Assessing alternative reforms to the Spanish Income Tax.
A static micro-simulation approach

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Comments welcome.

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Abstract:

Making use of ESPASIM, a static micro-simulation model for Spain, this paper explores the impact of alternative reforms to the Spanish system of income taxation. It first studies the effects of what is called the *government's proposal* (GP) of reform which contains the main elements of an income tax proposal which is now about to receive the definite approval of the Spanish Senate. *Key* elements of this proposal are: A general reduction of the fiscal burden – by cutting down the number of bands and lowering marginal tax rates, mainly at the top income ranges – and the substititution of the two most important tax credits -those going to families with dependents and the earners tax credit- by a system of tax allowances. The GP implies important cuts in tax collection which benefit most at high income levels in absolute terms but do not change much overall relative inequality. Effective marginal tax rates are generally reduced. Secondly, it explores two alternative income tax reform proposals: i) The *modified government proposal* which borrows many of the GP features but keeps the actual system of tax credits, making them refundable to all tax payers. This proposal shows a greater redistributive impact than the GP but still prevents the bottom end of the income scale to benefit from any tax cut. ii) The *convertible tax credit proposal* which introduces main simplifications into the existing system – abolishing joint taxation and unifying the two different levels of personal allowances and exemptions – and

establishes a system of convertible tax credits, not only has a greater redistributive impact but also allows the integration of the income tax reform debate into a wider tax-benefit perspective.

1. Introduction

The current system of income taxation in Spain is about to be reformed. With the triple objective of *simplifying* the current system as well as increasing its level of both *efficiency* and *equity*, the government submitted a proposal of reform which is now about to receive the definite approvement of the Senate.

There is a widespread consensus about the need for a reform[1]. On equity grounds the income tax system is seen as unfair mainly because to the low degree of fulfilment of the income tax by certain sources of income[2]. This feeling of injustice has been aggravated by the steady increase in tax burden suffered by tax-payers, especially those in medium and high income tax brackets, over the past two decades, years in which the collection needs of the Spanish public sector have not ceased to grow[3]. From the point of view of efficiency, this increase in tax pressure has been perceived as clearly excessive, especially when discussed with regard to the marginal types of imposition supporting the highest incomes (the marginal tax rates of the income tax schedule vary between 20 and 56 per cent). More recently, the discrimination which work incomes suffer tax-wise has been made even more evident since the approval of a decree concerning the imposing of capital gains by which the latter are treated separately, being taxed at a flat rate of 20 per cent.

Within this context, the main objective of the government's reform proposal is the reduction of the fiscal burden at all income levels with a particular focus on the reduction of both the number of bands and the maximum marginal tax rates of the income tax schedule. This reduction in the fiscal burden would imply a revenue cost that has been estimated in about 400,000 millions of pesetas (8.1 per cent of 1996 total

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[1] See Comisión para el Estudio y Propuesta de Medidas para la Reforma del Impuesto sobre la Renta de las Personas Físicas (1998).

[2] The Commision for the Evaluation of Fraud in income taxation, estimated the level of fraud among non-earners in 69.9 per cent , being this percentage of 28.7 per cent for earners (Percentages taken from Zubiri (1989) Table 4).

[3] In GDP terms, taxes on personal income moved from being less than 5 per cent in 1980 up to 8.4 per cent in 1993. For a description of the evolution of average income tax burden

income tax collection). The reform proposal also implies a fundamental move from the existing system of tax credits to a system of tax allowances. The new income tax system would replace the existing system of non-refundable and low level tax credits for families with dependent children and adults by a more generous and *fair* system of family tax allowances. This would also apply to the existing tax credit for earners. The system would be simplified mainly because the number of tax payers would be substantially decreased with the reform.

Leftist political parties have argued against the reform, not only because it is unclear how this decrease in income tax collection will be balanced in terms of other taxes or expenses, but also because they claim that it mainly benefits those tax payers at higher income levels [4]. The debate around the reform has however been rather confused. First, because it has been based on the impact of income taxation on some family cases, failing to take into account the number of individuals affected and magnitude of the changes. Second, and more importantly, it has only taken into account the impact of the reform on tax payers[5].

This paper studies the redistributive and incentive effects of the *key* aspects of this reform proposal as well as its impact on income tax collection. What will be the budgetary impact of these reforms? Who are going to be the winners? Are there going to be any losers? How important are these gains/losses going to be? Would relative income inequality worsen with the reform? How are the effective marginal tax rates borne by families going to be affected by it? In this paper, we use ESPASIM, a Spanish static micro-simulation model, to provide an answer to these questions. It uses micro-data from the 1990-91 *Encuesta de Presupuestos Familiares* up-rated to 1995 levels.

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see Lasheras et al (1993).

[4] One must keep in mind that the current Spanish personal income tax accounts for approximately 25 per cent of the public collection and that the income tax system is the most redistributive (and progressive) element of the Spanish tax system. According to a recent study on tax incidence in Spain by Manresa et al (1996), around 60 per cent of the total income tax is paid by those households at the top income quintile (and more than 41 per cent of the total by the top decile) while the bottom quintile pays only below 0.5 per cent of that amount.

[5] Badenes Plá et al (1997) for instance perform some income tax simulations using data from the *Panel de Declarantes del IRPF*.

ESPASIM is a static model, i.e. it does not integrate any behavioural response resulting from a policy change, so it cannot be taken as predicting the full impact of policy but rather the short-term impact. Static micro-simulation models for other countries (see, for instance, Sutherland and Redmond (1993) or Burguignon *et al* (1988)) have shown to provide a valuable means of summarising the quantitative significance of the first-round effects of variations in taxes. We believe that the results provided in this paper can also contribute to the current debate of income taxation in Spain[6].

With a progressive income tax schedule such as the Spanish one, income tax allowances are likely to be worth more to higher-rate than to lower-rate tax-payers. Moreover, income tax relief is worthless to families without the income set against them (See Parker and Sutherland (1991) for an application to the UK). In fact, this latter feature is also a problem with the existing system of non-refundable tax credits.

Keeping total tax collection at the level of the government's reform proposal, we use ESPASIM to explore alternative reforms to the 1995 income tax system. We first analyse the effects of a reform which is equivalent in all respects to the government's proposal except in that it keeps the actual structure of earners and (increased) family tax credits, making them refundable to all tax payers. We call it the *modified government proposal*. Making tax credits refundable still prevents low incomes from receiving any benefit from the reform, and this is because they are not subject to income taxation. In our second proposal, we explore the effects of a deeper reform, called the *convertible tax credit* reform. It consists of three major changes: (i) The unification of the existing artificial gap between the personal tax allowance and existing system of exemptions (*obligation to declare condition*) (ii) the abolition of joint taxation and (iii) the establishment of a system of convertible tax credits.

Before going into a description of the Spanish income tax system, we should clarify some limitations of our analysis; there are important aspects of the reform which are not going to be analysed here. First, our analysis does not deal with the desirability of the general cut

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[6] In the Spanish context, García et al (1997) study the reduction in the number of bands from 17 to 10 (which corrrenspond to a reform undertaken in 1996), integrating in their analysis not only the static impact but also the effect implied by changes on women's labour supply.

in income tax collection implied by the government proposal; rather it simply analyses the distributive and incentive impact of the proposal and explores the impact of alternative ways of collecting this total amount. This is certainly a matter of crucial importance but goes beyond the objective of this analysis. Second, our analysis does not take into account either the existence of fiscal fraud or the impact of recent reforms on income from capital gains. Finally, our assessment of income tax reforms does not consider the fact that, now the Autonomous Communities (intermediate government levels between the central and local ones) have normative capacity concerning the determination of a part (15 per cent) of both the income tax schedule and the system of tax deductions. Neither does it explore the implications of the reforms from a territorial perspective.

The plan of the paper is as follows. Section 2 is devoted to briefly describing the main features of the structure of the income tax, focusing on those elements modelled in ESPASIM. Section 3 presents ESPASIM, the Spanish micro-simulation model used to evaluate the reforms and it describes some methodological issues including assumptions and adjustments made to the micro-data. The impact of key government proposal are presented in Section 4 and an assessment of the impact of alternative income tax reforms is presented in Section 5. In Section 6 we present our final conclusions.

2. The structure of the Spanish income tax system

The general structure of the Spanish income tax system in summarised in Figure 1. Details of the 1995 system are given in Table 3.

The system works as follows. Tax units receiving only labour and interest and dividend income with gross amounts below an established minimum level *(obligation to declare condition)* are *not subject* to income taxation. The tax rate is applied to *taxable income* which, other than gross income, includes income from owner-occupied dwellings and it is net of tax deductions. The main *tax deductions* include: employee social insurance contributions, allowable mortgage interest payments on house purchases, annuity payments to private pension plans and other work and capital expenses, including a 5 per cent deduction of gross employment income (up to an upper limit) and a lump sum reduction on interest and dividends income. The *income tax schedule* has 16 or 17 bands, the marginal tax rate varying from 20 per cent to 56 per cent. From the tax liability, non-refundable *tax credits* are deducted to calculate the total income tax due. Tax credits include specific support for families with dependent children and adults, tax credit related to specific expenditures (health, rent and child care), a tax credit for units receiving income from employment (including units receiving pensions and benefits), donations and investment tax credits (including mainly main house purchasing and repairing and life insurance).

The present system is based on the individual as the *tax unit*, although it also allows joint taxation as an option to family tax units. The main differences between joint and individual schemes are: a specific general exemption (20 per cent higher under the joint scheme); a specific tax schedule (the joint schedule implying tax cutbacks lower than those implied by an income-splitting system, except for the very low incomes); and a more generous earners' tax credit for low income tax units contributing under the individual scheme. Generally, the individual scheme would be preferable to the joint one except for families with only one income receiver - or where the second earner's income level is sufficiently low. Under the individual scheme, the amount of family tax credits as well as child care and other housing tax credits, is divided between spouses if both are present in the household. For single parent households or households with family units contributing under the joint scheme, the whole amount is imputed to the head (or family unit). The

remaining tax credits (health expenses, earner's, insurance and donations) depend on individual attributes or expenses.

Figure 2 illustrates through a household declaration example the interactions between the different household members and both the tax unit and family tax credits[7].

The relative importance of the different elements in the income tax structure is summarised in Table 1. Notice that 80 per cent of the tax base is made by employment income (including pensions and benefits). Tax credits add to 20.7 per cent of the gross income tax and family and earners tax credits, considered together represent around 60 per cent of the total.

3. Methodological issues

3.1. ESPASIM as an instrument for studying the impact of income tax reforms

In order to analyse the economic impact of reforms on the Spanish income taxation, we use ESPASIM. ESPASIM is a static, user-friendly micro-simulation model of the Spanish income tax, under construction at Universitat Autònoma of Barcelona. The model uses micro-data from the 1990-91 *Encuesta de Presupuestos Familiares* (Family Budget Survey) and, at the present moment, it simulates the impact on household income tax duties of a wide variety of income tax reforms on this representative population, going from minor changes of the system -such as an increase in the child care tax credit- to major structural reforms such as abolishing the joint taxation system, introducing a flat tax rate or a system of convertible tax credits. The model allows a detailed analysis of the redistributive and incentive impact of different income tax scenarios as well as the global impact of reforms on income tax collection. It is written in Visual Basic and uses Windows 95 as a user interface. The model takes into account the main components of the system[8]. For a detailed description of the model, see Mercader-Prats (forthcoming).

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[7] Notice that the present system involves two definitions of children, one applied for determining the number of members in the tax unit and the other for entitlement of a child credit.

[8] It does not consider irregular income and income from capital gains, annuity payments

For each family, the model calculates the amount of income tax due using the tax parameters applicable to 1995 incomes. The effect of a given reform is evaluated through the difference between net household incomes in 1995 and net incomes under such a reform. In line with other tax-benefit micro-simulation models, ESPASIM is a static model, i.e. the consequences of a given reform are assessed as if there were no single behavioural response to it and it cannot therefore to be taken as predicting the full consequences of a policy change. The potential behavioural labour supply response is described according to its effect on the effective marginal tax rate borne by households when an individual's income from work is increased by a given amount which is taken to be 25,000 pesetas. No attempt is made at this stage to assess the potential impact on savings.

3.2. On the micro-data

ESPASIM uses individual micro-data from the 1990-91 *Encuesta de Presupuestos Familiares* to simulate the income tax duties of a sample of more than 20,000 households representative of the Spanish population of that year. The Spanish household budget survey is the only source in Spain that contains data on incomes from different sources at an individual level, as well as information on expenditure, housing and other household characteristics, for the whole distribution of resident households. The simulations presented below are based on a random sample of 10,000 households of this survey.

The data has been adjusted to 1995 levels using specific income and expenditure growth indices based on both National Accounts income growth factors by income source and ECPF expenditure growth factors by different expenditure items. We have also adjusted the resulting up-rated income levels from the EPF by sources up to the global amounts declared in the fiscal records[9].

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to private pension plans and 'pensiones compensatorias al cónyuge'(which only represent 1.5 per cent of the income tax base). Neither considers 'Other' tax credits (See Table 1).

[9] Without any further adjustment to the data that the corresponding one of up-rating

The data also required some transformations and assumptions to make them suitable for our purposes. These are summarised in Table 2.

Table 2: Main transformations of the data[10]

- Pay As You Earn tax rates applied in 1990 were used to recover gross employment and investment income.
- Employee social security contributions were estimated in a simplified way, using a factor of 4.8 per cent for workers in the public sector and 6 per cent for the rest of workers.
- Imputed rent from owner-occupied houses and allowable mortgage interest payments on house purchases were also estimated.
- Given the lack of information on marital status, the model assumes that, when there is a couple in the survey, it is taken to be a married couple.
- The Survey does not provide information on housing ownership or individual expenditures. The model assumes that income from owner-occupied houses (and also related tax deductions and tax credits) is divided between partners when there is a couple in the household; otherwise it is imputed to the head of the household. This rule also applies to other household expenses.

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4. Assessing the government's reform proposal[11]

The key elements of the government reform proposal are summarised in detail in Table 4.

One of the main novelties of the reform is the introduction of what has been called the *vital minimum* which consists of a combination of a personal tax allowance and a system of family tax allowances[12]. The amount of the personal allowance increases for individuals aged 65 or over. The family tax allowance depends on both the number and age of

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income amounts to 1995 levels, the model predicted 88.4 per cent of the 1995 income tax collection. Net employment and self-employment income added up to 98.66 of those incomes declared in fiscal sources (105.9 per cent for employment income and 97.2 for self-employment income). The under-estimation of tax collection was mainly due to problems with the survey recorded data from capital: Estimated capital income represented only 23.3 per cent of that declared in fiscal registers.

[10] See Mercader-Prats (forthcoming) for details.

[11] Our discussion is based on the proposal published by Cinco Dias (29-04-98).

[12] The real novelty is the family allowance since the personal allowance was already

dependent children as well as on the number of elderly-related dependent adults in the household. As in the 1995 system, in the reform proposal family tax units can choose between an individual and a joint scheme. For tax units contributing under the individual scheme, the amount of the family tax allowance is split between partners (if both are present in the household). For tax units contributing to the joint scheme, it is imputed to the head of the household; the amount of the personal tax allowance is doubled in this latter case. The *earners tax credit* is also substituted by an earner's tax allowance, the amount of which varies with the individual's employment income level. The tax deductions on expenses from employment income are abolished, and this is also the case for the health expenses tax credit and child care, life insurance and donation tax credits. The joint and individual income tax schedules are harmonised into a unique scale that reduces the number of bands into 6 with marginal rates varying between 18 to 48 per cent.

The proposal does not clarify the link between the new personal tax allowance and the existing income levels of obligation to declare. In our simulations we assume that the obligation to declare income levels remain as in the 1995 system.

It should be emphasised that what we call here the government reform proposal does *not* take into account all the changes that have been suggested in the reform proposal. In particular, our simulations ignore those changes that affect the tax treatment of housing and do not model a specific tax allowance for single parent families.

An assessment

According to our estimates, the reform would cut down tax collection by 16.4 per cent. This is the result of the combined effect of the introduction of tax allowances which reduce the income tax base by 46.7 per cent and the new income tax schedule, which cannot compensate the savings in terms of tax credits whose amount is reduced by 82.7 per cent. Under the new system, the number of households without tax duties increases by almost 26 per cent -from being 21.7 per cent of the total household population to being 27.4 per cent. Table 7 illustrates the details.

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implicit in the 1995 tax schedule (tax schedule income exemption levels).

Table 8 summarises the absolute gains and losses by equivalent net household income percentiles, as well as the percentage of individual losers, gainers and without change, and their correspondent average gain/loss. Incomes are equivalized using the square root of household size. Except for the poorest 1 per cent of the population, there is a net gain at all income levels with the reform. The average gain per individual is 37,284 ptas. However, gains and losses are not equally distributed across income levels. Not surprisingly, average income gains regularly increase by net income levels: The richest decile saves in absolute amounts as much as 13.1 times the savings of the bottom decile. At the extremes of the distribution, whereas the poorest 1 per cent net income is not affected by the reform, the richest percentile saves on the average 198,125 ptas.

18.5 per cent of the total population are not affected by the reform and this population is heavily concentrated at the bottom quintile. 78.4 per cent of the total population are net winners and they belong mainly to the middle and top income ranges. Only 3.1 per cent of the total population are losers and these are also concentrated at the middle and top income ranges.

Relative gains are more evenly distributed across equivalent income deciles. Relative inequality measured by the Gini coefficient remains unchanged, with the reform of the Lorenz curves of the two distributions being very close to one another (See Table 11 for details).

Table 12 presents a desaggregated analysis of the effects of the reform by different household groups. We distinguish households according to their composition by single individuals, couples, couples with differing numbers of children (other adults may also be present in the household), single parents, couples with other adults, and multiple adult households. As can be seen, all household groups experiment a net gain with the reform. The highest aggregate gain is for the group of couples with three children, and the lowest gain is for couples without children. The average gain slightly increases with the number of children in the household, except for the poorest group made up of couples plus 4 or more children. Whereas households made up of couples with two or more children and single parents increase their income share as a result of the reform, couples without children and couples with adults reduce it (although the reduction is

only slight). Relative inequality within each household group tends to increase in most all groups, although any change is also very slight.

Table 13 shows the effective marginal tax rates when the household head's work income is increased by 25,000 ptas. Marginal tax rates are computed only for those households with a head receiving income from work (employed or self-employed). Generally the reform implies a reduction of the effective marginal tax rates borne by households. The most notable effect of the reform is a substantial increase (from 15.0 to 25.7 per cent) in the number of households with a zero effective marginal tax rate. There is also a reduction of the number of households with marginal tax rates between 20 and 40 per cent but an increase in the number of household with marginal tax rates above 40 per cent.

5. Assessing alternative income tax reforms

In this section we use ESPASIM to study the impact of different income tax reforms. Our aim is to explore alternative reforms to that of the government's proposal. Our basic assumption when designing the new reforms is that total income tax collection should be equal to that obtained under the government's proposal, so that we keep average tax burden constant under the different proposed reforms. As has been stated, we do not aim here to argue in favour or against the general cut in income tax collection implied by the above presented reform, which is certainly a matter of crucial importance, but rather to explore the impact of alternative ways of collecting this total amount.

One of the main arguments for replacing the existing system of tax credits by a new system of tax allowances has been to *simplify* the system. This simplification argument has been mainly based on the reduction administration costs resulting from the reduced number of income tax payers under the new system. According to our view, however, with a progressive tax schedule such as the one existing in Spain, introducing family tax allowances complicates the system rather than simplifies it: Income tax savings resulting from, say, the arrival of a child depend not only on the rather complicated issue of determining children's needs but also on the tax payer's income level, making the effects of a given reform much more difficult to predict and also making the existing system much more vulnerable to political abuse.

It has long been recognised, however, that the amount of family tax credits in the current income tax system and the need for increased support for families with children and dependent adults is a fact (See for instance Zubiri (1989)). In fact, Spain is, within the European context, the country with the lowest level of social expenditure going to family support (0.5 per cent of total social spending).

Our two suggested reforms have a major feature in common: They maintain the present structure of tax credits but we make them refundable to all tax payers. In fact, as has been stated by some authors (See Pasqual Rocabert (1992)), there is no legal base in the current Income Tax 1991 Law for not allowing tax credits to be refunded to all tax payers.

Scenario 1: A *modified government proposal (Modified GP)*

The first proposed reform borrows many of the elements of the government's proposal but it maintains its current structure of tax credits making them refundable. This reform is named a *modified government proposal* reform. Details on the parameters of the reform are presented in Table 5. More precisely, this new proposal keeps the income thresholds established by the obligation to declare condition, the personal allowance, the couple's allowance under joint taxation, a unique income tax schedule and the tax credits under the government's proposal, but it substantially increases the amount of the children tax credit (56,700 ptas irrespectively of the number of children)[13], and the amount of old age and elderly related tax credits (25,000 ptas).

An Assessment

With the modified GP, the personal tax allowances reduce the income base in 30 per cent with respect to the year 1995. The cost of the tax credits rises also by around the same percentage, mainly because of the family tax credits whose cost is multiplied by a factor of 2.4.

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[13] This amount doubles the amount of the existing tax credit but is still less than half of

Making tax credits refundable to all tax payers increases the individual average gain to 38,788 ptas. With respect to the GP, both the number of losers and particularly the number of households with no change decreases, whereas the number of gainers increases -from 78.4 to 86.4 per cent. As in the GP, all income deciles are on the average net gainers; the absolute average gain is now more evenly distributed across income deciles –except for the top and bottom deciles. The number of households with no change are also concentrated mainly at the bottom two deciles (See Table 9). The Gini coefficient slightly decreases in this case; the new after-tax income distribution Lorenz dominates that of the 1995 system and the GP one up to the 95th percentile, point in the distribution at which they cross (See Table 11).

By household groups, households with children generally increase their income share slightly with the new net income distribution. The highest average gain in this case is for households with 4 or more children. Average gains increase with the number of children with respect to the 1995 system. Also relative inequality for the groups of households with children is slightly reduced.(See Table 12).

Regarding the distribution of marginal tax rates, the most noticeable thing is that almost three quarters of the total household population have an effective marginal tax rate between 20 and 30 per cent under this reform proposal. It is also the case that the number of households with a zero marginal tax rate substantially reduces with respect to the 1995 system (See Table 13).

Scenario 2: Convertible tax credits proposal

Making the system of tax credits refundable within the existing income tax system only benefits tax payers, but still leaves an important part of individuals, the non-tax payers i.e. those not *obliged to declare*, unaffected by the changes. Under the two reforms studied, it persists in a "double" conception of *vital minimum*: The one applied to those who do not pay taxes (those whose income is below the obligation to declare income level) and the one applied to those who pay taxes (the personal tax allowance). The

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the yearly amount of the UK child benefit.

former group is automatically excluded from any tax cut even when tax credits are made refundable.

In this direction, the second reform proposal is deeper in content. First, it unifies the existing system of *obligation to declare* income levels with personal tax allowance by both abolishing the obligation to declare condition and substantially increases the level of the personal tax allowance which is established at 760,000 ptas (86.5 per cent of the minimum wage).

Second, this proposal eliminates joint taxation and introduces a dependent spouse allowance for couples with a sole income receiver. This dependent spouse allowance is set at 0.57 times the personal tax allowance. Eliminating joint taxation implies a major simplification of the system. The system of tax credits is also simplified: The elderly related tax credit is abolished and the earner's tax credit is converted to a flat earner's tax credit independent on individual employment income. The level of the children and old age tax credits is substantially increased with regard to the respective tax credit levels in 1995. The strategy for establishing the income tax schedule has been that of reducing the higher marginal tax rates (leaving the maximum one at 48 per cent) and slightly reducing (by above 0.1 per cent) the average tax burden of a single person with gross labour income above 3 milions of pesetas. Figure 4 illustrates the relative gains for a single person under the convertible TC system.

Refundable tax credits in this scenario are *convertible* to *universal benefits* per child, per old age person, per earner or as housing support. Convertible tax credits would be simply 'additions' to the income of *all* families with a right to receive them, whether they effectively pay taxes or not. From this point of view, the reform proposal goes beyond what would be purely a tax reduction to implicitly integrate the reform of the personal tax system within the current system of public benefits. Obviously, the income tax system may not be the best instrument for carrying out these income transfers, which could be administered by means of the public benefit system, notably simplifying the administration of the present tax and integrating it into the rest of the social protection system.

 An Assessment

Under the convertible tax credit reform, the gross income tax is only slightly reduced with respect to its level under the 1995 system -the income tax base is reduced 39.6 per cent. The amount spent in tax credits increase in this case by almost 300.000 millions of pesetas – being the family tax credits the main cause of such an increase -. (See Table 7).

As expected, this more radical reform proposal produces quite a different impact than those previously analysed. Not surprisingly, the number of persons with no change is only 0.4 per cent. The number of gainers increases to 88.6 per cent but also the number of losers that are now 11.0 per cent. The average gain under this proposal is 37,623 ptas. All income deciles experiment a net gain with the reform, except the top one. In this case, average gain decreases by equivalent income levels, except for deciles 7 and 8 (See Table 10).

Relative inequality reduces with the reform, the distribution after taxes strictly Lorenz dominates the 1995 and modified GP distributions and also the government proposal up to the 99th percentile. All types of households studied experiment a net gain with the reform. Absolute gains are larger now for families with children, particularly for poorer families with 3 or more children -who also increase their income share. Relative differences within each group clearly decrease after tax. (See Tables 11 and 12).

Finally, the distribution of effective marginal tax rate looks very similar to that of the modified GP, with a large concentration of households with an effective marginal rate of between 20 and 30 per cent. (See Table 13).

6. Concluding comments

A reduction in tax collection such as that derived from the proposed government reform of the current income taxation in Spain inevitably means deciding *whom* it must benefit and *how much*. Setting aside the uncertain effects which a tax reduction may have on a long term basis, ESPASIM, a static micro-simulation model for Spain, has allowed us to study the short run impact of this reform proposal. In general terms, the main advantage of the government's proposal is that it adversely affects a very small number of tax-payers and improves the situation for a great majority. However, a large part of the lowest income group is not affected at all. This is possible because it notably reduces income tax collection. The government's proposal does not bring about significant changes in the relative inequality of income -either for the population as a whole or for households with similar degrees of need, although this relative inequality tends to increase for the majority of these groups- but it does mean considerably greater gains for the high income groups than for those with low incomes, thus confirming that the generalized substitution of tax credits by tax allowances within a progressive income tax schedule are worth more to higher-rate than to lower-rate tax-payers, and they are also worthless to families without the income set against them.

With the *modified GP* we have shown that if tax allowances were substituted by refundable tax credits in the government's proposal, the system would be more redistributive towards low income levels and families with children than the actual GP, but would still leave non-tax payers unaffected by the reform. The *convertible tax credit proposal* not only involves major simplifications to the income tax system -by abolishing joint taxation and harmonising the obligation to declare and the personal tax allowance levels**.** It also means a proposal that is more redistributive. Moreover, it is a step forward towards the integration of the current income tax into the benefit system as a whole.

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FIGURE 1: Main structure of the Spanish income tax system in 1995

GROSS INCOME

- **employment**
- **self-employment**
- **interests and divident**

Is Gross Income beyond a certain level?

DECLARES

NOT DECLARES

TAXABLE INCOME

gross income
+
imputed rent from house ownership
-
tax deductions

TAX SCHEDULE

16 or 17 bands with marginal rates between 20 and 56 per cent

TAX CREDITS (not refundable)

- **family**
- **expenses related**
- **investment**
- **earner´s**
- **others**

TOTAL TAX DUE

FIGURE 2. A household declaration example under the 1995 system
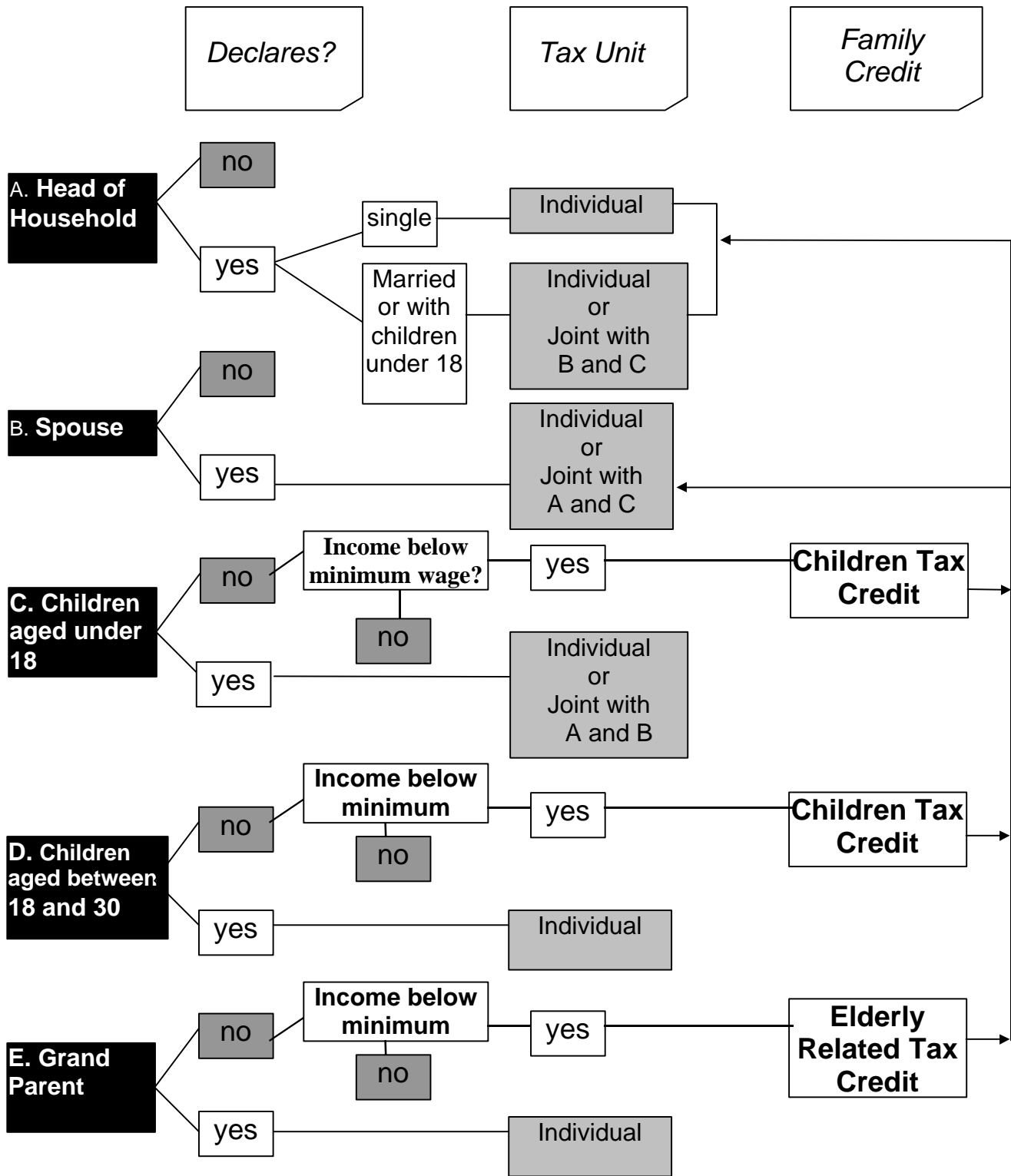
TABLE 1 : Aggregates of the system in 1995

	Amount in millions of pesetas
INCOME TAX BASE	**30,125,986**
Net income from employment	24,138,480
+Net income from self-employment	3,814,298
+Net capital income	2,684,872
+Net imputed income from owner-occupied houses	-466,310
+Other net taxable income (mainly irregular and income from capital gains)	217,419
-Annuity payments to private pensions plans and "Pensiones compensatorias al cónyuge" (compensatory pensions to the spouse)	-262,773
GROSS INCOME TAX	**5,854,625**
TAX CREDITS	**1,214,824**
Family	
Children	196,913
Old Age and elderly dependent	62,949
Expenses related	
Health expenses	75,690
Housing rent	37,290
Child care	1,355
Investment	
Main house purchase	171,303
Life Insurance	11,794
Donations	5,272
Earners	457,713
Other	193,124
TAX COLLECTION	**4,706,978**

Source: Agencia Tributaria (1997) "Estadísticas I.R.P.F. -1995", Departamento de
      Informática Tributaria.

TABLE 3: A detailed description of simulated parameters of the *1995 system*

TAX UNIT	The basic tax unit is the individual. Family units can choose between the individual and the joint scheme. *Family unit*: Married couples with or without dependent children or single parents with dependent children. *Dependent children*: Children under 18 years of age living in the household.
OBLIGATION TO DECLARE	Only tax units with gross employment income or gross interest and dividend income above a given level are subject to income taxation. Income thresholds: - Gross employment income:1,100,000 ptas, under *individual* scheme and 1,200,000 ptas, under *joint* scheme - Pensions : 1,200,000 ptas, under both *individual* and *joint* schemes - Gross interest and dividend income : 250,000 ptas, under both *individual* and *joint* schemes
TAX DEDUCTIONS	- Employee Social Security contributions. - Other work expenses: 5 percent of gross employment income up to 250,000 ptas under the *individual* scheme. The upper limit goes to 600,000 ptas. under the *joint* scheme. - Interest and dividend income reduction: Up to 27,000 ptas. - Allowable mortgage interest payments on main house purchase or repairing: Up to 800,000 ptas under the *individual* scheme and 1,000,000 under the *joint* scheme.

Continues...

TAX ALLOWANCES	None.	
TAX SCHEDULE	**<u>INDIVIDUAL SCHEME</u>**	**<u>JOINT SCHEME</u>**

Bands (up to ptas)	tax rate (%)	Bands (up to ptas)	tax rate (%)
415,000	0	828,000	0
1,035,000	20	2,070,000	20
1,625,000	22	2,717,000	24.5
2,215,000	24.5	3,364,000	27
2,805,000	27	4,011,000	30
3,395,000	30	4,658,000	32
3,985,000	32	5,305,000	34
4,575,000	34	5,952,000	36
5,165,000	36	6,599,000	38
5,755,000	38	7,246,000	40
6,345,000	40	7,893,000	42.5
6,935,000	42	8,540,000	45
7,525,000	45	9,187,300	47
8,115,000	47	9,834,000	49
8,705,000	49	10,481,000	51
9,295,000	51	11,387,000	53.5
9,885,000	53.5	more	56
more	56		

TAX CREDITS
(not refundable)

Children	Entitlement: Children aged under 30 with gross income below minimum wage. Amount in pesetas: 20,700 for each of the first two, 25,000 for the third one and 30,000 for the fouth and so on.
Elderly related	Entitlement: Elderly related with gross income below minimum wage. Amount: 15,500 pesetas if aged less than 75 and 31,000 pesetas if aged 75 or over
Old age	Entitlement: Individuals aged 65 or over. Amount in pesetas: 15,500
Health expenses	15 per cent of the amounts spent
Housing rent expenses	Entitlement: Individuals or families with taxable income below 3,500,000 under the *individual* scheme and 5,000,000 under the *joint* scheme. Amount: 15 per cent of the rent expenses up to an upper limit of 100,000 ptas.
Child care	15 per cent of the amounts spent. Upper limit of 25,000 pesetas.
Life insurance	10 per cent of the amounts spent

Continues...

Main house	15 per cent of amounts spent in main house purchasing or reparing.
Donations	10 per cent of amounts spent
Earners	Entitlement: Individuals receiving income from employment (including pensions and benefits). Amount: Under the *individual* scheme it can vary between 26,000 and 70,000 ptas. depending on both the level of net employment income and on the net income level from other sources. Under the *joint* scheme the amount is 26,000 ptas. per earner.

TABLE 4: A detailed description of simulated parameters of *government's reform proposal (GP)*[14]

TAX UNIT	As in the 1995 system
OBLIGATION TO DECLARE	As in the 1995 system
TAX DEDUCTIONS	As in the 1995 system except for the <u>Other work expenses</u> which is abolished.
TAX ALLOWANCES	
Personal	Entitlement: All individuals contributing under the individual scheme. Amount: 500,000 ptas.
Old age	Entitlement: Individuals aged 65 or family. Amount: 90,000 ptas.
Additional personal allowance	Entitlement: Family units contributing under the joint scheme. Amount: 500,000 ptas.Additional 90,000 if spouse is aged 65 or family.
Children	Entitlement: Children aged up to 25 with gross income below minimum wage. Basic amount: 180,000 ptas. + 90,000 extra ptas. for the third and following children + 45,000 extra ptas if the child is less than 3 year old + 22,000 extra ptas. If the child is aged between 3 and 16 years old.
Elderly related	Entitlement: Elderly relative living in the household with gross income below minimum wage. Amount: 90,000 ptas.
Earners	Entitlement: Individuals receiving income from employment. Amount: It varies between 330,000 and 450,000 ptas depending on both the level of net employment income and on the net income level from other sources.

TAX SCHEDULE	**Bands (in ptas.)**	**Tax rate (in %)**
Applying to the joint and individual schemes	540,000	18
	1,890,000	24
	3,690,000	28
	5,940,000	37
	9,900,000	45
	More	48

TAX CREDITS (not refundable)	All abolished except
Housing rent expenses	As in the 1995 system
Main house purshasing or reparing	As in the 1995 system

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[14] We use the consumer price index (and the expected inflation rate) as the *method of uprating* to convert nominally fixed amounts for the 1999 system to what they would have been if they had been in place in 1995.

TABLE 5: A detailed description of simulated parameters in the *modified government's reform proposal (Modified GP)* (Substitution of family and earners tax allowances by refundable family and earner's tax credits).

TAX UNIT	As in the 1995 system.
OBLIGATION TO DECLARE	As in the 1995 system.
TAX DEDUCTIONS	As in the GP
TAX ALLOWANCES	
Personal	500,000
Additional personal allowance	Entitlement: Family units contributing under the joint scheme. Amount: 500,000 ptas.
TAX SCHEDULE	As in the GP
TAX CREDITS (refundable)	
Children	Entitlement: Children aged under 25 with gross income below minimum wage. Amount: 56,000 ptas.
Elderly related	Entitlement: Elderly related with gross income below minimum wage. Amount: 25,000 ptas.
Old age	Entitlement: Individuals aged 65 or family. Amount: 25,000 ptas.
Health expenses	Abolished.
Housing rent expenses	As in the 1995 system.
Child care	Abolished.
Life insurance	Abolished.
Main house	As in the 1995 system.
Donations	Abolished.
Earners	As in the 1995 system

TABLE 6: A detailed description of simulated parameters in the convertible tax credit reform (Convertible T.C.)

TAX UNIT	Individual.
OBLIGATION TO DECLARE	Abolished.
TAX DEDUCTIONS	As in the individual scheme in the 1995 system.
TAX ALLOWANCE	
Personal	Entitlement: All individuals. Amount: 760,000 ptas
Dependent spouse	Entitlement: spouse without income. Amount: 430,000 ptas.

TAX SCHEDULE	**Bands (in ptas.)**	**Tax rate (in %)**
	250,000	20.00
	1,275,000	26.00
	3,275,000	30.00
	4,275,000	35.00
	5,275,000	38.00
	6,275,000	42.00
	7,275,000	45.00
	More	48.00

TAX CREDITS	refundable
Children	Entitlement: Children aged under 25 with gross income below minimum wage. Amount: 50,000
Elderly related	Abolished.
Old age	Entitlement: Individuals aged 65 or family. Amount: 25,000
Health expenses	Abolished.
Housing rent expenses	As in the 1995 system.

Contines...

Child care	Abolished.
Life insurance	Abolished.
Main house purshasing or reparing	As in the 1995 system.
Donations	Abolished.
Earners	Entitlement: Individuals receiving income from employment (including pensions and benefits). Amount: 29,000ptas per earner.

TABLE 7: The costs of reforms (in millions of pesetas)

	95 system (ESPASIM)	Government proposal	Modified G.P	Convertible T.C.
Personal & family tax allowance	0	11,960,095	9,696,097	17,882,411
Earner tax allowance	0	4,237,399	0	0
Income Tax Base	**30,424,550**	**16,021,262**	**21,064,740**	**18,378,119**
Gross Income Tax	**5,480,974**	**3,897,896**	**5,072,081**	**5,025,423**
Effective Credit	**1,029,480**	**177,580**	**1,351,481**	**1,302,958**
Family Credits	291,047	0	709,872	597,985
Housing Rent	41,891	44,438	46,153	42,853
Investment	221,503	213,185	237,294	196,355
Earners	408,902	0	413,677	529,881
Total Credit	1,093,435	197,969	1,351,481	1,302,958
TAX COLLECTION	**4,451,559**	**3,720,316**	**3,720,601**	**3,722,465**

Source: ESPASIM

TABLE 8: Average gains/losses and % of gainers/losers, Government´s Proposal.[15]

Percentile	Average Net Income	Average gain/loss (in ptas)			Percentage of		
(in %)	*1995´s system*	*All population*	*losers*	*gainers*	*losers*	*no change*	*gainers*
10	507,748	6,199	-8,731	26,648	0.3	76.4	23.4
20	787,666	16,522	-10,767	28,085	0.6	40.4	59.0
30	956,230	27,255	-20,442	36,759	1.2	24.0	74.8
40	1,124,961	29,466	-24,278	37,483	3.0	6.7	80.6
50	1,285,516	33,734	-23,546	40,868	3.4	4.5	84.5
60	1,454,948	37,117	-12,299	42,915	4.5	2.5	87.8
70	1,666,933	41,800	-13,682	47,264	5.2	0.8	89.9
80	1,941,018	46,070	-24,536	50,077	4.8	1.2	94.4
90	2,364,672	53,459	-59,326	58,834	3.9	0.9	94.8
100	3,594,536	81,264	-69,818	89,181	4.5	0.0	94.6
Total	1,568,207	37,284	-31,149	48,814	3.1	18.5	78.4

Source: ESPASIM

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[15] Households equivalent gains/losses are weighted by their number of members to calculate the average individual gain/loss.

TABLE 9: Average gains/losses and % of gainers/losers. Modified government's proposal.

Percentile	Average gain/loss (in ptas)			Percentage of		
(in %)	*all population*	*losers*	*Gainers*	*losers*	*no change*	*gainers*
10	29,510	-9,056	56,394	0.5	47.1	52.4
20	38,610	-11,845	51,522	0.3	24.6	75.0
30	40,427	-19,672	46,652	1.0	11.9	87.1
40	35,619	-19,418	41,804	3.3	16.4	86.7
50	37,374	-24,484	42,214	3.0	0.1	90.3
60	35,785	-21,741	38,741	2.0	0.1	93.5
70	36,398	-16,031	39,435	3.7	0.1	93.8
80	37,494	-30,172	40,351	4.0	0.2	95.9
90	37,401	-42,112	42,816	6.3	0.3	93.5
100	59,280	-77,021	65,767	4.4	0.0	95.3
Total	38,788	-34,773	46,067	2.9	10.8	86.4

Source: ESPASIM

TABLE 10: Average gains/losses and % of gainers/losers. Convertible tax credit proposal.

Percentile	Average gain/loss (in ptas)			Percentage of		
(in %)	*all population*	*losers*	*gainers*	*losers*	*no change*	*gainers*
10	51,865	-20,677	54,072	0.9	2.9	96.3
20	47,479	-12,171	48,378	1.3	0.2	98.5
30	43,459	-14,835	46,210	4.4	0.1	95.5
40	37,318	-17,867	43,373	9.9	10.0	90.1
50	35,057	-16,261	41,420	11.0	12.1	89.0
60	33,653	-27,550	43,260	13.5	7.7	86.4
70	34,368	-29,098	46,177	15.6	4.9	84.3
80	33,472	-40,904	45,867	14.3	0.1	85.7
90	31,737	-46,602	47,786	17.0	0.2	83.0
100	27,807	-73,235	57,048	22.4	0.0	77.4
Total	37,623	-38,934	47,306	11.0	0.4	88.6

Source: ESPASIM

TABLE 11: Lorenz ordinates. After tax equivalent income distribution.

	Lorenz Ordinates (in %)			
Cumulative Percentile	*1995´s system*	*Government´s Proposal*	*Modified G.P*	*Convertible TC*

	(in %)			
1	0.10	0.10	0.11	0.12
5	1.24	1.22	1.28	1.37
10	3.24	3.21	3.33	3.48
20	8.26	8.21	8.47	8.67
30	14.36	14.33	14.68	14.89
40	21.54	21.52	21.91	22.13
50	29.73	29.73	30.15	30.35
60	39.01	39.03	39.41	39.62
70	49.64	49.68	50.02	50.22
80	62.04	62.08	62.36	62.53
90	77.09	77.12	77.27	77.46
95	86.56	86.63	86.64	86.75
99	96.29	96.34	96.22	96.31
100	100.00	100.00	100.00	100.00
Gini Index	0.29590	0.29601	0.29062	0.28689

Source: ESPASIM

TABLE 12: Gains/losses, population share, Gini index and income share by household composition. Government´s proposal. Modified G.P. and Convertible T.C..

Household Type	1995´s system			Government Proposal			Modified G.P.			Convertible TC			Pop share
	Net income	Gini	Income share	Average gain/loss	Gini	Income Share	Average gain/loss	Gini	Income Share	Average gain/loss	Gini	Income Share	
• *Single*	1,238,527	0.354	2.3	32,297	0.351	2.3	18,652	0.352	2.3	30,693	0.344	2.3	2.9
• *Couple*	1,520,585	0.315	9.8	19,630	0.318	9.7	17,029	0.316	9.6	32,671	0.307	9.7	10.1
• *Single parent*	1,344,831	0.325	4.2	40,770	0.329	4.3	39,818	0.324	4.3	57,095	0.315	4.3	4.9
• *Couple + 1 child*	1,754,100	0.263	21.0	36,489	0.263	21.0	31,562	0.260	20.9	31,275	0.257	20.9	18.8
• *Couple + 2 children*	1,535,725	0.274	27.1	40,415	0.274	27.2	45,949	0.268	27.3	27,449	0.267	27.0	27.7
• *Couple + 3 children*	1,340,278	0.282	11.4	45,139	0.284	11.6	57,266	0.274	11.6	46,972	0.271	11.6	13.4
• *Couple + 4 or more*	1,136,039	0.298	5.6	40,742	0.303	5.7	67,616	0.288	5.8	69,904	0.277	5.8	7.7
• *Couple + adults*	2,074,398	0.249	13.1	33,670	0.250	13.0	21,330	0.249	12.9	39,586	0.244	13.0	9.9
• *Multiple adults (no couples)*	1,860,662	0.288	5.4	38,832	0.287	5.4	19,576	0.287	5.3	33,486	0.282	5.4	4.6

Source: ESPASIM

TABLE 13: Distribution of household effective marginal tax rates [Employment or Self-employment income of the head of household increased by 25.000 ptas]

Intervals of the marginal tax rate	1995´s system	Government´s proposal	Modified GP	Convertible TC
in %	*% of households*	*% of households*	*% of households*	*% of households*
[0]	15.0	24.7	6.9	9.9
[0-10]	0.4	0.5	0.2	0.5
[10-20]	21.5	15.8	10.8	6.1
[20-30]	55.7	51.9	71.7	73.2
[30-40]	4.9	4.1	6.2	6.4
[40-50]	1.6	2.9	1.7	2.4
[50 or more]	0.7	0.1	0.0	0.0

Source: ESPASIM

FIGURE 4: Relative gain for a single person. Convertible TC

Source: ESPASIM