

# Tax and Transfer Tensions: Designing Direct Tax Structures\*

John Creedy<sup>†</sup>

## Abstract

Direct tax structures are regularly revised and public debates over changes are typically heated. This is not surprising when it is realized that tax changes usually involve losers as well as gainers. Also, taxes affect the behaviour of individuals and families in ways that are not easy to predict, but which impose severe constraints on the ability of governments to achieve their objectives. For example, attempts to redistribute income using progressive taxes are restricted by adverse incentive effects on both low- and high-income groups. Attempts to help one group of individuals often have unintended consequences on other groups. Views about the role of a tax and transfer system also vary substantially but in debates the basic value judgements which influence policy recommendations are seldom made explicit. This non-technical paper attempts to clarify the main tensions involved in tax planning and to explain why consensus is unlikely ever to be achieved.

**JEL Classification:**

**Keywords:**

---

\*I am grateful

<sup>†</sup>Department of Economics, University of Melbourne, Victoria 3010, Australia. E-mail: jcreedy@unimelb.edu.au.

# 1 Introduction

This paper is concerned with the question of why it is so difficult to design a direct tax and transfer system having widespread support and longevity. Tax structures, particularly their transfer components, are regularly revised and public debates over reforms are typically heated. It is perhaps not surprising that the topic is prominent in debates: taxes affect everyone and transfer expenditure is now a very large proportion of total government expenditure. Furthermore, tax changes inevitably involve losers as well as gainers.

Attempts to clarify the main tensions involved in tax planning and to explain why consensus is unlikely ever to be achieved could follow two broad paths. First, ‘positive’ analyses attempt to explain the determinants of actual choices. This may involve the examination of public choice mechanisms and voting behaviour. It may also involve the analysis of bureaucratic behaviour, or the characteristics of politicians who need to compromise and do not necessarily act in disinterested ways. Interesting historical comparisons could, for example, be explored.

Secondly, a ‘normative’ approach could be followed. Instead of attempting to explain actual behaviour, this involves welfare economics which essentially investigates the implications of adopting particular value judgements. It explores the tax and transfer structure that would arise from specified basic values, and of course there is unlikely to be a consensus regarding such values. Value judgements are inevitable in the design and evaluation of tax structures: there is no such thing as a value-free ‘optimal’ structure. The wide range of elements means that there is considerable scope for conflicting objectives, which are not simply different but imply mutually inconsistent policies. Although views about the role of a tax and transfer system vary substantially, in debates the basic value judgements which influence policy recommendations are seldom made explicit.

However, normative analyses cannot avoid the ‘positive’ treatment of individuals’ behaviour. Taxes and transfers affect the behaviour of individuals and families in ways that are not easy to predict, but which impose severe constraints on the ability of governments to achieve their objectives. For example, attempts to redistribute income using progressive taxes are restricted by adverse incentive effects on both low-income and high-income groups. Attempts to help one group of individuals often have unin-

tended consequences on other groups. In short, ‘incentives matter’ and it is necessary to have some idea of how behaviour is likely to change when the incentive structure changes. These reactions and interdependencies are of course of special interest to economists.

The present paper follows the second path of attempting to clarify the role of value judgements in designing tax and transfer systems. There are really two types of tension, arising from conflicting values and from the practical constraints on policy arising largely from the government’s budget constraint. Section 2 begins by producing what is essentially a taxonomy, which decomposes the elements into a range of components where value judgements are required and where constraints are imposed on the ability of governments to pursue these aims. This allows the role of wide range of value judgements and the specifically economic components to be separated. Then Section 3 looks at some simple forms of tax structure to illustrate how a range of problems and conflicts can arise. Brief conclusions are in Section 4.

## **2 Elements of the Problem**

This section discusses the wide range of aspects of tax design where value judgements are relevant and where constraints are imposed on governments. A framework, or taxonomy, is produced allowing the various aspects to be decomposed.

### **2.1 Some Initial Considerations**

Governments have the basic ‘power to tax’ as part of their constitution, but the kind of tax and transfer system chosen depends on broad attitudes to a range of aspects relating to the role of the state. These include the following.

- The tax structure is influenced by views regarding the extent to which governments may intervene in peoples lives. Tax administration involves obtaining private information. It may, for example also involve forcing people to take particular jobs. Attitudes towards these aspects are influenced by views regarding certain basic freedoms or rights. A related issue here is the level of government chosen to carry out necessary administration.

- The ways in which individual responsibilities are perceived are important. For example, unemployment has variously been judged as a failing of individuals, or alternatively as a ‘problem of industry’. This affects the extent to which people are categorised as being ‘deserving poor’ or ‘non-deserving poor’.
- An important factor is the view taken of intra-family intra- and inter-generational transfers versus a state system of support involving compulsory taxation. This has been particularly relevant in the context of aged care and disability care, where there have been substantial changes in attitudes over time.
- A choice must be made regarding those eligible for the receipt of transfers, or payment of taxes. This may involve the choice of a social insurance type of system whereby unemployment and sickness benefits and pensions are available only to those who have a history of tax (or ‘national insurance’ contributions). Alternatively, eligibility may be related to nationality or residence requirements.
- A judgement must be made regarding the tax base. This may be some concept of income, consumption, or wealth. The decision here is influenced by views regarding the main aims of the tax system, and often a variety of tax bases are used. A ‘comprehensive’ income concept involves the awkward treatment of unrealised capital gains and the coverage of such a tax.

## 2.2 Alternative Basic Aims

It is very hard to obtain a precise specification of attitudes towards the basic aims of a tax and transfer system. However, the following broad aims may be distinguished.

- The view may be taken that poverty alleviation is the only or main aim of a transfer system. But even within this choice there are further difficult decisions, including the specification of a poverty line and whether this is regarded in relative or absolute terms. Also the measurement of poverty is not straightforward. The most commonly used measure is a ‘head-count’ measure, but some judges may prefer to allow for the depth of poverty and inequality among those considered to be in poverty. Even among those whose main concern is poverty alleviation, there can be substantial disagreement. For example, in the 19th century, poverty

was seen by many people as the only legitimate concern, but the poverty line was set at a low subsistence level, with emphasis on avoiding adverse incentive effects, using the concept of ‘less eligibility’. However, with a Rawlsian-type of maxi-min approach, arising from extreme aversion to inequality, the objective is to raise the minimum level as high as possible, without any regard to the wider effects on the rest of the income distribution.

- Concern may be with redistribution more broadly defined. Again, the measurement of inequality is far from straightforward, involving complex value judgements. If redistribution as a major aim is combined with a desire to provide a social insurance type of scheme, with sickness, unemployment and pensions based purely on membership of a labour market category, the compulsory risk-pooling with heterogeneous individuals produces some redistribution which is very hard to isolate from more systematic forms.
- Some judges attach priority to other objectives, such as shifting some people into work, or increasing the labour supply of those working few hours. Alternatively, they may wish to encourage things like investment in education. Judges may have differing attitudes towards the family.

### **2.3 Constraints on Policy Choices**

Although the government has the power to tax, there are severe constraints on its ability to raise revenue and to control the number of those claiming benefits. These aspects give rise to what are generally referred to as adverse incentive and moral hazard problems. The following features are relevant.

- A tax and transfer system inevitably involves a reduction in labour supply, leading to lower revenue and more benefit recipients. In the low-income ranges, there is a reduced incentive to participate in the labour market, and in the higher-income range, there is an incentive to reduce working hours. Similarly, transfer systems affect retirement incentives, as well as those affecting saving for retirement. There are usually adverse incentive effects on non-target groups: for example, an attempt to shifting some people into work or induce others to work longer

hours may reduce the incentives of higher-income recipients, whose tax rates are increased by the need to raise additional tax revenue.

- Incentive effects apply to many areas other than simply the supply of working hours or effort. Tax structures can affect the choice between employment and self employment, educational choices, the incentive to shift from income to capital gains, and risk-taking. The attempt to increase retirement incomes, for example through a compulsory superannuation contribution scheme, may reduce other forms of private savings. Other incentive effects include family and household formation, fertility decisions and of course internal and international migration.
- The incentive and moral hazard effect imposes severe constraints on the ability to redistribute income or alleviate poverty. There is indeed some limit to the revenue which can be raised by any tax structure. This may itself depend not only on the method of raising revenue but on non-transfer expenditure. For example, labour supply may be affected by tax-financed expenditure on education and health, or infrastructure projects. Constraints also include basic perceptions of taxable capacity, the willingness to impose conditions on benefit recipients or impose structures to obtain private information, the ability and willingness to monitor the behaviour of benefit recipients, a tolerance of ‘waste’ (in terms of administration costs, or transfers that are higher than ‘necessary’ or otherwise not well-targeted).

The existence of such constraints implies that the attempt to achieve some stated aim in devising an ‘ideal’ tax structure must be formulated as a constrained optimisation problem. That is, some evaluation function, which attaches weights to certain objectives such as equity and efficiency (appropriately defined), is maximised subject to at least a government budget constraint. This formed the starting point of the modern theory of ‘optimal taxation’.

## **2.4 Conceptual Choices: What, When, Who?**

Mention was made above to the difficulties of defining and measuring concepts such as poverty and inequality. But even before such problems can be tackled, it is first

necessary to make a number of fundamental conceptual choices. These can be described briefly as the ‘what, when and who’ of the study, as follows.

- The choice of what to measure concerns what is often called the ‘welfare metric’. This may be consumption, some income measure, or a broader measure such as utility (or ‘money metric utility’) which allows for the benefits of leisure time. A distinction can be made between approaches that are ‘welfarist’, in that policies are judged in terms of things that are thought to matter directly to the individuals concerned, and those which are ‘non-welfarist’. The latter includes, for example, concern for an income-based measure of poverty or a specified number of working hours.
- A choice must be made regarding the appropriate time period of measurement: should income or consumption be measured in weekly or annual terms, or over a longer time period? The chosen time period may differ depending on whether the concern is primarily about poverty or inequality. For poverty, a short period may be chosen, whereas for inequality, a judge may be more concerned with longer time periods. In the latter case, transitory variations are not considered important, and here a distinction between consumption and income also becomes less important. In examining redistribution it is not easy to separate intra-generational and inter-generational income transfers, since many transfers may involve income shifting over periods of the life cycle as well as transfers between individuals. The redistribution arising from risk pooling in an insurance scheme may be viewed quite differently from more systematic forms of redistribution.
- A decision must be made regarding the basic unit of analysis, whether this is the individual, the household or some other concept. In selecting a unit, regard must also be made to the treatment of income and consumption sharing within families and households. This involves the choice of adult-equivalence scales, where (without further direct evidence) an assumption is usually made of equal-sharing (so that each person is given, say, income per adult equivalent). The choice of scales also cannot avoid value judgements. It is also possible to select the ‘equivalent adult’ as the unit of analysis.

## 2.5 Measurement and Modelling Problems

Having made decisions regarding basic aims and concepts, many problems remain regarding the evaluation of policies. There is much room for disagreement over likely orders of magnitude involved, even among those judges with similar value judgements. Some of these problems are listed here.

- Many economic variables are not easily measured. For example, given the role of durable goods, consumption over a specified period cannot be directly measured, unlike expenditure. The extent to which income or consumption is actually shared in households is seldom known (some goods are ‘public’ within households but ‘private’ between households). Also income, and particularly wealth and unrealised capital gains, are notoriously difficult to measure. These measurement problems are increased when a longer period is considered relevant, given the short time-frame used by most surveys.
- Despite the importance attached to the incentive effects of taxes, modelling these responses presents huge challenges. The various potential responses (concerning savings, labour supply, the form of income, employment status, education, household formation, fertility and so on) all present their own modelling, data and estimation difficulties. Furthermore, some highly innovative tax reforms may be so far from previous experience that the prediction of responses is particularly awkward. In addition the degree to which individuals fully take up benefits to which they are formally entitled is not known. The availability of data, and their limitations, play an important role in understanding these responses.
- Responses to administrative changes, for example involving the severity to which various rules are interpreted by tax and benefit officers, are also extremely difficult to predict but may be important.
- In view of the measurement problems, reliance must inevitably be placed on assumptions and guesses about orders of magnitude, and these can be expected to differ even among those judges with similar value judgements. In particular, views about tax incidence are important, but difficult to quantify precisely, with the consequence that tax shifting is typically neglecting in policy design.

### 3 Some Simplified Comparisons

It may be thought that – given explicit statements regarding the aims and incentive effects of taxes and transfers – it would be possible in principle to derive (using the methods of constrained maximisation) an ‘optimal’ structure. However, even for extremely simple specifications of the economic environment in simple economic models, and fully specified value judgements, this problem is largely intractable and very few clear results can be derived. Numerical methods of solution can be used, but the results are unable to provide clear practical policy guidance given the simplicity of the models. However, they have helped to emphasise the role of incentive effects and the resulting constraints on income redistribution, and may even have influenced the widespread flattening of rate structures through reductions in top marginal rates.

The present section therefore takes a piecemeal approach by considering some important features which are demonstrated using simple diagrams.

In practice there are of course many types of transfer payment or benefit, some of which have overlapping qualifying conditions, and some benefits are taxable while others are not. They are often administered by different agencies, which can lead to unintended consequences for overall tax rates and can produce jumps and discontinuities in the relationship between net (after tax and transfer) and gross (pre tax and transfer) income. However, to highlight basic tensions it is useful to consider simplified forms of tax structure. The present section examines some of these tensions within a simple framework where only individuals are relevant (the existence of families and households are ignored) and it is assumed that all individuals have no non-income differences which matter (that is, they have no special needs relating to individual characteristics). All difficulties relating to the income concept are also ignored.

#### 3.1 The Rate Structure

A full description of any tax and transfer structure is provided by the way in which marginal and average effective tax rates vary over the range of relevant incomes. A progressive structure is one for which there is an increasing average rate over all incomes: this does not require marginal rate progression (an increasing marginal rate). The degree of progressivity depends on the income distribution as well as the tax structure.

Figure 1 shows a general tax function in terms of the relationship between net and

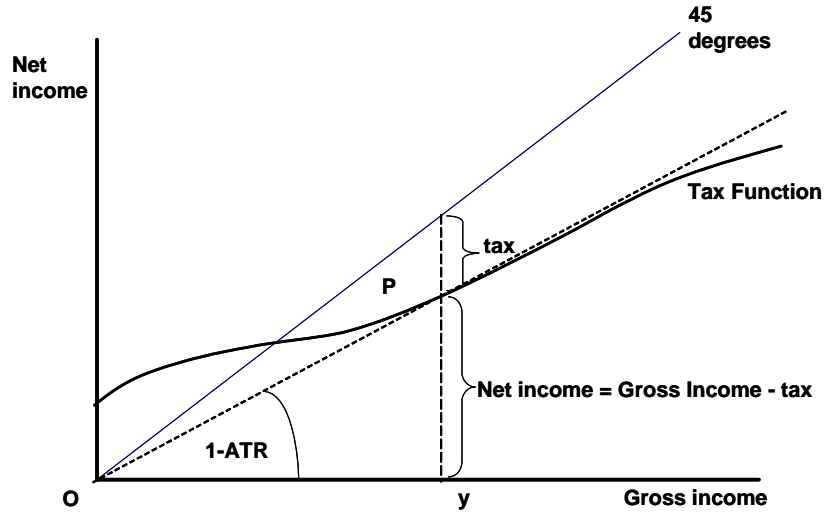


Figure 1: A Tax Function

gross income,  $z$  and  $y$  respectively. The 45 degree line represents the absence of a tax or transfer. If the tax paid (which may of course be negative since it includes transfers) is represented by  $T(y)$ , then  $z = y - T(y)$  and the average tax rate at any point is given by  $ATR = T(y)/y$ . Hence  $1 - T(y)/y = (y - T(y))/y = z/y$  and the slope of a line from the origin to a point on the schedule, at say  $P$  in Figure 1, is a measure of  $1 - ATR$ . The marginal tax rate is given by  $MTR = dT(y)/dy$  and so the slope of the tax function at the point is equal to  $1 - MTR$ . Redistribution is influenced by the average rate schedule while incentives are reflected in the marginal rate schedule.

### 3.2 The Basic Income–Flat Tax

The simplest possible type of tax structure is represented by a straight line in this type of diagram. Suppose there is a proportional income tax applied to all (non-transfer) income; this is shown in Figure 2. In addition each individual receives an unconditional transfer payment, or basic income,  $b$ . This shifts the tax schedule to the line BC. This simple structure goes under a variety of names (depending partly on how the administration of the scheme is described), but the clearest description is of a ‘basic income–flat tax’, or BI–FT.

The marginal tax rate,  $t$ , is constant along the whole of the range BC, but the

average tax rate is initially negative until the break-even level of income,  $y_B$ , is reached. The two rates are illustrated in Figure 3.

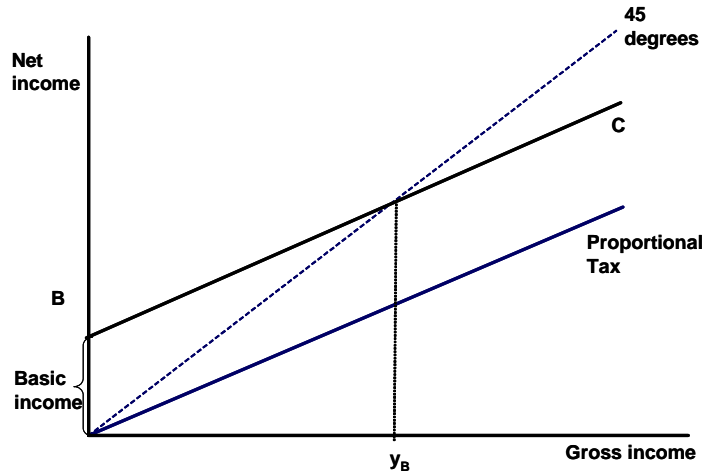


Figure 2: The Basic Income – Flat Tax

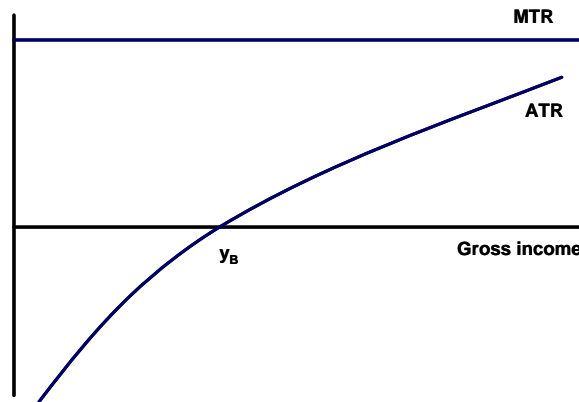


Figure 3: Marginal and Average Tax Rates with BI-FT

This kind of tax structure is clearly capable of being highly redistributive despite the constant marginal tax rate. The existence of a basic income makes it possible for some individuals to decide not to participate in paid employment (if they otherwise face a very low wage rate).

It is not possible to select values of  $b$  and  $t$  independently. This is because of the existence of the government budget constraint, whereby income tax revenue must be

sufficient to pay for the transfer payments made to each person. It can be seen that the tax rate must be equal to the ratio of the basic income to arithmetic mean income, bearing in mind that mean income is also affected by the tax parameters through incentive effects. Thus for a basic income of, say, one half of average income, it is necessary to have a marginal tax rate of 50 per cent, and if the basic income is a proportion, 0.3, of average income, the tax rate must be 0.30.

The BI-FT clearly has many advantages of simplicity, but the question arises of whether it is actually consistent with any particular set of value judgements and properties of the population. Early studies in the ‘optimal tax’ tradition, based on the (constrained) maximisation of an evaluation function defined in terms of individuals’ utilities (viewed as functions of leisure and net income), and which involved a trade-off between equity and efficiency, did indeed produce a tax structure that is approximately linear. The ‘welfarist’ objective clearly tolerates the existence of non-workers and is concerned with inequality rather than an income-based poverty measure. However, further analysis has shown that the result is not robust when some assumptions, for example concerning the basic distribution of wage rates in the population and the type and degree of inequality aversion of the judge, are relaxed.

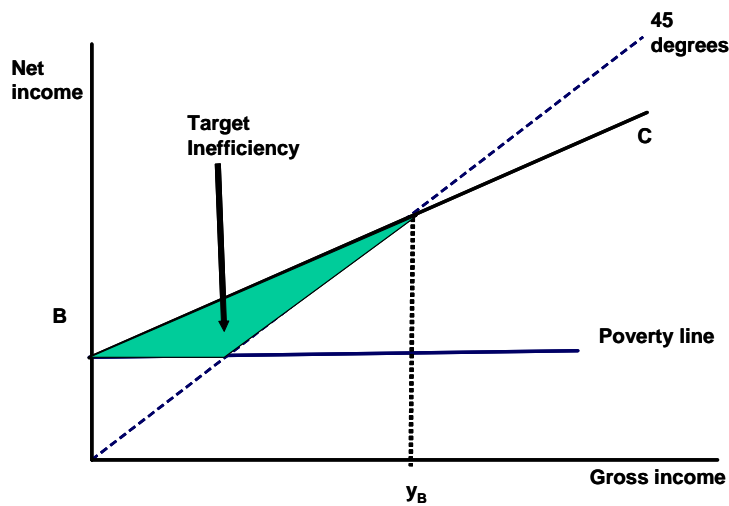


Figure 4: Target Inefficiency of Transfers

Those people who regard poverty alleviation as the main objective of a transfer system are critical of the BI-FT because, if  $b$  is set at the agreed poverty line, the

unconditional basic income pays many individuals amounts which are regarded as ‘excessive’. This is illustrated in Figure 4, where the shaded area represents a degree of ‘target inefficiency’. That is, if the objective is to prevent people falling below  $b$ , these transfers need not be paid and the tax rate can be much lower.

### 3.3 Means-Tested Benefits

A tax structure which deals only with poverty alleviation (that is, has a ‘non-welfarist’ objective) is shown in Figure 5, and this is referred to as a minimum income guarantee. This requires an income tax structure with a tax-free threshold, along with means-testing of the transfer payment. The tax-free threshold must have a particular relationship with the guaranteed minimum income and the income tax rate, if discontinuities in the tax schedule, ABC, are to be avoided. The implied tax rates are shown in Figure 6, where the means-testing implies that all those below the threshold income of  $y_T$  face a marginal rate of 1. The marginal tax rate above  $y_T$  can be lower than in the BI-FT having the basic income equal to the guaranteed minimum. However, the existence of a marginal tax rate of 1 over a large range of income generates a strong work disincentive. Those in favour of the minimum income guarantee argue that it is better to have a very high marginal rate applied to as small a number of people as possible, as this enables the marginal rate facing middle- and higher-income people to be correspondingly lower.

This point highlights a particular tension in tax policy design. The extreme adverse incentives created by the minimum income guarantee may be mitigated to some extent by reducing the marginal tax rate applied to benefit recipients. This is achieved by reducing the benefit abatement, or taper, rate applied to the means-tested transfer payment below 100 per cent. The result is shown in Figure 7 as a modified minimum income guarantee, where it is assumed that the tax and transfer parameters are such that the two linear segments of the relationship between net and gross income meet at the single point, B.

This reduces the marginal tax rate facing benefit recipients, but it does not unequivocally lead to an overall increase in labour supply. This is because the reduced means testing means that more people receive benefits: hence an additional group of ‘medium income-earners’ face an increase in their effective marginal tax rate. Hence

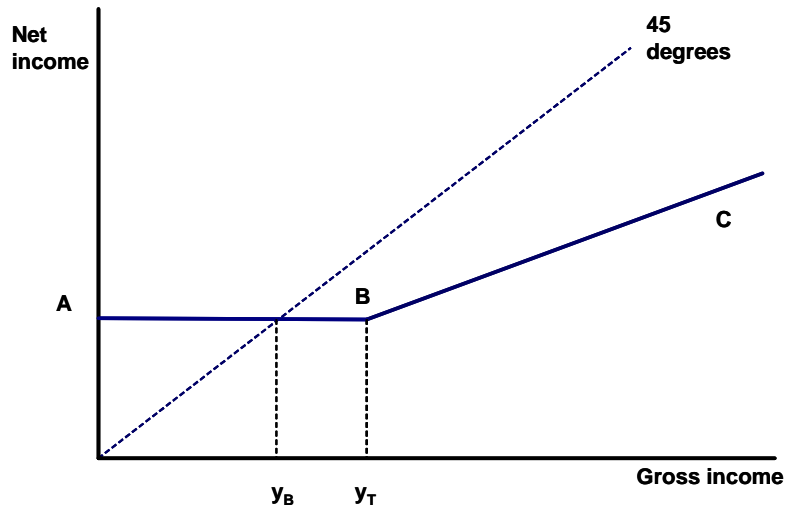


Figure 5: A Minimum Income Guarantee

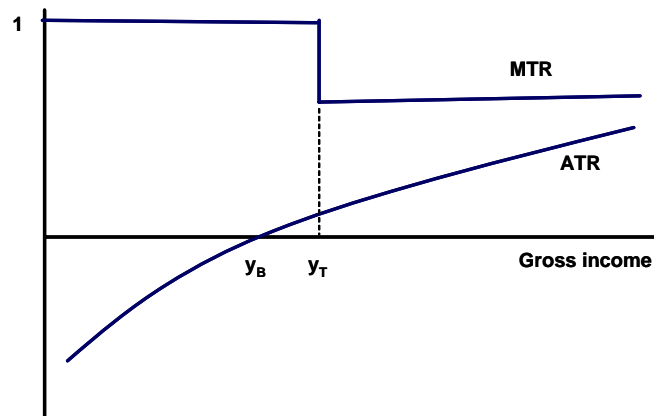


Figure 6: Marginal and Average Tax Rates with MIG

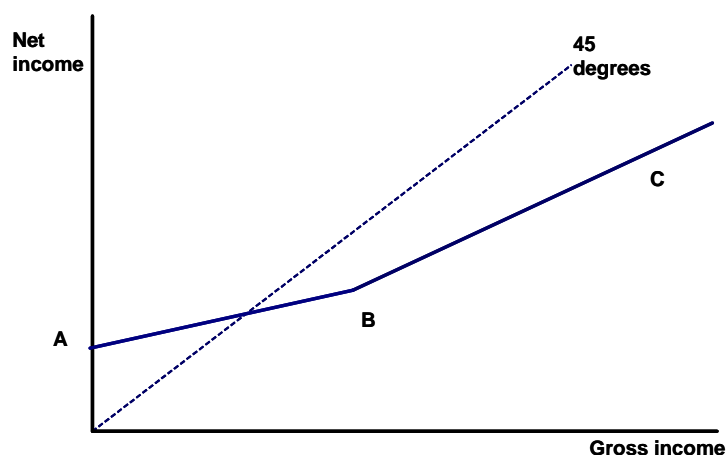


Figure 7: A Modified Minimum Income Guarantee

the attempt to improve the labour supply incentives of one group of people cannot avoid reducing the incentives facing another group. The reduced means testing is also likely to require a change in the marginal rate for those who only pay income tax, in view of the government's budget constraint. It is not possible to say, a priori, which direction the rate is likely to move.

Some judges in recent years have attached importance to the desire to induce individuals to work for a specified minimum number of hours, using a substantial increase in a transfer payment at that hours level. Notwithstanding the problems of monitoring hours levels and dealing with variability in time worked by casual workers, such a scheme may indeed succeed in raising the labour supply of groups of lower-wage individuals, but inevitably reduces the labour supply of higher-income earners above the threshold, for which the effective marginal tax rate is higher than otherwise.

## 4 Conclusion

This paper has considered the question of why consensus regarding the design of a tax and transfer scheme is unlikely to be reached. It was shown that a large number of value judgements are involved. These judgements involve not only the basic aims of a tax system, but a wide range of component elements. Many of these views are mutually inconsistent. Also, considerable information is needed about individuals' behaviour

and characteristics, and in the absence of reliable empirical evidence, planners often have quite different perceptions about orders of magnitude.

By examining very simple structures, the paper illustrated the difficulties of balancing different objectives. A desire to be generous to those individuals who face very low wage rates (or are unable to work for various reasons) inevitably means that the number of benefit recipients increases and the tax required to raise revenue has adverse incentive effects on other individuals. Benefits and tax rates cannot be increased without limit. Means-testing of benefits may be introduced in order to restrict the number of eligible recipients, avoid providing benefits to middle- and high-income groups, and avoid a high tax rate being imposed on those groups. But it damages the incentives facing the poor: this is sometimes referred to as the ‘poverty trap’. However, an attempt to reduce the severity of means-testing by reducing taper or benefit abatement rates must inevitably raise the marginal tax rate facing those ‘middle income’ individuals who become eligible. A careful ‘balancing act’ is therefore needed, making an equilibrium highly elusive.

The question naturally arises of how economists can contribute to debates on tax reforms. Regarding different value judgements, the important point is one made long ago in a book by the famous economist Lionel Robbins<sup>1</sup>, that economists should investigate the implications of adopting clearly stated value judgements, rather than attempting to impose (in a professional capacity) their own values. There is clearly a need to develop methods of modelling the incentive effects of different tax structures, in ways which accommodate the considerable heterogeneity which exists among individuals. Here economists have an obvious absolute and comparative advantage. In practical policy design, it is argued that a valuable role can be played by behavioural microsimulation models, while at the same time being aware of their limitations. All models have their limitations: indeed, it is not possible to construct a single model capable of handling all types of personal tax problem. Sometimes, depending on the context, smaller and more restrictive models can be useful in highlighting important interdependencies. In reporting results, there is clearly a need to provide a wide range of analyses, bearing in mind the various types of criteria used by different judges to evaluate policies. In fact a valuable role can be played by negative results here: that is, it may be far from obvious that certain objectives are mutually inconsistent. In this

---

<sup>1</sup>This is: *An Essay on The Nature and Significance of Economic Science* (1932) London: Macmillan.

way economists can provide the kind of information which allows readers to form their own conclusions.