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Joint taxation in Spain and its effects on social welfare: a microsimulation analysis*

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Abstract

This paper focuses on the study of the effects on social welfare generated by the scheme of joint taxation of the Spanish Personal Income Tax (PIT), whose peculiarity linked to its condition of optionality, allows the minimization of households´ tax bill. Different scenarios are simulated using the tax-benefit microsimulator of the European Commission – EUROMOD – with data from the Survey on Income and Living Conditions corresponding to 2016. In order to measure the welfare, the current PIT scheme is taken as reference and then it is compared with two alternatives, one, in which the families that currently can opt for this system are forced to pay jointly, and another, in which the only taxation scheme was individual. The results show that the Spanish system is revealed as a generator of additional welfare linked both to the circumstance of allowing an option to families, as well as to the fact of designing a specific system of joint taxation. In addition, it is shown that the policy recommendations would be different if only the study of inequality had been considered, since the net income gains of the current system offset the possible improvements in inequality of the simulated alternatives. Our results, therefore, also reinforce the convenience of adopting an approach that simultaneously considers efficiency and equity.

JEL: C65, D63, H21, H31

Keywords: microsimulation, EUROMOD, social welfare, inequality, family taxation

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1. Introduction

When the design of the personal income tax takes into account the principle of “ability to pay”, it faces the problem of how to determine the taxpaying unit and how to treat it fiscally.

Although the basic decision unit is the household, the aggregation of the income of its members generates a problem of additional tax burden when taxation is progressive. In this context, second income earners may be discouraged from joining labor market, since they face the highest marginal tax rate achieved by the first income earner from the very first earned monetary unit. To correct the effects of aggregation, alternative systems of taxing families’ income are designed -in different spatial and temporal contexts- being able to contemplate deductions, reductions, differentiated rates and conditions for application that alleviate the aggregation of family income.

Assessing which is the best tax design for households is a controversial issue. The analysis can focus on different dimensions: effects on labor supply, gender equality, and distributive effects, among others. This work focuses on the effects on social welfare generated by the current family taxation scheme in the Spanish personal income tax (PIT). In particular, it assesses the welfare associated with the fact that individual or joint taxation are both allowed to families, as well as the welfare linked with the fact that individual taxation is not established as the only option. In order to carry out the quantification of well-being, the current PIT is taken as a reference against two alternatives, one in which the families currently opting (or not) for this system must be taxed jointly, and another, in that the only taxation scheme was individual.

The first step requires the calculation of net income with the current system and the two simulated alternatives. The 2016 EU-SILC data are used for this, and the corresponding tax return is calculated using the EUROMOD microsimulator. Once the net income and the inequality are known, it is necessary to choose the function that will be used to quantify the aggregate social welfare from the income of all taxpayers. In this work we will use two functions, the one proposed by Atkinson, and an abbreviated social welfare function. Given that the inequality aversion could determine the results, a sensitivity analysis is performed for different values of this parameter.

The work is organized as follows: after this introduction, section 2 presents the current situation of family taxation in Spain, briefly reviewing the evolution of the regulation up to the present time and the literature from the different perspectives of analysis. Section 3 is devoted to methodological explanations, exposing the results obtained for an intermediate aversion to inequality in section 4. In the fifth and last section the conclusions obtained are presented both in the main body of the text and in the Annex, where are shown the results linked to more extreme scenarios of inequality aversion.

2. Joint taxation and its effects: a review of the literature

Income taxes can be classified into two large groups: those in which the tax is levied personally, called individual taxation systems, and those in which the center of income taxation is the family, known as family or joint taxation. The latter can be designed in different ways, originating different variants of taxation. In some cases, the group of income of the members of the family unit is subject in the same way as single people with the same scale of taxation, being called the cumulative tax system. In others, in order to reduce the additional tax that causes the accumulation of income, the family income is divided by a coefficient, giving rise to the so-called splitting - German system - in which the coefficient used is 2 or, to the family quotient - in France - when the coefficient varies according to the number of people that make up the family unit.

Considering the twenty-eight European countries only Sweden, since 1971, and the United Kingdom, since 1990, present individual taxation as the only option. Joint taxation is present, as the unique option, in Germany, Luxembourg, Portugal, Ireland and France. For its part, joint taxation is configured as an optional system in Spain, Estonia, Malta and Poland. Other countries, such as Slovenia, introduces a deduction per dependent family member, starts from individual taxation, but determining exemptions and deviations that allow spouses to use tax benefits for marriage, children and economic support of the family by a single spouse. Denmark, Hungary and Lithuania foresee transferable tax benefits that allow the first income earner to take advantage of the incentive that the second income earner can not use, altering the initial scheme of individual taxation.

The joint taxation based on the accumulation of income of the members of the family unit was introduced for the first time in the Spanish system under Law 44/1978 of the PIT, of September 8. Joint taxation was then configured as the only possible way to tax for families, establishing a compulsory regime of solidarity, leaving all the components of the family unit jointly and severally subjected to the tax as taxpayers. The family unit was chosen as a reference center for the aggregation of income, considering that it expressed more precisely the ability to pay on which the tax must be based.

Likewise, the compliance of tax obligations was easier since it allowed the submission of unique declarations to complex economic units with different economical regimes, which would have to support higher compliance costs if they had to declare separately. At the same time, the Tax Administration received and processed fewer declarations, resulting in lower management costs.

However, the articulation of compulsory joint taxation did not correct the effects that the progressiveness of the system produced on the accumulation of income, leading to a higher taxation of marriages compared to unmarried couples who obtained the same amount of income.

After this discrimination was presented to the Constitutional Court, the compulsory nature of the joint taxation was declared unconstitutional, considering that forcing joint taxation in case of marriage originated a discriminatory treatment with respect to those unmarried

living together. For this reason, since 1989, the regime would be established with an optional character, as it is currently configured, applying retroactively to the tax bases declared in 1989 and obtained in 1988, having been designed the joint taxation scheme as follows:

- The amount of the minimum per taxpayer is 5,550 euros per year, regardless the number of members integrated in the family unit, although the personal circumstances of each of the spouses could be taken into account.
- A reduction in the tax base of 3,400 euros per year is established for joint taxation in the family unit modality composed of legally non-separated marriages.
- In the case of family units composed of the unmarried parent, widow/er or legally separated with minor children, or disabled elderly living with him or her, a reduction of 2,150 euros per year is established (not applicable if the taxpayer lives with the father or mother of one of the children of the family unit).

After having addressed the different PIT schemes, as well as the current situation in the European environment and in Spain, it is worth asking what would really be the design of optimal taxation for households. As noted above, this is a controversial issue, with different dimensions from which analysis can be addressed.

From the perspective of the labour supply, Alesina et al. (2011) show the convenience of establishing taxes based on gender, which consider the different elasticity of the labor supply of men and women, since the former are less sensitive to the change in wages in the labor market. Considering the above and according to the theory of optimal taxation, tax rates should be lower for women.

Establishing the focus on gender equality, Stotsky (2005), Thomas et al. (2016) and Alesina (2011) reveal the disincentives that PIT joint taxation can generate on the participation of women in the labor market. This negative effect actually occurs on the second income earners due to the additional tax, generated by the aggregation of income in a joint tax regime based on a progressive scale of marginal rates. It is women who are mainly harmed because they are mainly the second income earners of the tax. Following the same line, Apps et al. (2007b), constitute a solid base that allows them to maintain that men and women must be taxed in a selective and differentiated way, through a model that incorporates domestic production in the household.

Other studies, such as Haan et al. (2008) and Rosen (1977) have also discussed which tax model is optimal for families. By constructing a structural static model of labor supply that allows them to estimate household preferences, Haan et al. (2008) find that the individual taxation scheme is less sensitive to the composition of the work of household members, while joint taxation is only optimal in those households in which there is a single income earner. On the other hand, Rosen (1977) points out that if the contributing units were the individual adults and not the families, it would evolve to a more efficient tax system, since the joint taxation is revealed as economically inefficient and excessively burdensome for the second income earners.

The literature on the effects of joint taxation on second income earners, both from the point of view of the labor market and from a gender perspective, is extensive and has gone a long way. This is why the present work does not focus on the effects that the PIT design produces on the second income earners of income and is focused on the evaluation of the aggregate social welfare instead, both from an efficiency and equity perspective, associated with the optionality of the joint tax scheme that allows households to minimize their tax bill.

3. Microdata and methodological issues

The analysis of the effects of fiscal parameters on taxpayers can be circumscribed to the distributive scope, or another step can be taken to obtain conclusions about welfare. In this work, a broad perspective is achieved considering not only the distributive effects associated with the treatment of the family, but also its final effects on social welfare.

To do this, microdata from 2016 have been used, extracted from the Survey on Income and Living Conditions along with the EUROMOD microsimulation model (2013)[*], the tax-benefit microsimulatordeveloped for the European countries. Its main characteristic is that it allows to calculate the taxes of individuals and households, as well as monetary benefits in accordance with the established rules. EUROMOD is a static microsimulation model, in the sense that the calculations of benefits and taxes are arithmetic and the socio-demographic characteristics are not modified. Therefore, net income has been obtained by incorporating the payment of income tax, social contributions, and the perception of monetary benefits.

The analysis focuses on the change in the average net income and inequality as previous inputs to obtain the welfare variation that would involve the comparison of two simulated scenarios with the current situation in terms of the individual or joint tax option. As previously mentioned, the Spanish PIT regime allows the option for joint taxation to the members of the family unit in certain circumstances. This opens an option for certain families to plan and minimize their tax bill. On the other hand, the existence of joint taxation as a method of family taxation is quite widespread in the EU, although there are some examples, such as Sweden and the United Kingdom, in which individual taxation is the only way to declare.

The objective of the work is to quantify the welfare linked to two circumstances that occur in Spain in terms of family income taxation:

1) The existence of two alternatives available for taxation of families. In this case, welfare is quantified due to the fact that families in Spain do not have to pay taxes jointly, but can also choose to declare individually. The simulation corresponding to this scenario is called “Joint” and paying jointly is compulsory to all families that can do so, being removed the option of being individually taxed.

2) The existence of a joint taxation scheme for families instead of giving them just an individual taxation scheme. The simulation corresponding to this scenario is called “Individual”, and forces to be taxed individually in any case.

The reference scenario (“Baseline”) will take into account the amountsof PIT paid by taxpayers taking into account that the most favorable option is chosen. This means that families that meet the conditions to do so will choose between individual or joint taxation, according to the option that gives them the highest net income, while individual taxation will be the treatment for the rest.

Both in the reference scenario and the two simulations, we will calculate the resulting net income for different subgroups, as well as the inequality of this income, which in turn will serve as inputs for the computation of social welfare through a mathematical function. In

[*]The used version is EUROMOD H0.19+.

order to verify the sensitivity of the results, two alternative social welfare functions have been used. First, the proposed by Atkinson (1970), which evaluates social welfare based on average utility:

$$SWF(Atkinson) = \frac{1}{N}\sum_{i=1}^{N} U(Atkinson)(x_i) \quad [1]$$

Being *U(Atkinson)* the utility function that evaluates the individual welfare defined as follows:

$$U(Atkinson) = \begin{cases} \frac{x_i^{1-\varepsilon}}{1-\varepsilon} if\ \varepsilon \neq 0 \\ ln\ (x_i) \quad if\ \varepsilon = 0 \end{cases} \quad [2]$$

Where x_i represents the income of each unit (*N* in total), and ε is a parameter of aversion to inequality that takes zero value when inequality is not taken into account, and grows as the aversion to inequality rises.

Second, the abbreviated welfare function (see Lambert (2001)), associated with the inequality index proposed by Atkinson (1970), which results from multiplying the mean (μ) by the unit minus the inequality index of Atkinson (A).

$$SWF(Abbreviated) = \mu \cdot (1 - A) \quad [3]$$

The abbreviated social welfare function summarize well-being based on two parameters, the mean of the distribution and an index of inequality, without having to add the utility of all the members of society. To abbreviate the function it is necessary that the function increases with the average and decreases with the inequality.

The measure of inequality used, and which serves both to describe the scenarios and as an input for the abbreviated function, is the index proposed by Atkinson (1970):

$$A = 1 - \left[\frac{1}{N} \cdot \sum_{i=1}^{N} \left(\frac{x_i}{\mu}\right)^{1-\varepsilon}\right]^{1/(1-\varepsilon)} \quad [4]$$

This index can also be rewritten in terms of the equally distributed equivalent income (x_{equiv}), the income given to all the units in the same amount, and it would generate the same welfare as the current distribution.

$$A = 1 - \frac{x_{equiv}}{\mu} \quad [5]$$

Following this specification, it is easier to understand the trade-off between efficiency and equity. If the distribution of income were uniform, without any inequality, everyone would have the income μ, which would coincide with the equivalent income (x_{equiv}), so *A* would be 0. As we consider more unequal distributions, the value of the equivalent income would be decreasing and moving away from the average. This would indicate that in order to achieve a welfare equal to the current one, it would not be necessary to distribute a larger cake but to distribute it more equally. The difference between the

equivalent and the average income indicates the sacrifice needed for achieving a better distribution.

The first step to carry out the computation of the change in welfare is obtaining the Atkinson index (1970)in the two simulated scenarios. Once we have the Atkinson index -calculated for low, intermediate and high inequality aversion (ε = 0.2, ε = 0.5 and ε = 0.8)-, the values of social welfare can be obtained. Welfare is calculated with the two alternatives described above, the social welfare function (SWFA) of Atkinson, [1] and [2], and the abbreviated social welfare function (SWF), [3], associated with its inequality index, [4].

The analysis is carried out for different types of households, which have been classified into nine groups: Living alone over 65, living alone under 65, couples without children, two people living together but do not declare a partner, families with father and mother, with or without a common descendan, single-parent families with mother, single-parent families with a father, more than two people in the home, some without kinship and two or more generations living in the same household. The distribution of households according to their typology is the following:

Type of household	N sample	N population	% population
Living alone (> 65 years)	1.637	2.072.083	8,24
Living alone (<65 years)	1.546	2.607.710	10,51
Couple without children	3.312	4.001.061	21,32
Sharedapartment	301	443.320	2,03
Family	5.198	6.534.366	38,14
Single parent (mother)	1.212	1.532.317	9,31
Single parent (father)	217	267.524	2,19
Withoutkinship	785	921.868	8,01
Twogenerations	32	28.075	0,24
Total	14.240	18.408.324	100

Households have been classified exhaustively, despite the interest of the analysis focuses on those who may choose joint taxation: couples without children, families with father and mother, single-parent families and households with two generations, since they are the groups that are most affected by the simulated scenarios. When analyzing the simulated alternatives, the number of statements changes, minimizing the total in the simulation in which it is forced to pay taxes jointly to the families that can do it, and maximizing when it is forced to pay taxes individually. In either case, the unit of analysis chosen is the household adding the tax bill to be paid in each family in each scenario.
It is important to be noticed that the net income, both in the reference scenario and in the simulated ones, includes the monetary benefits received, as well as the social contributions and the income tax paid (which is affected by the previous concepts). On the other hand, we must clarify that family income has been corrected using the modified OECD equivalence scale, which weights with 1 the first adult, with 0.5 the following, and 0.3 the children.

4. Analysis of the results

As noted above, the goal of this work is to analyze the effects on welfare generated by the fact that there is an optionally joint taxation scheme for families in addition to the possibility of paying taxes individually and, on the other hand, the fact that families would jointly taxed in a compulsory way rather than individually. The two simulated scenarios are compared with the current situation. To quantify welfare, the SWF described in section 3 are used. The value of welfare depends positively on the average income, and negatively on the inequality, so we first analyze what happens with these two dimensions and then we compute the final effect on the welfare.

Given that the SWF are conditioned by the assumed inequality aversion, the results are exposed assuming a middle grade of aversion to inequality ($\varepsilon = 0.5$). In the Annex it is shown that when more extreme situations are considered ($\varepsilon = 0.2$ and $\varepsilon = 0.8$) the results are maintained, guaranteeing the robustness of the conclusions.

The values of the average net income (NI) in each scenario and for the groups chosen are shown in the table 1 and graph 1.

Table 1. Average montly net income by groups in €. Percentage variation (simulated scenario vs baseline). Equivalent income.

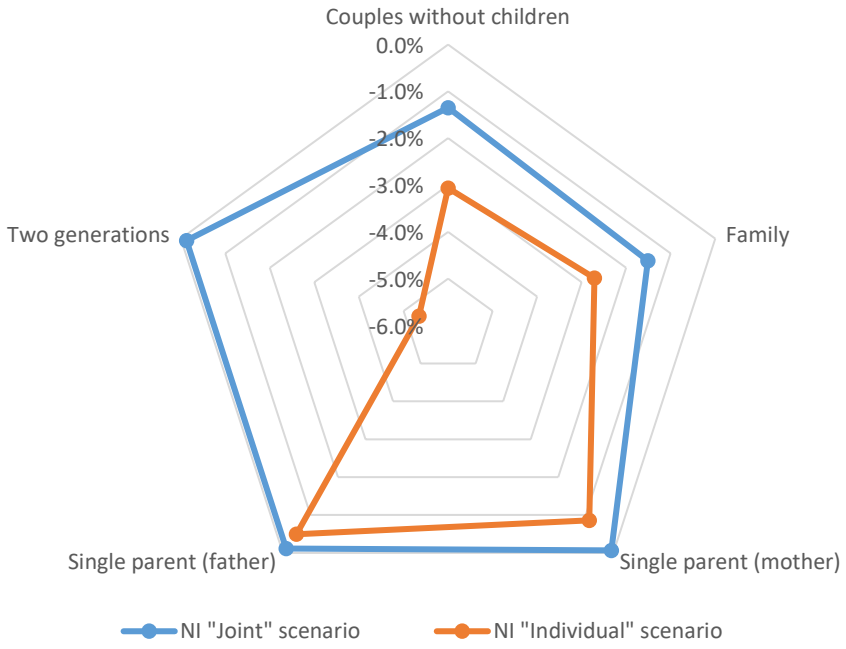
NET INCOME	NI Baseline	NI Joint	NI Individual	Variation (Joint)	Variation (Individual)
Couples without children	1525	1504	1478	-1,3%	-3,1%
Family	1338	1318	1302	-1,5%	-2,7%
Single parent (mother)	1172	1171	1162	-0,1%	-0,9%
Single parent (mother)	1447	1445	1440	-0,1%	-0,5%
Two generations	1202	1201	1138	-0,1%	-5,3%
Total	**1380**	**1363**	**1344**	**-1,2%**	**-2,6%**

The couples with the highest average monthly income in the reference situation (€ 1,525) are couples without children, representing 21.32% of all families. They are followed by single-parent households with a father with an average monthly net income of € 1,447, although these represent only 2.19% of all households. Families, with € 1,338 occupy the third place, and are better placed than households in which two generations coexist, with € 1,202 equivalent net monthly income. The most disadvantaged position in terms of equivalent income is held by single-parent households headed by a woman with € 1,172 of equivalent income.

The application of a system that forced jointly taxation to all families, would lead to a decrease in the average net income of all the groups, since in the baseline scenario the best result in terms of net income is always chosen. The highest percentage decrease -1.5% - occurs in families, followed by couples without children -1.3% - while in the other groups of interest the decrease in net income is only 0.1 %. For the subgroupsanalyzed, the average decrease would be 1.2%. When the scenario is one in which all households are forced to pay individually, a decrease is again obtained compared to the reference situation. In this scenario, the loss of net income is on average higher, 2.6%, couples

without children (3.1%) and families (2.7%) lose again more than the average, along with families of two generations (5.3%). Single-parent families see their average net income decrease by less than 1%.

Graph 1. Variation of the net income (NI) by subgroups.



This drop in the net income of households in any of the scenarios predicts, due to its direct relationship, a fall in the welfare of the groups analyzed in any of the situations presented. However, the total effect on social welfare will depend on the weight of the changes in inequality generated by the existence of other types of tax structures. Therefore, the next element of interest to be analyzed is what happens with inequality, in the reference situation and in the two simulated scenarios, which we calculate using the Atkinson index assuming an aversion to the intermediate inequality with ε=0.5.

Although the values are not presented here, it has been checked that the inequality of the gross income (before the application of personal income tax, social security contributions and monetary benefits) is always greater than when considering the net income (NI) both in the real scenario that constitutes our reference, as in the two simulated scenarios. This allows concluding that both the application of the current system and the simulated scenarios are redistributive.

Table and graph 2 show the Atkinson indixes for the different population subgroups. As expected, inequality decreases when applying any of the taxation scenarios and monetary benefits, that is, when comparing gross income with net income. However, the results under study are obtained by comparing the inequality between the different net income obtained with the current scenario or with the simulated ones.

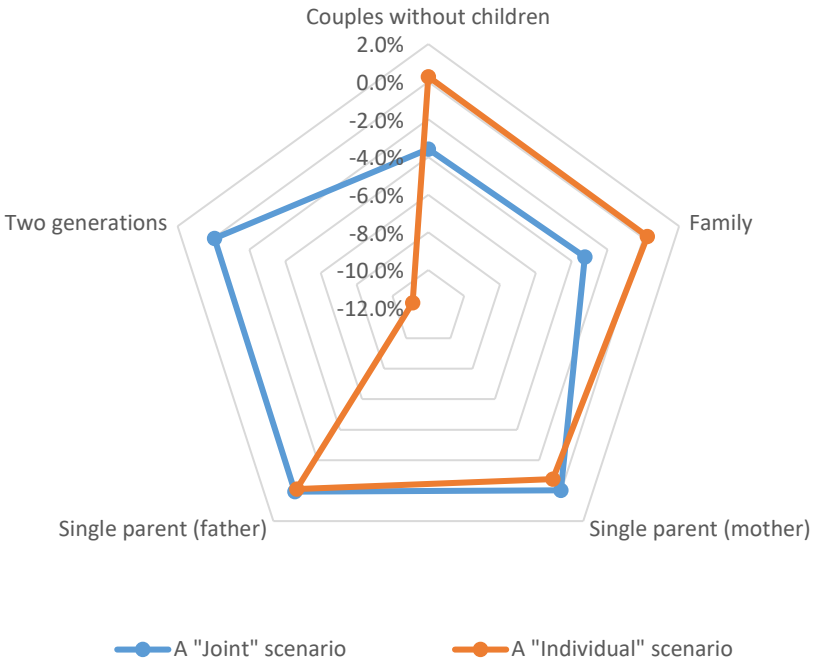
Table 2. Atkinson indixes and percentage variation (simulated scenarios vs baseline) by subgroups(ε=0,5)

NET INCOME	Atkinson (Baseline)	Atkinson (Joint)	Atkinson (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	0,085424	0,082371	0,085655	-3,6%	0,3%
Family	0,089535	0,086612	0,089738	-3,3%	0,2%
Single parent (mother)	0,115721	0,115691	0,114858	0,0%	-0,7%
Single parent (mother)	0,09659	0,096655	0,096491	0,1%	-0,1%
Two generations	0,087913	0,087862	0,078137	-0,1%	-11,1%
Total	**0,091599**	**0,089064**	**0,091650**	**-2,9%**	**0,1%**

If the option of individual taxation for families were eliminated ("Joint" simulation), the inequality would vary almost imperceptibly for single-parent and two-generation families, while for families and couples without children, the decrease would be higher than 3%. In global terms, the decrease in inequality is 2.9%.

In the second simulated scenario in which all households are taxed individually, a less important relative decline can be observed for all groups except for the two-generation group that sees inequality decrease by 11.1%, although this group is unimportant in terms of weight over the total. Inequality increases slightly in couples without children and families (0.3% and 0.2% respectively) when forced to declare individually, while it decreases for single-parent families by less than 1%. In global terms, an increase in inequality of 0.1% is observed.

Graph 2. Variation of the Atkinson index (A) by subgroups. (ε=0,5)



After the analysis of these results, the change in welfare associated with the simulated scenarios can be predicted if the application of individual taxation were forced: the net income is lower, which negatively affects the change, and in global terms, the inequality increases, contributing to the decline in welfare. In the scenario “Individual”, a smaller cake is more unequally distributed, so that welfare should fall in global terms, although it could happen that it increases for a particular group, such as households of two generations, who although they see their net income fall, they experience a significant decrease in inequality that could compensate for the loss of income.

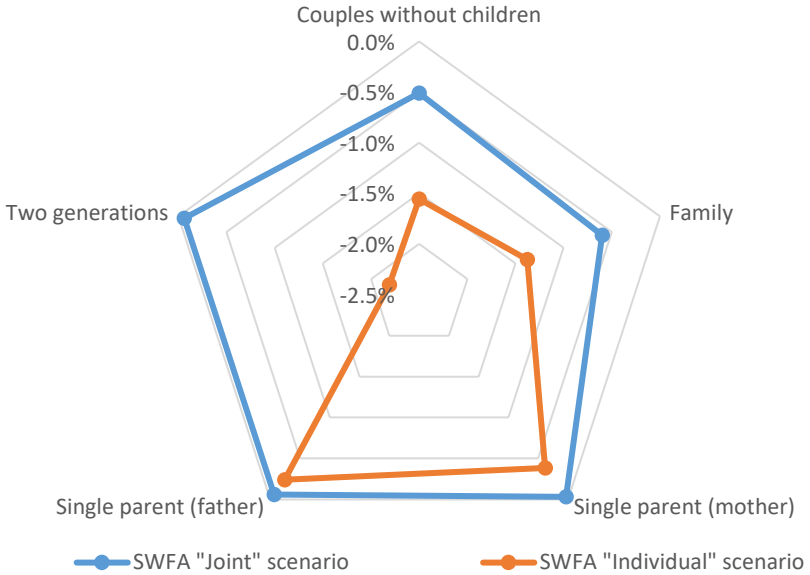
In the case of the joint taxation scenario, the sign of the change in welfare for the whole can not be anticipated, since income decreases but inequality also, so that both effects could be compensated, depending on the welfare function used. It is possible, however, to anticipate the sign of change in the group of single-parent families with a father, in which net income falls and inequality increases, which should result in a decline in welfare for any of the welfare functions that have been proposed.

The simultaneous consideration of efficiency (net income) and equity (inequality index) can be done through different specifications of the SWF. In this case we use Atkinson's SWF (ASFW) also with ε = 0.5. The results can be seen in table and graph 3.

Table 3. Atkinson Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,5)

Subgroups	ASWF (Baseline)	ASWF (Joint)	ASWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	74,62	74,24	73,46	-0,5%	-1,6%
Family	69,79	69,37	68,83	-0,6%	-1,4%
Single parent (mother)	64,33	64,31	64,08	0,0%	-0,4%
Single parent (mother)	72,31	72,26	72,13	-0,1%	-0,2%
Two generations	66,23	66,18	64,77	-0,1%	-2,2%
Total	**70,72**	**70,38**	**69,80**	**-0,5%**	**-1,3%**

Graph 2. Variation of the Atkinson Social Welfare Function (ASWF) by subgroups. (ε=0,5)



The calculated changes allow us to conclude that in the reference scenario the highest level of welfare is reached compared to the two simulations. This means that the current system in which it is allowed to choose, generates a potential an enough net income gainto compensate for possible losses in income inequality. Thus, the “Joint” scenario decreases welfare by 0.5% for the total number of households compared to the reference situation, while the “Individual” scenario leads to a greater decrease of 1.3%. This result also occurs for all the subgroups analyzed, which show greater well-being in the current scenario than in the simulated ones (even in single-parent families with a mother, although the change is almost imperceptible).

The group that is best treated by our system is families, which loses 0.6% of welfare in the “Joint” scenario. This result is conditioned by the fact that the reduction by joint taxation is more generous in this group, making it the one with the highest losses if the option is eliminated by individual or joint. On the other hand, forcing individual taxation would hurt more families with two generations, who lose 2.2% and couples without children, who would lose 1.6%.

In addition to calculating social welfare using Atkinson’s welfare function (ASWF), an abbreviated social welfare function is used, described in section 3. The results for abbreviated function (SWF) can be analyzed in the fouth table and in the graph 4.

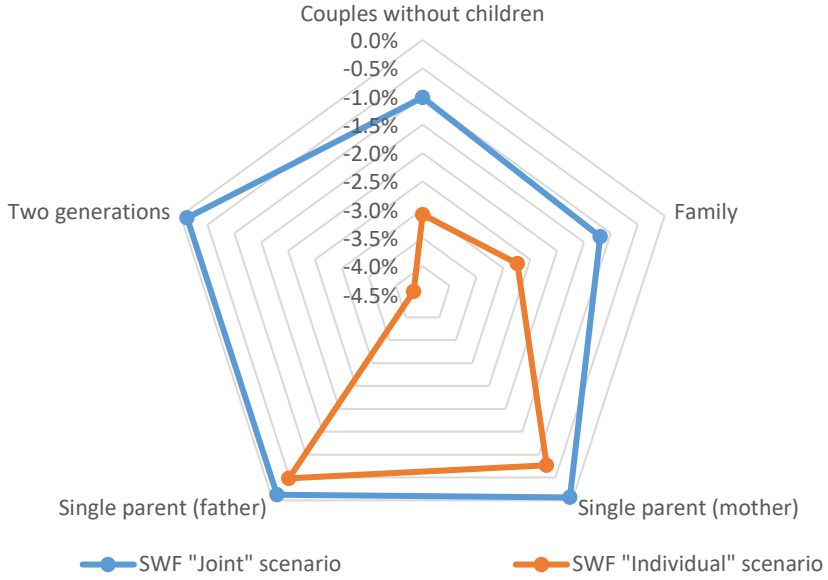
Table 4. Abbreviated Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,5)

Subgroups	SWF (Baseline)	SWF (Joint)	SWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	1394,65	1380,47	1351,58	-1,0%	-3,1%
Family	1218,46	1203,87	1185,14	-1,2%	-2,7%
Single parent (mother)	1036,48	1035,82	1028,54	-0,1%	-0,8%
Single parent (mother)	1307,02	1305,43	1300,72	-0,1%	-0,5%
Two generations	1096,44	1095,10	1048,92	-0,1%	-4,3%
Total	**1254,56**	**1242,14**	**1221,79**	**-1,0%**	**-2,6%**

When using the abbreviated function to assess well-being, we can see some changes with respect to the case in which Atkinson's function is used in terms of the intensity of the effect, which seems to be double. That is, any of the options analyzed is worse in terms of welfare than the reference scenario, both in global terms and for each of the subgroups analyzed. In addition, as the intensity of the effect increases, the most affected groups remain, which are again couples without children and families in the “Joint” scenario and households with two generations and couples without children in the “Individual” scenario.

As we have seen, the two elements that determine the value of social welfare can operate inversely: on the one hand, the decrease in net income that occurs in any of the simulated scenarios decreases welfare, while the decline in the inequality would lead to an increase in it. The final effect is a decrease in welfare in both cases with respect to the reference situation, so it can be concluded that the decrease in inequality, when it occurs, does not sufficiently compensate for the decrease in the average net income. It is important to highlight this result, since in many cases the analysis focuses exclusively on distributive issues. If this had been the case, it would have been concluded that the “Joint” scenario is better than the existing one (when achieving a decrease in inequality of 2.9%), when in terms of social welfare measured by Atkinson’s welfare function they are not.

Graph 2. Variation of the Social Welfare Function (SWF) by subgroups. (ε=0,5)



5. Conclusions

This paper has evaluated the welfare associated with the PIT system in Spain in terms of the treatment granted to the taxpayer unit. In the current situation, families can choose the tax option that suits them best: individual or joint. Comparing the well-being associated with the current situation to that related to either of the other two alternatives without the possibility of choice, it is concluded that the maximum well-being is achieved with the current situation, followed by joint taxation, and the lowest well-being is associated with individual taxation. Therefore, there is a welfare gain for taxing jointly instead of individually to families, but there is additional welfare if instead of forcing joint taxation, the option that minimizes the payment of taxes is allowed to be chosen. This result is consistent with any inequality aversion, and for any of the SWF that have been used in the paper: the one proposed by Atkinson and an abbreviated function. Thus, the fact of applying joint taxation, even if it were mandatory, generates greater welfare than a system in which it is compulsory to pay taxes individually to all taxpayers. This result is obtained because the higher net income associated with the current system implicitly implies a well-being that can not be compensated by the more egalitarian distributions that are achieved in the simulated scenarios by some groups.

The sensitivity of the results -which only change in intensity- does not occur therefore, neither because of the inequality aversion considered nor because of the type of function used in the evaluation, being able to conclude, in a robust way, that the optional joint taxation scheme would be better than not allowing families to choose it or taxing them in an individual taxation scheme.

If we descend to the analysis of the results by subgroups of households, the conclusion is maintained: all the groups are winners in welfare in the current situation in comparison with the simulated ones. Also, systematically and regardless of the welfare function or the aversion to inequality used, the groups that would experience lower welfare losses would be single-parent households if forced to apply individual taxation, and also if the

option for individual/joint taxation was eliminated. This is the result of less generous legal treatment enjoyed by single-parent households.

The conclusions obtained in this paper highlight the importance of analyzing social welfare as a broader objective and not only from a single perspective that takes into account exclusively efficiency, or exclusively equity. In addition, the general conclusion obtained that implies that the current system entails greater well-being than eliminating the options for families, or forcing families to pay taxes individually, is maintained whatever the aversion to inequality, and for the two functions used, which corroborates its robustness.

References

Alesina, A., Ichino, A., &Karabarbounis, L. (2011). Gender-based taxation and the division of family chores. American Economic Journal: Economic Policy 3, No. 2: 1-40.

Apps, P.F., & Rees, R. (2007b). The taxation of couples. The University of York. Discussion papers in economics, No. 2000/62.

Atkinson, AB. (1970). On the measurement of inequality. Journal of Economic Theory, 2 (3), pp. 244–263.

Badenes Plá, N. (2000). IRPF, eficiencia y equidad: tres ejercicios de microsimulación. (Tesis Doctoral). Universidad Complutense de Madrid, Madrid.

Stotsky, J. G. (2005). Sesgos de género en los sistemas tributarios, Política fiscal y género, pp. 41-62.

Haan, P., & Navarro, D. (2008). Optimal income taxation of married couples: An empirical analysis of joint and individual taxation. No. 3819. IZA Discussion Paper.

Lambert, P. (2001) *The Distribution and Redistribution of Income*. Manchester UniversityPress.

Ley 44/1978 del Impuesto Sobre la Renta de las Personas Físicas, BOE núm. 217 de 11 de marzo de 1978. Madrid, España. 8 de septiembre de 1978.

Ley 35/2006 del Impuesto sobre la Renta de las Personas Físicas y de modificación parcial de las leyes de los Impuestos sobre Sociedades, sobre la Renta de no Residentes y sobre el Patrimonio, BOE núm. 285 de 29 de noviembre de 2006. Madrid, España. 28 de noviembre de 2006.

Pazos Morán, M. (2018). Contra el patriarcado. Economía feminista para una sociedad justa y sostenible. Pamplona: Primera edición en Katakrak.

Real Decreto Ley 6/1988 por el que se adoptan medidas urgentes sobre tributación de la familia en el Impuesto sobre la Renta de las Personas Físicas y el Impuesto Extraordinario sobre el Patrimonio de las Personas Físicas, BOE núm. 314, de 31 de diciembre de 1988. Madrid, España. 29 de diciembre de 1988

Rosen, H.S. (1977). Is it time to abandon joint filing? National Tax Journal, 30(4), 423-428

Ruíz Garijo, M. (2014). "Tributación conjunta en el IRPF: algunas razones para su supresión", *ECJ Leading Cases*, año III, vol. 2º. http://wp.me/p2wsiA-1lk

Sutherland, H., &Figari, F. (2013). EUROMOD: the European Union tax-benefit microsimulation model. International Journal of Microsimulation, 6(1), 4-26.

ANNEX 1

Sensivity Analysis of the results for different levels of inequality aversion

As seen in sections three and four, the microsimulation and the results of the scenarios have allowed us to assess changes in one type of taxation or another in terms of inequality and well-being. In this annex we present the results of the Atkinson Indexes and Social Welfare Functions (Atkinson and the Abbreviated one) using different levels of inequality aversion; ε = 0.2 and ε = 0.8.; to check the robustness of the results.

- ***Sensivity analysis for ε=0,2***

Table A.1. Atkinson indixes and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,2)

Subgroups	Atkinson (Baseline)	Atkinson (Joint)	Atkinson (Individual)	Variation Joint	Variation Individual
Couples without children	0,034529	0,033203	0,034725	-3,8%	0,6%
Family	0,03551	0,034267	0,035709	-3,5%	0,6%
Single parent (mother)	0,046548	0,046541	0,046233	0,0%	-0,7%
Single parent (mother)	0,038838	0,0388858	0,038819	0,1%	0,0%
Two generations	0,034603	0,034592	0,030547	0,0%	-11,7%
Total	**0,036631**	**0,035545**	**0,036750**	**-3,1%**	**0,4%**

Table A.2. Atkinson Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,2)

Subgroups	ASWF (Baseline)	ASWF (Joint)	ASWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	427,71	423,55	417,12	-1,0%	-2,5%
Family	385,06	380,78	376,62	-1,1%	-2,2%
Single parent (mother)	343,06	342,98	340,78	0,0%	-0,7%
Single parent (mother)	408,76	408,37	407,15	-0,1%	-0,4%
Two generations	353,70	353,34	339,62	-0,1%	-4,0%
Total	**394,10**	**390,47**	**385,86**	**-0,9%**	**-2,1%**

Table A.3. Abbreviated Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,2)

Subgroups	SWF (Baseline)	SWF (Joint)	SWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	1472,26	1454,43	1426,86	-1,2%	-3,1%
Family	1290,76	1272,87	1255,48	-1,4%	-2,7%
Single parent (mother)	1117,56	1116,82	1108,28	-0,1%	-0,8%
Single parent (mother)	1390,57	1388,91	1383,75	-0,1%	-0,5%
Two generations	1160,53	1159,06	1103,06	-0,1%	-5,0%
Total	**1329,90**	**1314,54**	**1295,13**	**-1,1%**	**-2,6%**

- ***Sensivity analysis for ε=0,8***

Table A.4. Atkinson indixes and percentage variation (simulated scenarios vs baseline) by subgroups. (ε=0,8)

Subgroups	Atkinson (Baseline)	Atkinson (Joint)	Atkinson (Individual)	Variation Joint	Variation Individual
Couples without children	0,1363	0,131846	0,136228	-3,3%	-0,1%
Family	0,145814	0,141459	0,145634	-3,0%	-0,1%
Single parent (mother)	0,189409	0,189347	0,187967	0,0%	-0,8%
Single parent (mother)	0,154967	0,15509	0,154725	0,1%	-0,2%
Two generations	0,142447	0,142332	0,127559	-0,1%	-10,5%
Total	**0,148329**	**0,144580**	**0,147992**	**-2,6%**	**-0,2%**

Table A.5. Atkinson Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,8)

Subgroups	ASWF (Baseline)	ASWF (Joint)	ASWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	21,00	20,97	20,87	-0,2%	-0,6%
Family	20,43	20,39	20,32	-0,2%	-0,5%
Single parent (mother)	19,67	19,67	19,65	0,0%	-0,1%
Single parent (mother)	20,72	20,72	20,70	0,0%	-0,1%
Two generations	20,03	20,02	19,88	0,0%	-0,8%
Total	**20,53**	**20,50**	**20,42**	**-0,2%**	**-0,5%**

Table A.6. Abbreviated Social Welfare Function and percentage variation (simulated scenarios vs baseline) by subgroups (ε=0,8)

Subgroups	SWF (Baseline)	SWF (Joint)	SWF (Individual)	Variation (Joint)	Variation (Individual)
Couples without children	1317,07	1306,04	1276,82	-0,8%	-3,1%
Family	1143,14	1131,58	1112,36	-1,0%	-2,7%
Single parent (mother)	950,11	949,54	943,59	-0,1%	-0,7%
Single parent (mother)	1222,56	1220,98	1216,89	-0,1%	-0,5%
Two generations	1030,88	1029,71	992,68	-0,1%	-3,7%
Total	**1176,97**	**1167,18**	**1146,66**	**-0,8%**	**-2,5%**