |            |
|---------|-------------------|------------|-----------|------------|------------------|------------|
|         | Average           | Percentage | Average   | Percentage | Average          | Percentage |
| 1       | 3,263.82          | 2.73%      | -26.47    | -0.20%     | 3,238.79         | 3.04%      |
| 2       | 5,938.28          | 4.97%      | 0.00      | 0.00%      | 5,895.72         | 5.53%      |
| 3       | 7,273.29          | 6.08%      | 4.56      | 0.04%      | 7,174.84         | 6.73%      |
| 4       | 8,429.45          | 7.05%      | 136.58    | 1.05%      | 8,137.06         | 7.64%      |
| 5       | 9,675.18          | 8.09%      | 423.43    | 3.26%      | 9,211.21         | 8.65%      |
| 6       | 11,449.13         | 9.58%      | 771.08    | 5.94%      | 10,669.32        | 10.01%     |
| 7       | 12,923.46         | 10.81%     | 1,156.50  | 8.91%      | 11,671.72        | 10.95%     |
| 8       | 13,887.41         | 11.62%     | 1,513.17  | 11.66%     | 12,317.00        | 11.56%     |
| 9       | 18,275.01         | 15.29%     | 2,645.54  | 20.38%     | 16,259.32        | 15.26%     |
| 10      | 28,416.46         | 23.77%     | 6,358.35  | 48.98%     | 21,973.77        | 20.62%     |
|         |                   | 100.00%    |           | 100.00%    |                  | 100.00%    |

| Deciles | Income before tax |            | Individual: tax rates modification |            | Income after tax |            |
|---------|-------------------|------------|------------------------------------|------------|------------------|------------|
|         | Average           | Percentage | Average                            | Percentage | Average          | Percentage |
| 1       | 3,264.01          | 2.73%      | -23.61                             | -0.18%     | 3,199.97         | 3.00%      |
| 2       | 5,938.53          | 4.97%      | 0.00                               | 0.00%      | 5,673.89         | 5.33%      |
| 3       | 7,273.29          | 6.08%      | 80.21                              | 0.62%      | 7,083.10         | 6.65%      |
| 4       | 8,429.45          | 7.05%      | 310.80                             | 2.39%      | 8,026.02         | 7.53%      |
| 5       | 9,675.18          | 8.09%      | 589.93                             | 4.54%      | 9,132.41         | 8.57%      |
| 6       | 11,449.28         | 9.58%      | 901.31                             | 6.94%      | 10,457.72        | 9.82%      |
| 7       | 12,923.46         | 10.81%     | 1,208.82                           | 9.31%      | 11,708.06        | 10.99%     |
| 8       | 13,887.41         | 11.62%     | 1,571.32                           | 12.10%     | 12,360.88        | 11.60%     |
| 9       | 18,275.00         | 15.29%     | 2,496.16                           | 19.22%     | 16,341.33        | 15.34%     |
| 10      | 28,416.47         | 23.77%     | 5,852.29                           | 45.06%     | 22,561.50        | 21.18%     |
|         |                   | 100.00%    |                                    | 100.00%    |                  | 100.00%    |

| Deciles | Income before tax |            | Individual: universal tax credit |            | Income after tax |            |
|---------|-------------------|------------|----------------------------------|------------|------------------|------------|
|         | Average           | Percentage | Average                          | Percentage | Average          | Percentage |
| 1       | 3,264.01          | 2.73%      | -32.56                           | -0.25%     | 3,229.40         | 3.03%      |
| 2       | 5,938.53          | 4.97%      | 0.00                             | 0.00%      | 5,765.06         | 5.40%      |
| 3       | 7,273.29          | 6.08%      | 1.62                             | 0.01%      | 7,104.58         | 6.66%      |
| 4       | 8,429.45          | 7.05%      | 152.04                           | 1.18%      | 8,198.98         | 7.69%      |
| 5       | 9,675.18          | 8.09%      | 439.29                           | 3.42%      | 9,149.87         | 8.58%      |
| 6       | 11,449.28         | 9.58%      | 796.40                           | 6.19%      | 10,533.54        | 9.87%      |
| 7       | 12,923.46         | 10.81%     | 1,104.16                         | 8.59%      | 11,736.02        | 11.00%     |
| 8       | 13,887.41         | 11.62%     | 1,557.16                         | 12.11%     | 12,352.59        | 11.58%     |
| 9       | 18,275.00         | 15.29%     | 2,548.64                         | 19.82%     | 16,443.75        | 15.42%     |
| 10      | 28,416.47         | 23.77%     | 6,294.63                         | 48.94%     | 22,156.92        | 20.77%     |
|         |                   | 100.00%    |                                  | 100.00%    |                  | 100.00%    |

Source: own elaboration

We would like to introduce some explanations for these results:

- First, families with only one income earner *ceteris paribus* have a lower equivalent income (average income is lower because in a family there is only one earner but the income is divided among more individuals). For this reason,

we could expect that they are concentrated in the lower income intervals. When we abolish joint filing they would pay more taxes. The way used to calculate the equivalent income introduces a bias that favours this result.

- Secondly, this effect is strengthened by the way joint filing is implemented. The increased personal allowance that results from joint filing implies important savings for the poorest families but this effect is relatively less important for the richer families. The tax paid by a poor family could be almost zero after applying personal tax allowance but families with higher income level probably save more in absolute terms but the percentage of decrease of its total amount of the tax will be less important<sup>10</sup>.
- Finally, the proposed reform based in a proportional decrease of tax rates for all taxpayer also strengthens these effects. A low income family can have quite interesting tax savings using joint filing. However when joint filing is abolished and come together with a small decrease in the tax schedule, the joint effect could be economically harmful. A family with a higher income level could find more profitable a small decrease in the tax schedule (that they apply to higher income) in spite of the costs from abolishing of joint filing.

But results are really different if we compare the initial scenario (income tax 2004) with the reform consisting in abolishing joint filing and introducing a universal tax credit. In fact in this case the results are less evident. The three first deciles remain unaltered or improve. Fourth, fifth, sixth and eighth deciles pay some more taxes (11.31% the forth, 3.74% the fifth, 3.28% the sixth and 2.91% the eighth). Seventh, ninth and tenth deciles pay some less taxes (52, 97 and 64 €, that is respectively 4.53%, 3.66% and 1%). The changes in after-tax income are also quite different and surprisingly the followed pattern is different. It is important to remember that we use income equivalent and tax equivalent amounts and that the content of deciles slightly varies before and after taxes<sup>11</sup>. Anyway, changes in income generally represent less than

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<sup>10</sup> In fact, the two first income deciles are almost not affected by the proposed reform as –in fact- they pay no income tax. The taxpayers affected are in third and fourth deciles that before paid almost no taxes and now, individually, pay more taxes.

<sup>11</sup> This effect could be quite strong in this case, as married couples with only one income earner will remain in any of the first deciles or will move upwards from income before and after taxes. In our proposals the results probably will be different: one-earner families will move downwards or will remain in the same decile, as they pay more taxes.

2%. Table 9 does not allow us to obtain clear-cut conclusions from the results of this last reform. So we should calculate progressivity and redistribution indexes (see Table 10).

The first proposal (individual tax filing with a decrease in tax rates) produces a more coherent but less fair tax. Progressivity falls 13.05% as a consequence of the reform but also Reynolds-Smolensky Index remarkably falls (20.49%). Differences seem important but they are not so dramatic. The reason is the way this Index is calculated. As Reynolds-Smolensky (RS) is the result of subtracting Gini index after taxes from Gini Index before taxes (Ga-Gd). When we compare RS for income tax 2004 and the decrease in tax rates only Gd changes, and this change is not that important (from 0.32069 to 0.32913, only 2.63%) as we can see in Table 11. But if we consider as starting point RS the percentage is a bit higher. In addition Gd depends on the index of tax concentration (Ct) on Ga and Ct does not have changed that much (from 0.70462 to 0.65989, falling 6.35%).

Anyway, it seems obvious that abolishing joint filing and implementing instead a tax reform like the one described produces a worsening in the income distribution as losers will be low-income families and winners will be the richer families. So the tax schedule decrease needed to keep tax collection unchanged will improve the situation of richer families.

**Table 10: Progressivity and redistribution indicators**

|                    | IRPF 04     | Tax rates reform | Differences |            | Tax credit reform | Differences |            |
|--------------------|-------------|------------------|-------------|------------|-------------------|-------------|------------|
|                    |             |                  | Absolute    | Percentage |                   | Absolute    | Percentage |
| Kakwani            | 0.34269     | 0.29797          | -0.0447200  | -13.05%    | 0.33984           | -0.0028500  | -0.83%     |
| Reynolds-Smolensky | 0.04124     | 0.03279          | -0.0084500  | -20.49%    | 0.03723           | -0.0040100  | -9.72%     |
| t                  | 10.86%      | 10.87%           | 0.0000369   | 0.03%      | 10.76%            | -0.0010159  | -0.94%     |
| D                  | 0.000516064 | 0.00353087       | 0.0030148   | 584.19%    | 0.00374478        | 0.0032287   | 625.64%    |

Source: own elaboration

Tax reform based on the implementation of a universal tax credit produces steadier results. Tax progressivity remains almost the same as we can see with Kakwani's Index. The same happens with average tax rate. The redistributive capacity of the tax falls a bit: from a 0.04124 RS for 2004 IRPF to 0.03723 after the tax reform.

And again 9.72% decrease in RS is just 1.25% decrease in Gd or 0.41% decrease in Ct. In Table 11 we can also check the Generalised Entropy Index (GE(2)) where we could see that this index is higher when we implement the universal tax credit than in the original 2004 income tax.

But if redistributive effect is lower in this last scenario the reason would probably be, in many cases, that the tax credit is equal or higher than the Gross Payable Tax. Before refining the results the amount of the tax credit was around 367 € but when we take into account this problem the amount of the tax increases until 398.51 €. This tax credit could not be applied by every taxpayer so the redistributive effects are less remarkable than expected.<sup>12</sup>

**Table 11: Inequality indexes**

|                     | IRPF 04       |         |         | Tax rates reform |         |         | Tax credit reform |         |         |
|---------------------|---------------|---------|---------|------------------|---------|---------|-------------------|---------|---------|
|                     | Average value | Gini    | GE (2)  | Average value    | Gini    | GE (2)  | Average value     | Gini    | GE (2)  |
| Income before taxes | 155,725,618   | 0.36193 | 0.30952 | 155,726,401      | 0.36192 | 0.30951 | 155,726,401       | 0.36192 | 0.30951 |
| Tax                 | 16,913,917    | 0.70462 | 2.05413 | 16,919,752       | 0.65989 | 1.70886 | 16,755,795        | 0.70176 | 2.08403 |
| Income after tax    | 138,811,701   | 0.32069 | 0.20963 | 138,806,649      | 0.32913 | 0.22563 | 138,970,605       | 0.32469 | 0.21394 |

Source: own elaboration

Here we pose an interesting methodological question. The starting hypothesis of this paper is to abolish joint filing, because we consider that taxing fiscal units differently from individuals makes no sense. However, in the foundations of inequality, progressivity and redistribution indexes we found equivalent scales. When comparing economic units the convention and usual option is to compare households and in this comparison we assign a value to each adult (earning income or not). However, we believe that tax treatment for two-earner couples should be different that tax treatment for a one-earner couple. So that the ideas that could be easily defended from a statistical point of view probably are not so easy to defend from the point of view of taxation. So what we have rejected in the income tax (joint filing) must be part of our calculations

<sup>12</sup> We could check that question using a refundable tax credit, but probably this is a weak reason to use such a strong measure. Maybe it could be an interesting exercise to carry out a simulation to check all this. But introducing a refundable tax credit raises difficult questions: Who are eligible for apply this tax credit? Every taxpayer? Every individual with positive income? Every adult? Every individual?

(i.e. when we calculate inequality index), so probably this helps to explain why this indexes tend no to show the results that we expected.

Anyway, we do not believe that abolishing joint filing is a bad option, however it is important to carefully analyse this kind of proposals. In this case our first proposal is less attractive than second one, but even in this case the results are not the expected (an improvement or a least not a worsening in inequality and redistribution indexes).

## 4. Conclusions

The purpose of this piece of research is to deeply review the question of tax unit in the income tax. Since the end of 70s there is a clear cut tendency from joint filing to universal individual filing. This tendency has gained theoretical support and is also supported by the majority of fiscal systems in similar countries to Spain. Behind this change one could find the changes that the organisation of our society is experiencing. Until 70s the main economic unit was the so-called traditional family, but since then we have experienced a remarkable change in the way individuals organise their way of living. It seems a bit anachronistic that our income tax pays to much attention (and being so expensive) to the traditional family.

In Spain also seems to be a tendency from joint to individual filing. But we believe that is time to take a step forward. We started years ago this line of research to give theoretical support to this change.

Income tax has just been reformed. In this reform policy makers have admitted the theoretical convenience of abolishing joint filing. However, for practical reasons (not clearly explained) the last step has not been done, supposedly to avoid harming “some specific social groups”. In this paper we insist in this theoretical support for abolishing joint filing and we identify the social groups that could be “harmed” by the change. However these groups are not the ones we expected. Our findings allow us to propose some changes that should come with the reform to avoid harmful effects to the poorest groups of people.

In section two we reproduce the most important methodological aspects of our microsimulation model. With this tool we make several microsimulation exercises described in section three. Our first microsimulation exercise consists on abolishing joint filing. This causes an increase in tax collection (12.42%) that affects (worsens) only to the families that signed joint filing.

With the results of the first exercise we define a second microsimulation exercise, targeting a constant tax collection and using two different modifications in the income tax. First, we proportionally modify the tax schedule. To determine the re-scaling of the tax schedule we use an iterative process and our results show that tax rates should be reduced 10.55% to keep the same tax collection. Secondly, we propose an alternative to this reform in which the increase in tax collection is compensated through a universal tax credit of 398.51 €.

First option (tax rates reduction) makes clear the redistributive consequences of the reform. In general, as we have supposed, two-earner families are winners and one-earner families are losers. Nevertheless, the redistributive power of the tax decreases. The two first deciles remain almost unchanged, but the rest of deciles undergo a considerable increase in the income tax they pay, except the two highest. The global progressivity of the income tax falls 13.05% and its redistributive capacity falls 20.49%.

These results make us to design an alternative: a tax credit. In this case the results are smoother, but they do not manage to improve the starting situation, probably because the positive effect of tax credit disappears when tax payable becomes zero. As the tax credit increases for higher income levels, some redistributive capacity is lost.

Abolishing joint filing is an easy option to support from a theoretical point of view, from horizontal equity and from the point of view of promoting women's labour market access; but the tax characteristics in terms of redistribution should be kept. This is the reason why we set as a new research target to redefine this reform to abolish joint filing, keeping the redistributive properties of the income tax unchanged.

## Bibliography

- ANDIC, S. (1981): “Does the Personal Income Tax Discriminate Against Women?”, *Public Finance*, vol. 36, nº 1, pps. 1-15.
- ASPREY, K.W. (1975): *Taxation Review Committee, Full Report*. Australian Government Publishing Service, Canberra.
- CARTER, M.K. (1966): *Report of the Royal Commission on Taxation*, Ottawa.
- FUENMAYOR, A. (1997): “La discriminación fiscal de la mujer en la imposición personal: ¿es justo el IRPF?”, *Información Comercial Española*, nº 760, pps. 77-88.
- FUENMAYOR, A.; GRANELL, R.; HIGÓN, F.J. (2006a): “La deducción para madres trabajadoras: un análisis mediante microsimulación”, *Boletín Económico de Información Comercial Española*, nº 2874, pps. 9-22.
- FUENMAYOR, A.; GRANELL, R.; HIGÓN, F.J. (2006b): “Las competencias normativas de las comunidades autónomas en el IRPF: eficacia y efecto redistributivo”, *Cuadernos de Información Económica*, nº 195, pps. 35-45.
- FUENMAYOR, A.; SALVADOR, C. (2000): “Tax Discrimination against Women in Spain: Why are we Favouring Traditional Families”, en Gustafsson, S.S.; Meulders, D.E.: *Gender and the labour market*, Macmillan, London, pps. 210-225.
- GUSTAFSSON, S. (1992): “Separate taxation and married women’s labour supply. A comparison of West Germany and Sweden”, *Journal of Population Economics*, vol. 5, pp. 61-85.
- JENKINS, S.P. (1999): “INEQDEC0: Stata module to calculate inequality indices with decomposition by subgroup” Statistical Software Components S366007, Boston College Department of Economics.
- KAKWANI, N. (1977): “Measurement of tax progressivity: an international comparison”, *Economic Journal*, 87, pps. 71-80.

- LÓPEZ LABORDA, J.; ZÁRATE MARCO, A. (1999): “IRPF, familia e incentivos. Una propuesta metodológica y una aplicación”, *Hacienda Pública Española*, nº 151, pps. 27-41.
- MUSGRAVE, R.A.; MUSGRAVE, P.B (1992): *Public Finance in Theory and Practice*, McGraw-Hill, London and New-York.
- ONRUBIA FERNÁNDEZ, J. (2001): “La tributación familiar en el IRPF: escenarios de reforma”, *Hacienda Pública Española*, Monografía 2001, pps. 79-118.
- REYNOLDS, M.; SMOLENSKY, E. (1977): *Public expenditure, taxes and the distribution of income: The United States, 1950, 1961, 1970*. Academic Press, New York.
- ROSEN, H.S. (1977): “Is it Time to Abandon Joint Filing?”, *National Tax Journal*, vol. 30, December, pps. 423-428.
- RUBIO GUERRERO, J.J. (1998): *La unidad contribuyente y el I.R.P.F.: la realidad europea*, Documento de Trabajo nº 4/1998, Instituto de Estudios Fiscales.
- ZÁRATE MARCO, A. (2001): “La relación entre la tributación de diferentes unidades impositivas: una constante en el IRPF (1979-1999)”, *Informacion Comercial Española, Revista de Economía*, nº 791, pps. 153-174.