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PONENCIA GENERAL

Tributación de la familia, reducción de la desigualdad y aumento del bienestar social. Una aplicación al IRPF* .

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RESUMEN

Los impuestos sobre la renta personal aplicables en el mundo real están alejados del impuesto tipo tratado en los estudios teóricos, donde las cuotas impositivas dependen únicamente de la renta. El hecho de que en la realidad existan grupos con diferente tratamiento fiscal en función de atributos no relacionados con el nivel de renta exige un replanteamiento de los resultados convencionales sobre progresividad y redistribución en el impuesto sobre la renta personal, así como de su evaluación en términos de bienestar social. En este trabajo se estudian los diferentes tratamientos dados por el impuesto sobre la renta personal español (IRPF), desde su introducción en 1979 hasta la fecha, a tres grupos fiscales: individuos solteros, matrimonios con un único perceptor de rentas y matrimonios con dos perceptores de rentas. Se adopta una especificación de bienestar social *à la* Atkinson & Bourguignon, y se asume que, para el decisor social, los únicos atributos relevantes para diferenciar las necesidades de cada grupo, son el *status* marital y el número de perceptores de renta. Bajo estas hipótesis, se concluye que el IRPF no ha sido en ningún momento superior, en términos de bienestar, a un impuesto proporcional de igual recaudación, aplicado sobre todas las unidades contribuyentes.

Palabras clave: impuesto sobre la renta personal, *status* marital, bienestar social, desigualdad.

Clasificación JEL: D63, H23, H24.

ABSTRACT

Income tax in the real world is far from the income tax in theoretical studies in which tax liabilities only depend on income. The fact that there are tax groups differently treated, attending to non income attributes, implies restatement of the conventional results on progressivity and redistribution of income tax and its assessment in terms of social welfare. Our aim in this paper is to study the different treatment between three tax classes in the Spanish personal income tax (IRPF) from its introduction in 1979 to nowadays: single persons, married couples with one income earner, and married couples with two income earners. For any year in this period, there is not sequential generalised Lorenz dominance, so, for a welfare specification *à la* Atkinson & Bourguignon, the Spanish IRPF is not welfare superior to an equal-yield proportional tax applied to all income units regardless of marital status, according to social decision-makers for whom marital status and the number of income earners are the only needs-relevant factors in the IRPF code.

Keywords: personal income tax, marital status, social welfare, inequality.

JEL Classification: D63, H23, H24

I. INTRODUCTION

Income tax in the real world is far from the income tax in theoretical studies on tax progressivity, redistribution and public acceptance in terms of social welfare. While theoretical studies take for granted that the income tax paid by the individual depends solely on his income, actually tax liabilities also depend on non income attributes such as marital status, the size of the family or certain individual decisions, such as the purchase of a house. The fact that there are groups with different tax treatment implies restatement of the conventional results on the progressivity and redistribution of income tax and its assessment in terms of social welfare.

Our aim with this paper is to deal with the actual income tax and specifically with the differential treatment between three tax classes: single persons, married couples with one income earner and married couples with two income earners. On the base of the differentiated treatment of family tax groups lies an old and still open debate on actual ability to pay depending on whether two people live together or not and the number of income earners.

The structure of the paper is divided in five sections. Section II deals with theoretical aspects and shows the conditions for the progressive and differentiated taxation of several tax classes to reduce global inequality and to be acceptable in terms of social welfare.

Sections III and IV try to offer an empirical approach to our study, based on the Spanish experience from 1979. Some phases of the tax treatment of married and non married persons in Spanish income tax (IRPF) will be identified. In each phase, the redistributive effect will be assessed within each group we have identified (single persons and married couples with one or two income earners) and the global redistributive effect. Finally each phase will be assessed in terms of social welfare functions defined in Section II. This will be done using the Panel of IRPF Returns, which belongs to the Institute of Fiscal Studies (IEF) and which consists of a sample of more than 250,000 tax returns.

The study ends with some concluding remarks.

II. THEORETICAL APPROACH¹

If an individual's tax liability solely depends on his or her income (x_i), the following conventional result applies:

Theorem 1 (Fellman, 1976; Jakobson, 1976)

If people's income is taxed progressively, inequality is unambiguously reduced.

Now, we define the following class of individualist, symmetrical, additively separable and inequality-averse social welfare functions:

$$W_1 = [1/N] \sum U(x_i) , \quad U' > 0 , \quad U'' < 0 \quad \text{for all } x \geq 0$$

where N are the income units. The following result applies:

Theorem 2 (Atkinson, 1970)

If inequality is unambiguously reduced by the income tax, then this tax is welfare-superior to an equal-yield proportional tax, for all $W \in W_1$.

If we allow the tax liability to depend on other attributes, such as marital status, as well as income, a different welfare specification will be needed to make a normative judgement, which enables analysis to be carried out in money income terms, while still retaining the essential elements of the average utility-of-income approach.

As Lambert (1993a, 1994) explains, the available non-income information is used to subdivide the population into groups $i = 1, \dots, n$ with different levels of need, which rank from the neediest ($i = 1$) downwards. The idea is that, for each given x , some income units are more deserving of additional resources than others. We have identified the following three groups in our empirical approach:

¹ This Section summarizes the main results of Lambert (1988, 1993a, 1993b, 1994).

$i = 1$: married couples with two income earners.

$i = 2$: married couples with one income earner.

$i = 3$: single persons.

These differences in needs are recognised by the social decision-maker, which attributes a different utility-of-income function $U^i(x)$ to income units in each group. The properties of the vector of social utility functions are the following:

1. Each $U^i(x)$ is increasing and concave, i.e., the decision-maker is inequality-averse when focusing on income distribution within any group.

2. For each $i = 1, 2, \dots, n-1$, $dU^i/dx - dU^{i+1}/dx$ is both positive and decreasing in income x . This means that the social decision-maker attributes, at every level of income, a higher marginal social utility of income to some types of income unit than to others, but also that the systematic difference in marginal social utility at each income level decreases with income.

The social welfare function evaluates average utility-of-income across the whole population:

$$W_2 = \sum p_i W_i$$

where p_i is the proportion of income units belonging to group i , and $W_i \in W_I$ is average utility-of-income within group i .

Theorem 3 (Atkinson and Bourguignon, 1987)

If overall inequality is unambiguously reduced by an income tax involving differences in tax treatment, then it is a necessary condition for welfare superiority over an equal-yield proportional tax, for all $W \in W_2$.

Lambert has demonstrated that the conditions for overall inequality reduction are certainly not trivial², and that separately progressive taxation -with between-groups redistribution to the needy and within-group redistribution to the poor- do not imply overall inequality reduction.

Theorem 4 (Atkinson and Bourguignon, 1987)

It is necessary and sufficient for welfare improvement -for all $W \in W_2$ that there is generalised Lorenz dominance of the income tax over the equal-yield proportional tax, for the sub-populations consisting of the j most needy groups, for each $j = 1, \dots, n$.

This is the sequential generalised Lorenz dominance criterion. We may explain the way it works with the three types of income units we have identified in the Spanish IRPF. First we select the most deserving group, i.e., dual-income married couples and we check the generalised Lorenz dominance of income tax over the equal-yield proportional tax. Then, we add the next most deserving group, i.e, single-income married couples and we assess once more the generalised Lorenz dominance. Finally, we add the last group, i.e., single persons, and we iterate the procedure. If generalised Lorenz dominance obtains at each stage, welfare enhancement is secured.

III.FAMILY TAXATION IN SPANISH PERSONAL INCOME TAX

In the transition process towards a democratic regime, Spain introduced in 1979, within an extensive tax reform, a personal income tax conventionally conceived and whose characteristics were: a synthetic and extensive tax base, progressive tax rates and personal and investment deductions.

In related to the tax treatment of the tax unit in IRPF we may establish four tax differentiated models since the introduction of this tax: 1979-1984, 1985-1987, 1988-1991 and from 1992 onwards.

² See, for example, Lambert (1993b).

As far as each model is concerned it has been differentiated for the purpose of tax treatment, several types of tax units according to the particular needs' level of each one. In terms of homogenizing we have identified three types of tax units in each of the four periods we have studied³: single persons, married couples where both spouses are income earners, and married couples where only one spouse is income earner.

As a consequence of the analysis developed for the four periods considered we have found out that the relative scale of needs for each group established by the social decision-maker does not change. The ranking, which has some specificities in each period that we will explain later, is as follows:

- a) the type of tax unit with more needs is married couple where both spouses are income earners ($i = 1$);
- b) in the second place, we would find married couples with only one income earner ($i = 2$);
- c) whereas the less needy group would be single individuals ($i = 3$).

In the first two periods, 1979-1984 and 1985-1987, the idea of an IRPF as a personal tax aiming at taxing ability to pay of the family -based on the belief that two adults living together bring about economies of scale in consumption- allowed a consistency between the assessment of the needs in each type of tax unit made by the social decision-maker and the intensity in assignment of IRPF tax burden for each group. Compulsory income aggregation in the family's tax base together with the introduction, in the tax structure, of an *ad hoc* treatment of tax mitigation applied to this case and the inclusion of a deduction for married couples offered a tax treatment which was in line with the abovementioned social preferences.

In 1989, the declaration of the unconstitutional character of compulsory aggregation of income earned by both spouses within the family's tax base completely changed the conception of IRPF. It became a tax aiming at taxing individual ability to pay. In the two periods which were

³ Particular tax treatment of married couples as a tax unit in the different IRPF schemes in the periods 1985-1987, 1988-1991 and 1992-, would allow to consider an almost infinite types of married couples because: a) tax structures considers variable tax deductions related to the income share of each income earner applied to the global tax base of a married couple and the types of income sources and its imputation to each spouse (1985-1987, 1988-1991 and 1992-); and b) the optional application of two different tax schedules for married couples (1992-).

affected by this conceptual change (1988-1991 and 1992-) tax treatment of the three groups of tax units allowed to keep broadly the prevailing social preferences until then, though differential treatment became more important, specially among the groups of married couples with one or two income earners, as it can be seen on figures III.1 to III.4.

- If we first consider the period which begins with the introduction of the IRPF and finishes in 1984, the main characteristic when taxing the different tax unit types was the compulsory aggregation of income earned by married couples with two income earners, in this case the total family's tax base was taxed with an only tax schedule, the same that is applied to the three groups⁴. As were thought that there were very small differences in needs between the groups, differentiated tax treatments were very scarce. They were implemented through deductions on tax liability. In this way a deduction on grounds of "married couples" was introduced and applied to married couples in which there was a single income earner. The tax deduction was 14.500 pts. in the year we study in this period, 1982. In the case of dual-income married couples, in addition to this deduction on married couples, there was another one which consisted of a 30% increase in the "general tax deduction" (which operated as a tax threshold but was implemented as a deduction on tax liability) of 15.000 pts. in 1982 for each income earner who filed a return⁵.

In terms of nominal average tax rate of the tax unit of type i^6 , the functions corresponding to each treatment for the year studied, 1982, were as depicted on figure III.1.

As it can be seen on that figure, this differentiated treatment turns out to be, in terms of average tax rate, less than 2% between the neediest group and the less needy when the taxable income level is up to 2 million pts. (1982's pts).

So differentiated tax treatments for the three groups, referred to 1982, were ranked in the following order:

⁴ Tax schedules for 1982, 1985, 1988 and 1992 are depicted on tables III.1 to III.4, respectively.

⁵ Exception is made when one of the two income earners only received capital income or capital gains.

⁶We define "nominal average tax rate of a tax unit of the type i " the rate reached once we have applied the set of elements within the tax structure (decreases in the tax base, tax rates, tax deductions, etc.) to any level of taxable income. All individuals belonging to group "i" are entitled to the abovementioned set.

$$t_{i=3}^{79-84}(x) > t_{i=2}^{79-84}(x) > t_{i=1}^{79-84}(x)$$

• In 1985-1987 the social decision-maker introduces a larger differentiation between groups $i = 1$ and $i = 2$. IRPF law keeps aggregation of income compulsory when assessing tax base of married couples, but a “variable tax deduction” is introduced which would be applied to the group $i=1$ in tax liability. The amount of this deduction is assessed by applying the following polynomial expression with a maximum deduction of 300,000 pts.:

$$\text{Variable deduction} = 5000 - 8 \cdot TI + 0.04 \cdot (TI - B_2) \cdot B_2$$

where TI is the taxable income of the married couple and B_2 is labour income of the second income earner. As we can easily observe, the variable deduction amount was affected by the income share of each income earner applied to the global tax base of the couple, and the characteristics of the income source⁷.

Furthermore, in this period the general deduction in tax liability (which had been established for the year of this period we are analysing, 1985, with a sum of 17,000 pts.) increased, reaching 50% of deduction applied to each income earner in the case of married couples of group $i = 1$. The deduction for married couples was kept (21,000 pts. for 1985), it was applied to the group $i = 1$ as well as to the group $i = 2$.

In terms of nominal average tax rate of a tax unit, the corresponding tax functions of each group “ i ” for the year we are studying, 1985, were as depicted on figure III.2.

It is worthwhile to stress on figure III.2 that differentiated treatment on married couples with two income earners increases in relation to the period 1979-1984. In the case of very high taxable income (12 million pts.), a gap of more than 2% still remains. We may find another important characteristic in the tax treatment which favoured dual-income married couples, when the

⁷ To assess nominal average tax rates of each group of tax units showed in figures III.2, III.3 and III.4, two different contexts have been considered: (1) where total base of the married couple is equally earned by each spouse; and (2) where total tax base is 90% earned by the first income earner and 10% by the second. In both cases we took for granted that all income came from the most general and extended source of tax treatment: labour income.

ratio between spouses' incomes (90%/10%) is similar to the case of only one income earner. The difference between the group of single persons and the group of married couples with only one income earner has increased with regard to the previous period, although it is almost negligible once a family income of 2 million pts. is reached, which is by the way relatively low.

As we saw in the previous period, following the regulation of the social decision-maker for each group we have studied, the tax legislator defined a differentiated tax treatment so that:

$$t_{i=3}^{85-87}(x) > t_{i=2}^{85-87}(x) > t_{i=1}^{85-87}(x)$$

- The following period, 1988-1991, forms part of the historical evolution of the IRPF, precisely due to the problem of the treatment of different tax units. The legal regulations governing the tax, established in order to tax the income obtained by tax units in the year 1988, were annulled by the Spanish Constitutional Court on February 20, 1989. The motive was the unconstitutionality of the obligation, established since the introduction of the tax in 1979, of the compulsory aggregation of income in the taxable bases of married couples with two income earners. The privacy of information within marriage and the existence of individual tax liabilities which differed as a result of the matrimonial bond were the arguments advanced by the Court.

In response to this ruling, the legislature adopted a series of provisional measures which allowed, in the period 1988-1991, the application of the non-annulled IRPF regulations, without thereby undertaking a profound reform of the structure of the tax. Thus, in order to respect the ruling, the generalisation of the system of individual taxation, without any type of limitations, was established for the first time since 1979. However, to facilitate a reduction of administrative and compliance costs, an optional system of joint taxation was established, in which the definition of the legal tax unit remained in identical terms to that existing before the ruling of unconstitutionality. The model of a single tax schedule, both for the general case of individual taxation and for the optional one of joint taxation, was maintained.

In accordance with the defined tax groups, the differing fiscal treatments provided for by legislation in this period and, in particular, for the year under analysis, 1988, were the following. For

the group $i = 1$, dual-income married couples, two possibilities became available. The first was derived from the separate taxation of the income of each spouse, in which there existed no distinction from the system of taxation of single individuals, while the second was associated with the choice of the method of joint taxation, in which was included a variable deduction expressed as a percentage of the total taxable base of the married couple. The magnitude and evolution of that deduction was similar to that resulting from the polynomial formula in force until 1987, although it was presented, for its application by taxpayers, in the form of double-entry columns, according to the level of the total income of the married couple and the proportion between the income of both spouses⁸, with a minimum sum of 35,000 pts. and a maximum ceiling for deduction, depending on proportions, which in whatever case could not exceed 800,100 pts. For married couples with one income earner the differential tax treatment with respect to the group of single persons lay solely in the application of a deduction per married couple of 35,000 pts.

For the year 1988, utilized in the analysis of this period, the functions of average nominal rate by group of tax units were as depicted on figure III.3.

As figure III.3 shows, the principal characteristic of the model in this period is the wide differential treatment, favourable to married couples with two income earners when they pay tax according to the general system of separate taxation, divergent with the evolution of family income, with regard to the level of taxation of single-income married couples: for a proportion of income per recipient of 50%, more than twelve percentage points of the tax rate for family tax base exceeding 11,000,000 pts. The differential is reduced when the proportion of income between recipients is no longer equal. For married couples in group $i=1$ opting for the method of joint taxation, the differential treatment is less favourable with regard to group $i = 2$, although in this case the differential is reduced as family income increases. Lastly, the difference in treatment awarded by legislation to married couples with one income earner and to single persons continues increasing in this period.

As a consequence, the tax treatment of the three groups maintains the relationship of previous periods:

⁸In the calculation of this proportion neither investment income nor capital gains or losses were included.

$$t_{i=3}^{88-91}(x) > t_{i=2}^{88-91}(x) > t_{i=1}^{88-91}(x)$$

For reasons of simplicity and homogenization, we have maintained the hypothesis of three schemes of taxation, differentiated in accordance with the initial definition of types of tax unit. However, as has been noted, the introduction of an optional system of joint taxation in group $i=1$, offers a dual tax treatment for married couples with two income earners. In accordance with the tax functions listed in figure III.3, the ranking in this case would be:

$$t_{i=3}^{88-91}(x) > t_{i=2}^{88-91}(x) > t_{i(c)=1}^{88-91}(x) \geq t_{i(s)=1}^{88-91}(x)$$

$t_{i(c)}$ being the tax function of group $i=1$ when its members pay tax on accrued income and $t_{i(s)}$ that corresponding to the same group when the spouses pay tax separately.

- The final period dealt with, from 1992 onwards, corresponds to the coming into force of the IRPF as a result of a wide-ranging reform of the tax, undertaken after the 1989 ruling of unconstitutionality. In the current structure of the IRPF, the unlimited generalisation of individual taxation of married couples has been maintained, although an optional system of joint taxation for married couples has been introduced, independently of the number of income recipients, with a flatter scale in its marginal rates. This scale, for married couple total tax base levels under 2,000,000 pts., reproduces the effect of a traditional splitting system, converging (from this income level upwards) towards the average tax rate of the general scale for individual taxation. Again, the choice between joint and individual taxation for group $i=1$ gives rise to a range of possible tax treatments according to the proportional income of the two recipient spouses. Thus, in the current structure of the IRPF, the sole differential treatment between the group of single taxpayers and the group of single-income married taxpayers, resides in the application of a lighter tax scale for the latter. The differentiation between single- and dual-income married couples now depends on the election of the individual scale or the joint scale and, simultaneously, on the proportional income of each spouse when this latter option is chosen.

In terms of the average nominal rate of each type of tax unit, the tax functions of each group are those shown in figure III.4.

As can be seen, the application of the general scale, with higher marginal rates than the scale for joint taxation, once again causes the most highly taxed group to be that of single persons. With regard to married couples different situations, depending on the total income level of the taxpaying unit, must be distinguished. For an equal division of income between spouses, the splitting effect implicit in the joint tax scale makes the tax treatment of single- and dual-income married couples identical, up to a total income level of approximately 2,000,000 pts., but from this point onwards causes married couples with one income earner to be more heavily taxed, gradually converging towards the tax burden of single persons. Once again, the differential treatment between single persons and single-income married couples is enlarged. For proportional income between spouses that does not constitute equal division, separate taxation may be more burdensome than joint taxation, although always up to a specific level of family income.

However, the most notable result of this model is surely the greatly different treatment favouring married couples with two income earners, in relation to single-income ones, when the former obtain their income more or less equally and choose the system of separate taxation. In addition, this differential diverges according to family income level (more than 8 percentage points of the average rate for an income of 12,000,000 pts.). The explanation is simply the result derived from the splitting effect, generated in this case by separate taxation.

In accordance with the evolution of the average rates of each group, the ranking of tax functions would be the following:

$$t_{i=3}^{92-}(x) > t_{i=2}^{92-}(x) = t_{i(c)=1}^{92-}(x) \geq t_{i(s)=1}^{92-}(x)$$

As can be seen, the ranking is consistent with the evaluation of needs established by the social decision-maker, although the choice between joint or separate taxation, within group $i = 1$, may produce in some cases different treatments within the generic collective of married couples⁹; this, in our judgement, is difficult to understand with regard to the criterion of economic rationality.

⁹We have not taken into account those cases in group $i=1$ in which the proportion of income between spouses is similar to the case of a married couple with one income earner, in which the existence of two scales and the division of income generate tax treatments that, for certain levels of family income, entail reranking in the tax functions.

To conclude this section, we believe it interesting to emphasise how, despite having maintained the criterion of social ranking of groups of tax units, according to their needs, throughout the existence of the IRPF in Spain, the level of intensity in the differential treatment has clearly evolved in favour of married couples with two income earners.

IV.EMPIRICAL APPROACH

In this Section we will carry out an empirical analysis of the four periods previously explained, related to the Spanish IRPF.

As we pointed out, the social decision-maker classifies income units in three groups, according to their needs, related to marital status and the number of income earners:

$i = 1$: married couples with two income earners

$i = 2$: married couples with one income earner

$i = 3$: single persons

Each of these groups is treated differently by the income tax.

Our aim in this Section is to determine if the IRPF design for the four periods studied is -or is not- recommendable for a social welfare function $W \in W_2$ as we defined it in Section II or, in other words, if in each one of the four periods the income tax is welfare superior to a proportional tax applied to all income units regardless of marital status.

The exercise is performed using the Panel of IRPF Returns, which belongs to the IEF and consisting of a sample of more than 250,000 tax returns. Table IV.1 shows the size of the sample selected for each year.

Table IV.2 shows the most relevant results from the point of view of inequality and the redistributive effect caused by personal income tax, within groups and for the whole range of tax units. We display some remarkable aspects:

1. Inequality in the distribution of pre-tax income grows continuously between 1982 and 1992 both in global terms as well as for each group separately, with only one exception: married couples with two earners in which inequality is reduced in 1992. Single persons is the group in which inequality grows the most.

2. In the first two years (1982 and 1985) the group that shows the greatest inequality before tax is married couples with one income earner. In the last two years (1988 and 1992) this position is occupied by single persons.

3. Personal income tax is clearly redistributive, within groups and for the total income units. Furthermore, in general terms, this effect grows with time until 1992, when the intensity is reduced. Also in general, the group in which redistributive effect is the most acute is the one of married couples with two earners.

4. In spite of our previous assertion, inequality in post-tax income also grows in general and in each group, except in the case of single persons in 1985 and married couples with two earners in 1992¹⁰.

Let us use now the sequential generalised Lorenz dominance criterion to determine if the income tax is welfare-superior to an equal-yield proportional tax, for all $W \in W_2$, in each one of the four years chosen.

We can see the results on tables IV.3 to IV.11 and figures IV.1 to IV.4. From these results we infer that the Spanish IRPF was not welfare superior, between 1982 and 1992, to an equal-yield proportional tax applied to all income units regardless of marital status, according to social decision-makers for whom marital status and the number of income earners are the only needs-relevant factors in the IRPF code, and for whom married couples with two income earners are needier than married ones with just one income earner, and these last needier than single individuals.

¹⁰We don't intend in this paper to assess the evolution of inequality, which is explained by variables such as number of tax filers, legal structure of the IRPF, average income, and initial distribution of the income.

Figures IV.1 to IV.4 show that, for all years, overall inequality is inambiguously reduced by the IRPF, so the necessary condition for welfare enhancement is fulfilled. But there is not sequential generalised Lorenz dominance for any year, which would assure the necessary and sufficient condition for welfare improvement.

If we consider in each year the most deserving group, i.e., married couples with two income earners (tables IV.4, IV.6, IV.8 and IV.10), we observe that it exists generalised Lorenz dominance of IRPF over the proportional tax until the last centiles, in which the curves cross: in 1982 and 1985, in the last centile; in 1988 in the third last; in 1992 in the fifth last. Table IV.3 shows that mean post-IRPF income is always smaller than mean post-proportional-tax income.

Next, if we take into account all married couples, with one or two income earners (tables IV.5, IV.7, IV.9 and IV.11), we check that while in 1982 and 1992 there is generalised Lorenz dominance of IRPF over the proportional tax (being the mean post-IRPF income greater in both years) in 1985 and 1988 a cross in the last centile is again produced (and the mean post-proportional-tax income is greater).

V.CONCLUDING REMARKS

The Spanish legislator has changed his views about the tax design of income unit in IRPF. From 1979 to 1987 he has tried to design a family tax and from 1988 he moved to an individual tax. Nevertheless, the tax structure has always included, since 1979, the same ranking of three different groups, according to marital status and the number of income earners: married couples with two income earners, married couples with one income earner and single persons.

To assess the social acceptability of an income tax with progressive and differentiated taxation of several tax classes, we have defined a welfare specification involving, related to social judgements of income distribution, a recognition of differences in needs for different tax classes. In this context, it is necessary and sufficient for welfare improvement that there is sequential generalised Lorenz dominance of the IRPF over an equal-yield proportional tax.

The empirical analysis we have implemented, in which we have distinguished four phases in IRPF application (1979-1984, 1985-1987, 1988-1991 and from 1992 onwards) showed that overall inequality is unambiguously reduced by the income tax in all the periods we have studied, so the necessary condition for welfare enhancement is fulfilled. But there is not sequential generalised Lorenz dominance for any year. So, between 1982 and 1992, the Spanish IRPF is not welfare superior to a proportional tax applied to all income units regardless of marital status, according to social decision-makers for whom marital status and the number of income earners are the only needs-relevant factors in the IRPF code.

REFERENCES

- ATKINSON, A. B. (1970), "On the measurement of inequality", *Journal of Economic Theory*, 2:244-263.
- _____ AND F. BOURGUIGNON (1987), "Income distribution and differences in needs", Chapter 12 in G. R. Feiwel (ed.), *Arrow and the Foundations of the Theory of Economic Policy*, London: Macmillan.
- FELLMAN, J. (1976), "The effect of transformations on Lorenz curves", *Econometrica*, 44:823-824.
- JAKOBSON, U. (1976), "On the measurement of the degree of progression", *Journal of Public Economics*, 5:161-168.
- LAMBERT, P. J. (1988), "Progressive income taxation is inequality reducing - or is it?", *Working Paper*, 88/14, Institute for Fiscal Studies.
- _____ (1993a), *The Distribution and Redistribution of Income: A Mathematical Analysis*, Manchester: University Press.
- _____ (1993b), "Inequality Reduction through the Income Tax", *Economica*, 239:357-365.
- _____ (1994), "Redistribution through the income tax", Chapter 1 in J. Creedy (ed.), *Taxation, Poverty and Income Distribution*, Aldershot: Edward Elgar.

TABLE IV.1.Number of income units of each type

| YEAR | SINGLE PERSONS | MARRIED COUPLES WITH ONE INCOME EARNER | MARRIED COUPLES WITH TWO INCOME EARNERS | TOTAL |
|-------------|-----------------------|---|--|--------------|
| 1982 | 1575 | 4133 | 993 | 6701 |
| 1985 | 2065 | 4804 | 1025 | 7894 |
| 1988 | 3068 | 5414 | 1455 | 9937 |
| 1992 | 5282 | 5576 | 2412 | 13270 |

Table IV.2. IRPF and income distribution, 1982-1992
Gini index (Reynolds-Smolensky index)

| YEAR | SINGLE PERSONS | MARRIED COUPLES WITH ONE EARNER | MARRIED COUPLES WITH TWO EARNERS | TOTAL |
|----------------|-----------------------|--|---|-----------------|
| 1982 TI | 0,3042 | 0,3096 | 0,2905 | 0,3219 |
| PTI | 0,2809 (0,0233) | 0,2855 (0,0241) | 0,2637 (0,0268) | 0,2988 (0,0231) |
| 1985 TI | 0,3087 | 0,3371 | 0,2989 | 0,3447 |
| PTI | 0,2700 (0,0387) | 0,2917 (0,0454) | 0,2638 (0,0351) | 0,3039 (0,0408) |
| 1988 TI | 0,3703 | 0,3486 | 0,3669 | 0,3970 |
| PTI | 0,3253 (0,0450) | 0,3038 (0,0448) | 0,3148 (0,0521) | 0,3528 (0,0442) |
| 1992 TI | 0,3828 | 0,3665 | 0,3443 | 0,4021 |
| PTI | 0,3427 (0,0401) | 0,3251 (0,0414) | 0,3024 (0,0419) | 0,3631 (0,0390) |

TI: Taxable income

PTI: Post-tax income

Table IV.3. Mean post-IRPF income and mean post-proportional- tax income (pesetas)

| YEAR | MARRIED COUPLES WITH TWO EARNERS | MARRIED COUPLES WITH ONE OR TWO EARNERS | TOTAL |
|-----------------|---|--|--------------|
| 1982 PPI | 1244182 | 927618 | 876381 |
| PPII | 1243528 | 929936 | 876381 |
| 1985 PPI | 1705767 | 1186278 | 1101391 |
| PPII | 1691100 | 1181871 | 1101391 |
| 1988 PPI | 2843510 | 1616705 | 1456995 |
| PPII | 2735043 | 1612241 | 1456995 |
| 1992 PPI | 3283330 | 2164664 | 1882337 |
| PPII | 3185230 | 2178827 | 1882337 |

PPI: Mean post-proportional-tax income

PPII: Mean post-IRPF income