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TAXATION, SOCIAL INSURANCE
AND POVERTY IN IRELAND*

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INTRODUCTION

What impact does direct taxation — in other words income tax and social security contributions, in this context — have on the poor in Ireland? We know that income tax rates are relatively high here, and that the PAYE sector bears a very large part of the direct tax burden. This has lead to repeated calls for tax reform and/or tax reductions in recent years, with the two not always being distinguished. What we do *not* known is what effect, if any, direct tax currently has on those at low income levels, and how these groups might therefore be affected by the various proposals which have been made for tax reductions/reforms.

In this paper, we examine the importance of income tax and PRSI contributions for the poor, on the basis of the data gathered in the Economic and Social Research Institute's large-scale Survey of Income Distribution, Poverty and Usage of State Services. This survey, carried out in 1987, has formed the basis for detailed studies of poverty and the effectiveness of the social welfare system, in particular the report for the Combat Poverty Agency (Callan et al 1988) and a forthcoming ESRI publication (Callan et al 1989). Having assessed the role which income tax/PRSI contributions actually play for those on low incomes, we explore how the structure of the tax and PRSI systems leads to some people at these income levels paying tax and/or contributions Finally, we look at the number of possible approaches to the reform of these systems in terms of their impact on the "low-income taxpayer".

What this paper is concerned with, then, is the operation of income tax and PRSI only as they directly affect those on low incomes as taxpayers. It does not deal with the other side of the coin, the way transfers to the poor are funded by income tax and the PRSI systems. Elsewhere (Callan and Nolan 1989, Callan et al 1989) we have analysed the operation of the social welfare system, and its crucial role in alleviating poverty. For the purpose of the present exercise, we ignore how the funds raised by income tax and PRSI contributions are spent, our focus is purely on how they are raised and the way this impinges on those on low incomes.

2 Taxation and the Poor

2.1 Do the Poor Pay Income Tax/PRSI?

In looking at the impact of the income tax and social security contributions systems on the poor, the first question is to what extent do the poor actually enter the tax net? We can answer this on the basis of the data gathered in the ESRI's Survey of Income Distribution, Poverty and Usage of State Services, carried out in 1987. This gathered information on about 3,300 households, 12,000 persons, including detailed data on incomes from various sources and on direct tax paid. The survey and its content are described at length in our ESRI publication (Callan *et al.*, 1989), so we will say little more about the database here. It may be sufficient to note that the sample was drawn on a random basis from the Electoral Register, and was designed to provide a representative picture of the income distribution as a whole, not just the poor. Thus, those on low incomes can be seen in the context of the overall distribution, and their living standards — and in the current context the tax they pay — compared with those in the middle and upper parts of the distribution.

Before we can focus on "the poor", the term must be defined. In our report for the Combat Poverty Agency last year (Callan et al 1988) and in our recent ESRI study, we go to some lengths to explore what is meant by 'poverty' in an advanced society. Poverty in such a context may most usefully be seen in terms of exclusion from ordinary living patterns due to lack of resources. While this broad definition would probably meet with general acceptance, no unique and objective approach to measuring poverty defined in this way has been produced.

We have therefore made use of, *inter alia*, a range of relative poverty lines. These are calculated as 40 per cent, 50 per cent and 60 per cent of average disposable household income in our sample, taking into account the differing needs of households of different size and composition. The first step is, therefore, to convert household incomes to a comparable basis by applying *equivalence scales*, designed to adjust for these differences in needs. The scales we employ in the present paper, taking a single adult as 1, allow 0.66 for the needs of an extra adult and 0.33 for those of a child. Thus, a couple with two children and an income of £200 per week are considered to be "equivalent" to a single adult with about [200/(1 +0.66 +0.33 +0.33] = £86 per week. These scales are similar to those incorporated in the payment levels for dependants of some of the main social welfare schemes. (The use of equivalence scales in this manner is discussed in detail in Callan *et al.*, 1989, which also employs a range of values in analysing the extent and composition of poverty.)

Given the uncertainty about where precisely to locate a meaningful poverty line, here we follow the procedure we have adopted elsewhere, of presenting results for all three relative thresholds. This allows the sensitivity of the results to the exact line chosen to be assessed, and is in our view considerably more useful than concentrating on one, to a greater or lesser extent arbitrary, cut-off between "the poor" and the rest of the income distribution. The percentage of households in the 1987 sample falling below each of these three thresholds is as follows:

40% threshold : 7.5%
50% threshold : 17.4%
60% threshold : 29.9%

It is worth noting the actual income levels which these thresholds represent. For a single adult, the 40%, 50% and 60% lines are about £34, £43 and £51 per week, respectively (and apply to 1987).

It is important to note that while income, as measured in our survey, is expressed as a current weekly amount, for certain sources — self-employment (including farm) and investment income — this represents the weekly equivalent of the total received over a longer period, usually a year. This practice, which is common to other similar surveys such as the CSO's Household Budget Surveys, is adopted in order to even out those particularly variable receipts. Similarly, the tax paid on income from these sources represents the weekly average of the amount paid during the past twelve months.

Returning, then, to the question with which we began, do "the poor" pay direct tax? Of the households below, each of these cut-offs, only a small proportion do so, i.e.,

11% of those below the 40% line,
12½% of those below the 50% line
and 18% of those below the 60% line.

Thus, at the 40% and 50% lines, only about one in eight of the households below these thresholds are paying income tax and/or PRSI contributions. At the highest of the cut-offs, the 60% line, while the figure is considerably higher, it is still less than one-fifth of the households below the line.

2.2 Which Low-Income Households Pay Income Tax/PRSI?

Having established that only a small minority of poor households currently pay income tax or PRSI contributions, the next step is to look at the characteristics of those who do so. We focus first on the nature of the household head's participation in the labour force. Table 1 shows the breakdown of all households falling below the three relative income thresholds and of the subset of those who are paying income tax/PRSI, by the labour force status of their head. The composition of those below the thresholds is discussed in some detail in Callan *et al* (1988, 1989) noting in particular the importance of households headed by farmers and unemployed. Although almost 40% of the households in the sample are headed by an employee, households of this type make up only about 10% of those below the 40% and 50% lines. Even at the 60% line they only comprise 13.5% of those below the threshold.

Looking at the subset of households below the thresholds who are paying income tax/PRSI, though, the pattern is very different. Between 57% and 62% of all these households are headed by an employee. The other substantial groups are those headed by a farmer, other self-employed, unemployed or sick/disabled — very few low-income households headed by someone retired or in home duties paid tax.

TABLE 1:
Composition of All Households Below Relative Poverty Lines, and Those Below Paying Income Tax/PRSI, by Labour Force Status of Head

	Relative Poverty Line					
	40%		50%		60%	
Labour Force status of head	% of all below line	% of those below and paying tax	% of all below line	% of those below and paying tax	% of all below line	% of those below and paying tax
Employee	9.8*	59.3	9.4	56.7	13.5	62.2
Farmer	37.3	18.1	23.9	17.3	17.6	11.1
Self-employed	6.9	7.6	5.0	6.2	4.8	6.0
Unemployed	17.2	6.4	34.9	8.8	25.6	10.5
Sick/Disabled	8.8	8.6	10.4	9.3	12.6	5.2
Retired	9.5	—	9.2	1.1	10.2	0.8
Home Duties	10.3	—	7.0	0.6	15.4	2.1

TABLE 2
Composition of Households Below Relative Poverty Lines, and of Those Below and Paying Income Tax/PRSI

	Relative Poverty Line					
	40%		50%		60%	
	% of all below line	% of those below and paying tax	% of all below line	% of those below and paying tax	% of all below line	% of those below and paying tax
% with at least one child	48	57	58	71	52	75
% with three or more children	22	24	28	32	24	40

So households headed by an employee form only a small element of those below the thresholds but a majority of those below and paying tax, reflecting the fact that most households of that type, even at low income levels, are paying income tax/PRSI. At the 60% threshold, for example, over 80% of the employee-headed households below this line are paying tax/PRSI. By contrast, only about 20% of the households headed by a self-employed person and falling below this line are paying tax/PRSI. The distinction between employees on the one hand and farmers and other self-employed on the other has such a major impact in determining whether tax/PRSI is paid not only because of the substantial differences in the way the income tax code treats them, but also because of the structure of PRSI at the time of the survey (though this is currently being restructured) as explored in detail in Section 3 below.

Another important characteristic of low-income households paying tax, namely their size and composition, should also be noted. These households are in fact more likely than other low-income households to contain children, and also more likely to contain three or more children. Table 2 shows the comparison between all those falling below the threshold and the subset of those paying tax in terms of the presence/absence, and number, of children. The contrast is particularly marked at the 60% cut-off: here three-quarters of the low-income households paying tax contain a child, and 40% have three or more children, compared with only 52% and 24%, respectively for all households below the threshold. Since the relative poverty lines are based on needs-adjusted *equivalent* income, a household with an income sufficient to bring it into the tax net but with a number of children, may be "pushed" below the threshold(s) when the needs of these children are taken into account. Family size can thus be an important factor contributing to the overlap between poverty and income tax, as we explore below. This is also to be seen in the context of the overall finding which we have emphasised in previous papers that large families face a particularly high risk of being in poverty, and one which has been increasing over time. It may also be emphasised that this is not simply a product of the particular equivalence scales used, but holds across a variety of scales.

Another factor which may contribute to low-income households paying tax is the number of people in the household at work. The tax system operates at the level of the nuclear family of husband, wife and dependent children, rather than the broader household, which may include working children or may, for example, consist of two brothers or sisters. There is more than one tax unit in a significant number of households, and each will be assessed independently for tax. The situation may then arise that even though the household's total income is relatively low, a working son, for example, may be paying a substantial amount in income tax. Low-income households paying income tax/PRSI are in fact more likely than other low-income households to have more than one member in work. At the 50% threshold, for example, 31% of those below and paying tax had more than one person at work, compared with 15% for all those below. While in some of these it was the husband and wife who were at work, in which case their income would (almost always) be aggregated in determining tax liability, in many instances the second person at work was another household member.

Considering these various characteristics together then, the main groups into which low-income taxpayers fall are as follows

— households headed by an employee and containing children; this is by far the most substantial group, accounting for almost half of all low income households paying tax and below the 50% line; many of these have three or more children, and most have only one person at work;
— farm households; the majority of these do not contain children, and not very many have three or more children;
— households headed by an unemployed or sick person but with some other household member at work; the majority of these contain children, but not three or more;
— making up a considerably smaller group than these are households headed by a self-employed (non-farm) person; about two-thirds of these contain children, one-third have three or more.

2.3 The Impact of Income Tax/PRSI Contributions on the Poor

We have looked at the number and characteristics of low-income taxpaying households. Before detailing the way in which the stucture of the tax and PRSI systems operate to produce low-income households paying tax, it is important to see how important these deductions actually are for the households involved, and their overall contribution to the problem of poverty.

The amount of tax being paid by these households is analysed in Table 3. This shows the breakdown of the taxpaying households below each threshold by range of income tax plus PRSI contributions being paid. This shows that for most, the amounts involved are substantial. At the 50% line, for example, only 22% are paying less than10 a week, and 57% are paying20 or more. So, although only a small proportion of those below the thresholds are paying income tax/PRSI, for most of these it is significant rather than marginal.

Table 3
Households Below Relative Poverty Line Paying Income Tax/PRSI, by Amount Paid

Amount of Income Tax +PRSI £ per week		Households Paying Income Tax/PRSI and Below 40% line	50%	60%
< 5		12.9	9.6	11.4
> 5	< 10	5.1	12.7	11.1
> 10	< 15	10.1	12.5	9.0
> 15	< 20	6.8	8.3	9.7
> 20	< 30	19.7	20.8	19.8
> 30	< 40	12.8	15.8	16.8
> 50	< 50	2.7	5.0	8.00
> 50		29.9	15.2	14.2
		100	100	100

In addition to the absolute amounts of tax/PRSI being paid by households below the poverty line(s), it is also interesting to compare the tax paid by each household with the shortfall or "poverty gap" of that household. That is, we calculate the extent to which the household falls below a particular poverty line, simply subtracting its disposable income from that line to derive what is termed its "poverty gap". Comparing income tax paid with that gap, we then see the contribution which the tax deduction makes to the household's shortfall below the line. If tax paid is equal to orgreater than the poverty gap, the household in question would not be below the poverty line at all in the absence of the tax deduction. Even where tax paid is less than the poverty gap, we can see that in the absence of the tax the gap would only be, for example, half what it actually is.

In fact, income tax plus PRSI contribution paid is equal to or greater than the poverty gap for two thirds of all those households below the 40 per cent line who paid tax. For both the 50 per cent and 60 pr cent lines the corresponding figure is 56 per cent. So if income tax and PRSI had not been deducted, these households would not have been below the poverty line(s) at all. For the remainder of "poor taxpayers", the amount paid in income tax/PRSI is equal to between 25 per cent and 35 per cent of their poverty gap on average, depending on the threshold.

So income tax/PRSI, although relevant for only a minority of the poor, is indeed significant for that minority. The relative importance of income tax versus PRSI also merits examination. For households headed by an employee, PRSI is significant, but it is not the case that it dominates the amount paid. Although we do not have full information in all cases for our sample, it appears that, on average, about 25-30%

of the amount paid by these households is PRSI contributions, the remainder is income tax. So the particular structure of the PRSI system — which has no income exemption limits or allowances, as outlined in the next section — is not the only factor at work for these households. For households headed by a self-employed person or a farmer, PRSI is not a substantial part of the total paid in most cases. (This might be expected to change with the extension of the coverage of these groups under the PRSI scheme currently being implemented, as also discussed below.)

We now turn to an examination of the structure of the income tax and PRSI systems, to see how the phenomenon of low-income households paying tax and/or contributions comes about, before discussing some possible reforms.

TABLE 4
Comparison of Relative Poverty Lines and Income Tax Exemption Limits, 1987
£ per week

Household Type	Exemption Limit	Relative Poverty Line 40%	50%	60%
Age under 65:				
Single adult	50.82	34.20	42.75	51.30
Married couple	101.64	56.77	70.96	85.16
Couple with 1 child	101.64	68.06	85.07	102.09
Couple with 2 children	101.64	79.34	99.18	119.02
Couple with 3 children	101.64	90.63	113.29	135.94
Couple with 4 children	101.64	101.92	127.40	152.87
Couple with 5 children	101.64	113.20	141.50	169.80
Aged 65-74:				
Single adult	60.41	34.20	42.75	51.30
Married couple	120.82	56.77	70.96	85.16
Aged 75 or over:				
Single adult	70.48	34.20	42.75	51.30
Married couple	140.96	56.77	70.96	85.16

3 The Structure of Income Tax/PRSI and the Poor

3.1 Income Tax

We begin by looking at the relevant aspects of the income tax system. How do some households with relatively low incomes come to be paying income tax? The most important feature of the system in this context is the exemption limits, the income levels below which complete exemption from income tax is granted. Our survey was carried out during the tax years 1986/87 and 1987/88, and for both these years the exemption limits were as follows:

	Per annum
Single person aged under 65	£2,650
Single person aged between 65 and 74	£3,150
Single person aged 75 and over	£3,675
Married couple aged under 65	£5,300
Married couple aged between 65 and 74	£6,300
Married couple aged 75 or over	£7,350

These limits give a married couple twice the threshold of a single person, and take no account of children. (Child additions to the limits have in fact been introduced in the 1989 Budget, as we discuss below, but first we are interested in the situation as it held when our data were collected.)

These limits, converted to a weekly equivalent, are compared in Table 4 with the level of the relative poverty lines for various household types employed in our analysis. Since the exemption limit was the same for couples with children as without, but the poverty line rises as the number of children increases, family size is critical to whether the poverty lines are above or below the limit. The 40% line is below the exemption limit for a single person or a couple (aged under 65) with up to three children. For a couple with four children, though, even this lowest relative line is marginally above the exemption level. With the 50% line, a couple with three children will have a poverty line above the exemption limit. With the 60% line, even a couple with one child have a poverty line just above the exemption limit. So it is easy to see why families with children are found to make up such an important element of those below the poverty lines and paying tax.

Even for a single adult under 65, the 60% poverty line is just above the exemption limit. Since the exemption limits increase for the elderly while the poverty lines do not, all the poverty lines are, however, well below the limits for single elderly or elderly couples.

Where income is only just above the exemption limits, marginal relief is applied so that tax liability does not rise very rapidly from zero as income moves over the limit. Even so, tax liability can be substantial for some of those below the poverty lines, particularly families with children. For example, a family with four children and an income of £125 a week, £6,500 per year, would fall below the 50% line. However, they would be well above the tax exemption limit of £5,300, and their tax liability (assuming there was one employee with married, employee and PRSI allowances) would come to £530 per annum, £10 a week. Or a three-child family on £135 per week, under the 60% line, could have tax liability of £14 per week.

One major factor explaining the fact that some of those below the relative poverty lines pay income tax is therefore the level at which the exemption limits are set, and particularly the fact that in 1987 these made no allowance for children. In the 1989 Budget, a £200 addition to the exemption level per child was introduced. This, it was stated, was intended to target relief at a group particularly in need of support, namely low-income families. "It will go a long way towards alleviating the tax burden on low income families and towards restoring the reward for work among parents of such families," the Minister for Finance explained (Budget Booklet, 1989, p.19). The general exemption limits were also increased this year by more than they had been in 1988, and now stand at £3,000 for a single person and £6,000 for a married couple. About 24,000 taxpayers with 46,000 children would be removed from the tax net by the 1989 measures, according to the Budget.

This new child addition to the exemption limits does indeed alter the relationship between these limits and the poverty lines shown in Table 6. The £200 addition in itself adds almost £4 per week per child to the exemption limits. While a significant number of families are therefore exempt, the relative poverty lines for large families would in many instances remain above the exemption limits. This is because these lines allow considerably more for the "needs" of a child relative to an adult or a couple without children than the new child additions to the exemption limits. The poverty lines reflect the relativities in major social welfare payments, where a child dependant may receive perhaps 30% of the single adult rate. The tax exemption limit child additions, though, represent only 6.7% of the single adult limit. In terms of equalising the position of families with children and those without, then, the new additions may represent only a first step.

Returning to the factors which may produce low-income taxpayers, so far we have dealt with the general structure of the system in terms of exemption levels, which applies to all. However, as we have seen, the differential treatment of employees versus the self-employed is also important. Employees in almost all cases pay through PAYE, their tax payments are based on income in the current year. For the self-employed, on the other hand, tax is charged in arrears: liability in the current tax year should relate to income in the previous year. This can obviously lead to a situation where those with low current incomes are paying tax on the basis of higher income last year.

For the self-employed in our survey, the income tax data gathered refers to payments in the past twelve months. The income data relate to the most recent twelve months for which the respondent had information. This frequently is also the past year, but in other cases may be the last tax year or even the one before that. For farmers, while the tax paid refers to the past twelve months, incomes were estimated on the basis of the calendar year 1986. It is, therefore, difficult to draw general conclusions about the relationship between tax paid and income, and the importance of payment in arrears. It is clearly one possible factor explaining how low-income self-employed are none the less paying income tax. This may be particularly relevant to farmers, for whom 1986 was a particularly bad year. Tax paid in the year up to interview, sometime in 1987, may have accrued in an earlier year or indeed over a number of years.

A third factor, already adverted to, is the fact that our analysis has been on the basis of household income, whereas tax liability is based on the narrower tax unit. Thus, for example, where a working adult is living with his/her parents and their other dependent children, the household as a whole may have a relatively low equivalent income. That adult will, however, be assessed for tax purely on his/her own income without dependants, and may be liable for a significant tax payment. It is therefore, important to also analyse the position *vis-a-vis* relative poverty lines when the narrower family is used as the recipient unit.

We know that using the tax unit rather than the household does not make a great deal of difference to the overall numbers falling below relative lines (see Callan, *et al.*, 1989). It is worth pursuing in the specific context of the income tax system, though, since this system is based, in general terms, on the narrower unit. For this reason, we are currently developing a model of the tax and benefit systems which will allow a full analysis of the effects of possible reforms on the basis of the family/tax unit. In assessing welfare implications, though, the extent of income sharing between tax units in the same household still has to be taken into account. In a re-survey of some of the participants in our 1987 survey, which has recently been completed, we have also gathered some information which should allow this income-sharing issue to be addressed.

3.2 The PRSI System

We now deal with the structure of the PRSI system, and its impact on contributions by those on low incomes. Focusing on employees, the first point to be emphasised is that PRSI has no general income exemption limit, nor has it a system of allowances corresponding to tax allowances. Contributions are levied on gross pay, and while there is a ceiling above which there is no further charge, there is no floor level. Certain limited classes of workers are completely exempt from contributions, but even part-time workers (working under 18 hours a week) are, in general, liable for (reduced) contributions[1].

Secondly, PRSI contributions are based purely on the individual's earnings, they take no account of family circumstances. Thus PRSI contributions at the standard rate of 5.5% will be levied on a full-time employee, even if he/she has a large family which is well below the relative poverty thresholds. The only relevance which the family's situation will have is that the additional Health Contribution and Youth

Employment levies of 1.25% and 1%, respectively, collected with PRSI contributions, are levied on the employer rather than the employee if the latter has a Medical Card. This will, of course, depend on the family's composition and income relative to the Medical Card thresholds.

So, for an employee, it is easy to see how low family income together with the payment of substantial PRSI contributions can occur. In the case of the self-employed, including farmers, at the time our survey was carried out they were liable only for the Health and Youth Employment levies and not for PRSI itself. Thus, the amounts involved would be substantially less than for employees. From 1988/89, a PRSI contribution of 3% for this group was introduced as they are being brought within the coverage of the PRSI system. Currently their contribution rate stands at 4%, rising to 5% in 1990/91, and subject to a mimimum contribution of £208 per annum. However there is an exemption limit (currently "reckonable income" of £2,500 per annum) below which the self-employed are not liable to this contribution. Thus the structure of the system and its treatment of those on low incomes is now of considerable relevance to the self-employed and farmers as well as employees.

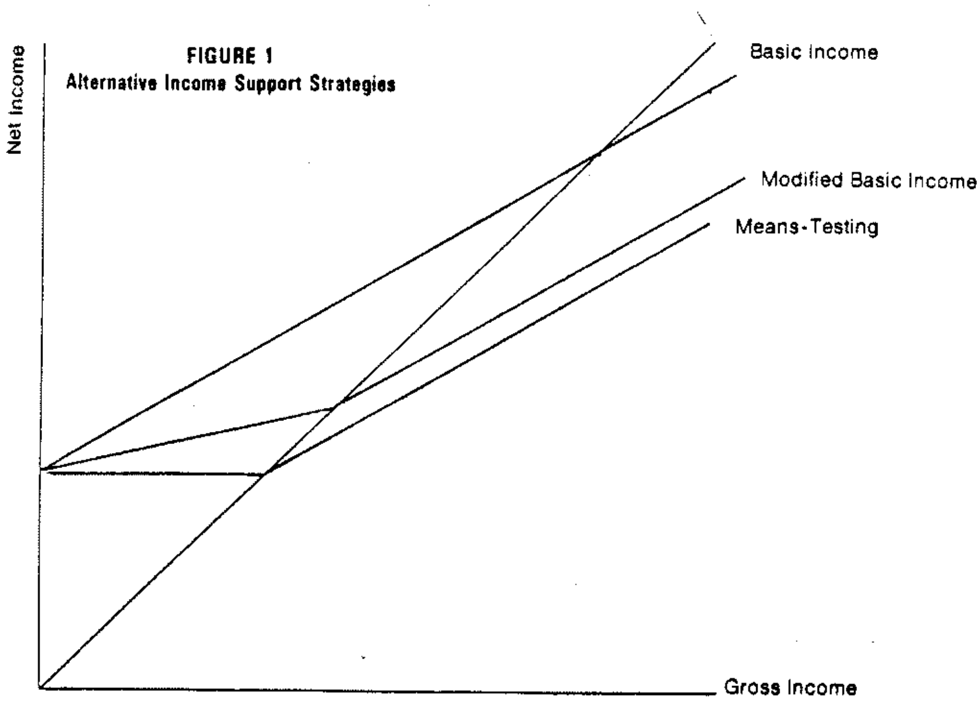
4 Impact of Reforming Income Tax/PRSI on the Poor

4.1 Policy Objectives and Instruments

Before examining possible policy changes, it is useful to clarify the objectives which such changes are designed to achieve and the problems faced in achieving them. In broad terms, anti-poverty policy can be seen as aiming to ensure that no-one falls below a given poverty line income. The income tax system is one instrument which can be used for this purpose. The social welfare system for the most part provides income support for those not in work, while the income tax system can play a role in ensuring a minimum income for those in work. However, schemes such as the Family Income Supplement (FIS) and child benefit also contribute to this latter objective.

Anti-poverty policy cannot be thought of in isolation: the costs and incentive effects of different strategies must be borne in mind. The trade-offs involved are illustrated in Figure 1 below, which provides a stylized view of the relationship between gross and net income under three alternative income support strategies, labelled means-testing, basic income and modified basic income. For simplicity, the alternative systems are illustrated in terms of the same minimum income. The schedules above the "break-even point" (at which taxes paid are equal to benefits received) may reflect a single tax rate or a progressive marginal rate schedule; the essential differences between

FIGURE 1
Alternative Income Support Strategies



the three systems are in their treatment of incomes below the break-even point. Again, for simplicity, the systems are illustrated with the same rate of tax above the break-even point.

The line labelled "means-testing" reflects a strategy which brings each tax unit below the minimum income level up to precisely that level by providing income support sufficient to bridge the gap between pre-transfer income and the minimum income level. This implies that any increase in earned income will result in a pound for pound withdrawal of social welfare income. Thus, there is an effective 100% benefit withdrawal rate facing those with gross incomes below this level. The line labelled "basic income" reflects an alternative strategy: it provides a minimum income to all, and has a uniform tax rate thereafter, which continues after the break-even point. The line labelled "modified basic income" is an intermediate position: it has a higher marginal tax rate on incomes below the break-even point.

The basic income scheme is the most expensive method of providing any given minimum income target: it would in practice require a higher standard rate of tax than either of the alternative schemes to finance it. The means-testing option is the least expensive method, but at the cost of imposing an effective 100% marginal tax rate on those with incomes below the chosen level. A modified basic income scheme represents a compromise between these polar cases. Honohan (1987) costed a modified basic income scheme which involved a basic payment of £35 per person (with higher payments to the elderly), a standard tax rate of between 38 and 43 per cent, and an effective tax rate below the break-even point of 65 to 70 per cent.

While these costings deliberately excluded any extension of the direct tax base, Honohan concluded that "It is not possible to finance a basic income scheme which gives a payment of £55 to each adult". A similar view was taken by the Commission on Social Welfare (1986).

The present system cannot be adequately represented by a single simple diagram. The interactions between the income tax and social welfare codes can be quite complex, and the shape of the implied schedule relating gross to net income can vary depending on several contingencies. But in broad terms, as compared with (modified) basic income schemes of similar aggregate costs, it opts for a higher minimum income coupled with high implicit marginal tax/benefit withdrawal rates at low incomes. Even if this broad strategy is to be maintained, it is useful to derive the relationships between gross and net income faced by particular families in order to identify problem areas and possible reforms. In this respect, there may be much to be learned from the integrated view of the income tax and social welfare systems taken by basic income schemes.

TABLE 5
Interaction between income tax and FIS, married couple (1 PAYE earner) with 4 children 1987, £ per week

Gross income	Income tax	PRSI	FIS	Child benefit	Net income
100	0	5.50	35.00	13.84	143.34
125	10.31	6.88	22.50	13.84	144.16
150	19.06	11.63	10.00	13.84	143.16
175	36.01	13.56	0	13.84	147.48
200	51.01	15.50	0	13.84	161.79

4.2 Interactions between Income Tax and Family Income Supplement

The survey evidence suggested that a very substantial proportion of poor households paying tax were headed by employees and contained children. Low income employees with children may, of course, be entitled to income support under the Family Income Supplement scheme (FIS). FIS is paid to families under a gross income limit related to the number of children. The payment is a fixed proportion of the difference between gross pay and the gross income limit, subject to a maximum payment.

Some of the employees below the poverty line who were found to be paying income tax were also entitled to Family Income Supplement (FIS), although very few were actually in receipt of the payment. In some cases, the entitlement to FIS could exceed the amount paid in tax, as Table 5 illustrates. The avoidance of such circular transfers is not an end in itself (it would not, for instance, be considered desirable to avoid circular transfers if this involved an increase rather than a reduction in administrative costs). However, the low rate of take-up of FIS entitlements could be seen as arguing for its integration into the tax system, in order to make payment automatic.

The interaction of the income tax system and the FIS scheme as constituted at present illustrates some of the problems raised by the lack of integration between the tax and social welfare codes. The fact that FIS pays a fixed proportion of the gap between gross income and a gross income limit implies that as income rises, FIS benefit is withdrawn at this proportion. In 1987, when the survey was undertaken, the benefit withdrawal rate of 50 per cent, combined with a standard rate of tax of 35 per cent and a PRSI rate of 5.5 or 7.75 per cent led to an effective tax rate of up to 92.75 per cent. For employees just above the income tax exemption limits, the marginal relief rate of tax of 60 per cent pushed the maximum effective tax rate of 117.75 per cent. Thus, Table 5 shows that as gross income rose from £100 to £175 per week, disposable income rose by less than £7.

The main changes in the 1988 and 1989 Budgets affecting families with an income from employment were:

1. A reduction in the standard rate of tax from 35 per cent to 32 per cent.

2. An increase in the personal allowance from £2000 to £2050 (doubled for married couples).

3. An increase in the exemption limit from £2,650 to £3,000 for a single person, and double these levels for a married couple.

4. The introduction of an addition to the exemption limit of £200 for each child, as mentioned earlier.

5. Increases in the gross income limits below which FIS is payable, the maximum amounts payable, and an increase in the proportion of the shortfall between actual income and the gross income limit for which FIS is payable; this proportion is also the marginal benefit withdrawal rate.

The net effects on the relationship between gross and net income, and effective marginal tax rates are illustrated in Table 6 below. The income regions over which high effective marginal tax rates apply have been moved around, and may now apply to more families than before. (Table 1 in the Appendix identifies the exact regions for which the marginal relief limit is below the FIS limit, in which the highest effective tax rates apply.) The increase in effective marginal tax rates shown in the table is partly due to the 10 percentage point increase in the FIS benefit withdrawal rates.

This table illustrates why the reform of the tax system cannot be seen in isolation. Its interaction with the social welfare code, and in particular the combined effect on net income and incentives must be considered.

4.3 Policy options

In the light of the foregoing analysis, what reforms of the direct tax/PRSI system would help to improve the poverty reduction

TABLE 6
Relationships between gross and net income for selected family types, 1987 and 1989 (one PAYE earner)

family type: married couple (no. of children)	gross income (£/wk)	disposable income in 1987 (£/wk)	effective marginal tax rate in 1987 (%)	disposable income in 1989 (£/wk)	effective marginal tax rate in 1989 (%)
2	100	114.42		123.02	
	125	115.24	97	130.24	71
	150	126.24	56	129.10	105
	175	140.55	43	144.16	40
	200	154.87	43	159.23	40
4	100	143.34		150.34	
	125	144.16	97	167.37	32
	150	143.16	104	160.81	126
	175	147.48	83	156.49	117
	200	161.79	43	166.15	61
6	100	160.81		174.35	
	125	163.62	89	196.97	10
	150	166.00	90	199.19	91
	175	168.38	90	192.82	125
	200	175.75	71	192.45	101

performance of the system, and/or reduce the undesired side effects? A number of options can be considered.

The previous section has highlighted the need for an integrated treatment of the FIS scheme and the tax code. Effective tax rates in excess of 100 per cent are not desirable on any grounds, and it is likely that effective tax rates approaching 100 per cent are simply unintended byproducts of the lack of integration. The low take-up of FIS can also be seen as arguing for an automatic payment which would operate through the tax system.

As regards the direct tax and PRSI system itself, the options for reducing the direct tax/PRSI liabilities of those on low equivalent incomes include child tax allowances, increasing child additions to the exemption limits introduced in 1989, and reform of the PRSI system to provide some relief to those on low pay.

If the objective is to aid families on low incomes, tax free allowances for children have little to recommend them. They are an expensive and inefficient method of providing such assistance. The benefit is not confined to those at low incomes; indeed, the value of the tax-free allowance is greater for higher rate tax-payers. Whatever about arguments based on horizontal equity between those with/without children at a particular income level, child tax allowances are not an efficient way of targetting help towards low income families with children.

Such considerations may well have prompted the recent introduction of child additions to the income tax exemption limits. This does indeed confine the benefit to low income families. The problem with this approach is the general one associated with exemption limits. A strict exemption limit involves a "kink" in the relationship between gross and net income, which implies an effective marginal tax rate of over 100 per cent. In order to avoid this, it is necessary to give some of the benefit to those on higher incomes than the exemption limit. If this is not to prove expensive, it must not extend very far above the exemption limit. But this implies a high effective tax rate over the region between the exemption limit and the limit of marginal relief.

PRSI liabilities were found to be quite important for those on low pay, relative to income tax liabilities. This reflects the fact that PRSI is payable on income from the first pound up. There is, however, an allowance against income tax for those on the higher rate of PRSI. From the point of view of poverty reduction (which was not its main objective), this tax-free allowance is ill-targetted: the effective benefit is greater for higher rate tax-payers. An alternative would be to abolish this tax-free allowance, and institute an allowance against PRSI rather than against income tax. This would result in a system similar to the recently rationalised UK structure (see Dilnot and Webb, 1989 for details). A revenue-neutral reform of this nature might allow a PRSI allowance of around £1500. This would favour those who are on low incomes and pay PRSI but are below the income tax exemption limits, and have a small benefit for those on the standard rate of tax, at the expense of higher rate tax-payers. Marginal tax rates would be reduced at very low incomes but unaffected elsewhere.

A summary of the gains to those at different income levels from the introuction of child additions to the exemption limits, increases in the child additions, and conversion of the PRSI allowance against tax to a genuine PRSI allowance is given in Table 7 below.

It is important to note that the right-hand column is giving the gains to low income groups from a revenue neutral reform; the child additions to exemption limits involve net additional costs. The effects of introduction of child additions to the exemption limits were quite large but concentrated, and further increases would concentrate gains on those at the higher end of the low-pay range. The revenue-neutral reform to the PRSI system would, on the other hand, provide a more widely spread benefit, tilted towards those on the lowest pay.

5 How Much Could Tax Reform Achieve in Alleviating Poverty?

Having discussed some reforms in the income tax and PRSI systems, it is worth looking finally at how great a contribution such reforms could actually make to directly alleviating poverty, that is, what the maximum possible effect could be. If we assume for the purpose of the exercise that a system could be designed under which no-one below the relative income thresholds pays income tax or PRSI contributions, we can measure first of all the impact this would have on the numbers in poverty. The results are illustrated in Table 8.

TABLE 7
Distribution of gains from policy changes for selected family types (married couple, one PAYE earner)

family type (no. of children)	gross income (£/wk)	gain from introduction of child addition to exemption limit (£200)	disposable income in 1989 (£/wk)	gain from trebling of child addition to exemption limit (£600)	gain from converting PRSI tax-free allce to allce against PRSI
2	100	0.00	123.02	0.00	1.58
	125	4.60	130.24	1.40	1.58
	150	0.00	129.10	8.99	2.02
	175	0.00	144.16	1.99	0.48
	200	0.00	159.23	0.00	0.47
4	100	0.00	150.34	0.00	1.58
	125	6.01	167.37	0.00	1.58
	150	4.39	160.81	11.81	2.23
	175	0.00	156.49	15.78	0.47
	200	0.00	166.15	8.78	0.47
6	100	0.00	174.35	0.00	1.58
	125	6.01	196.97	0.00	1.58
	150	8.98	199.19	7.21	1.58
	175	1.99	192.82	22.21	1.58
	200	0.00	192.45	22.59	-0.17*

* This loss arises because of the fact that medical card holders do not pay the health contribution or youth employment levy; the value of the new PRSI allowance set against a 5.5 per cent rate would be less than the value of the old PRSI tax allowance at the standard rate of 32 per cent.

TABLE 8
Impact of Eliminating Income Tax/PRSI Contributions for those Below Relative Poverty Lines on the Numbers Below These Lines

	Relative Poverty Line		
	40%	50%	60%
% of households below line	7.5	17.4	29.9
% of those paying income tax/PRSI	10.9	12.4	18.1
% of those below and paying income tax/PRSI below because of these deductions	66.0	56.0	56.0
So % below line in the absence of income tax/PRSI	7.0	16.2	26.9

As described in Section 2, the analysis of our survey showed the percentage of those below the thresholds who paid some tax and/or PRSI varying from 11% with the 40% threshold to 18% with the 60% line, but not all of these would be above the threshold even if they paid no tax/PRSI. In fact, we saw that two thirds of the "taxpayers" under the 40% line, and 56% of those under the two higher lines, would have been above the relevant threshold if income tax/PRSI had not been deducted from gross income. If these households had not been brought below the thresholds by tax/PRSI, the overall percentage falling below the 40% line would have been 7% rather than 7.5%. For the 50% threshold the reduction would be from 17.4% to 16.2%, while a more substantial fall, from 29.9% to 26.9% would be seen at the highest threshold.

This emphasis purely on the numbers falling below the thresholds does not convey the full picture though. Clearly, those taxpayers who are below the lines, and would still be below even if they were not paying tax, would none the less be better off if they were not doing so. This is missed by looking only at the numbers below even a range of thresholds. This in fact illustrates a more general point about the shortcomings of simply focusing on the number of households/persons below a poverty line as an overall measure of poverty, in that it takes no account of the intensity of poverty of different households, the extent to which they fall below the poverty line. (This criticism of the "headcount" as a poverty measure has been made most trenchantly by Sen (1976), and a variety of alternative measures has been proposed: for a discussion and application to Irish data see Nolan and Callan (1989) and Callan et al (1989)).

A useful approach is therefore to consider the impact of reforms not just on the numbers in poverty, but also on the aggregate *poverty gap*. We saw in Section 2 that a household's poverty gap is the distance (in money terms) it falls below the poverty line: the aggregate poverty gap is simply the sum of the individual gaps for all households below the line. (See for example the use of this aggregate in assessing the impact on social welfare payments in Callan and Nolan (1989)). Suppose then that a reform of the income tax and PRSI systems could bring about a situation where

(i) taxpaying households below the poverty line even by pre-tax income now pay *no* tax, so their poverty gaps are reduced by the full amount of the tax they paid: and

(ii) households above the poverty line by pre-tax income but brought below it by tax now pay only enough tax to leave them at, rather than below, the line, so their poverty gaps are eliminated.

This would have the following impact on the aggregate poverty gap at each line:

at the 40% line it would fall by about 4%
at the 50% line it would fall by about 6%
at the 60% line it would fall by about 8-9%

These reductions are in fact slightly smaller than the percentage falls in the so-called "headcount" measure, the numbers below the thresholds, implied by the figures presented in Table 5. (These would be falls of 6.5%, 7% and 10% for the 40%, 50% and 60% relative lines, respectively.) It is interesting to explore why this is the case. Focusing purely on the numbers below the threshold, each household brought above the line by the tax reform is given equal weight, irrespective of how far below they had fallen and how this compared with the situation of those below and not paying tax. Those who benefit by the elimination of their tax but remain below the threshold, on the other hand, are not counted at all. So the finding that the elimination of tax reduces the aggregate poverty gap by less (in percentage terms) that the numbers below the threshold arises because:

(i) the poverty gaps for "poor taxpayers" lifted above the threshold by the hypothetical tax reform are less, on average, than those of the non-taxpayers below the threshold: (depending on the threshold, the former have average gaps of about 75-80% of the latter); thus merely counting the numbers lifted above the threshold by the reform in some sense weights these cases too heavily.

(ii) The inclusion in the aggregate poverty gap calculation of the reduction in the gaps of those taxpayers who remain below after the tax reform works in the other direction: their gaps are reduced by 25-35% on average, depending on the threshold, but this is not sufficient to offset (i).

Clearly, all these calculations are purely static, in the sense that they take no account of any behavioural responses the hypothetical tax reform might produce. It also assumes that the tax and PRSI systems could be altered in such a way as to bring about this result.

6 Conclusion

The evidence from the ESRI Survey of Income Distribution, Poverty and Usage of State Services suggests that about one household in eight of those below the 40 and 50 per cent relative poverty lines is paying income tax and/or PRSI. This figure rises to something just under one in five at the higher 60 per cent relative poverty line. For this minority, though, the amount paid in income tax and PRSI was significant.

Households headed by an employee, although only a small proportion of the households below the poverty lines, account for about 60% of such households paying tax/PRSI. Most of the low-income households paying tax contain children, often three or more.

Considering broad policy strategies, the trade-off between the cost of guaranteeing a minimum income and the effective tax rates at low incomes was emphasised. The very high implicit tax rates caused by the combined operation of marginal relief above the income tax exemption limits, and the FIS benefit withdrawal rate were noted. Taken together with the low rate of take-up of entitlement to FIS, this argued for a more integrated scheme.

Methods of reducing the income tax and PRSI paid by those below the poverty line were also discussed, including the recently-introduced child additions to the tax exemption limits, and conversion of the PRSI allowance against income tax to an allowance against PRSI itself. The survey evidence showed that even a perfectly targeted reduction in income tax and PRSI liabilities would have only a limited effect on the numbers in poverty and the aggregate poverty gap. Nonetheless, some clear anomalies were identified, and addressing these could be of major significance for certain households. In addition to this static picture, the dynamic effects of tax reforms must also be taken into account. Reducing tax and PRSI for low income earners, and eliminating the features emphasised here which give rise to stark disincentive effects, could themselves help to stimulate employment. Thus both the direct and indirect effects of ironing out the anomalies in the existing taxation and income maintenance systems would contribute to the alleviation of poverty.

Footnotes

1. Women in receipt of widow's pension or deserted wife's benefit/-allowances or unmarried mother's allowance are exempt. Part-time workers are, in general, liable for reduced contributions of only 2%, but those who also hold a Medical Card are also exempt from these.

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APPENDIX

TABLE 1
Interaction between exemption limits and FIS: 1987 and 1989

1987

no of adults	no of children	50% relative poverty line*	exemption limit*	marginal relief limit*	FIS limit*
1	0	42 75	50.79	n.a.	0.00
2	0	70.79	101.57	110.00	0.00
2	1	85.07	101.57	110.00	104.00
2	2	99.18	101.57	110.00	126.00
2	3	113.29	101.57	110.00	148.00
2	4	127.40	101.57	110.00	170.00
2	5	141.50	101.57	101.57	192.00
2	6	155.61	101.57	110.00	192.00

1989

no. of adults	no. of children	50% relative poverty line* (updated)	exemption limit*	marginal relief limit*	FIS limit*
1	0	46.65	57.49	57.49	0.00
2	0	77.44	114.99	122.17	0.00
2	1	92.84	118.82	130.38	112.00
2	2	108.24	122.65	138.59	136.00
2	3	123.63	126.49	146.81	160.00
2	4	139.03	130.32	155.02	184.00
2	5	154.42	134.15	163.23	208.00
2	6	169.82	137.98	171.45	218.00

*£ per week.