

Means-testing and tax rates on earnings*

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April 8, 2008

*This paper has been prepared for the Mirrlees Review - Reforming the Tax System for the 21st Century, <http://www.ifs.org.uk/mirrleesreview/>. Mike Brewer, Institute for Fiscal Studies, mike_b@ifs.org.uk, Emmanuel Saez, saez@econ.berkeley.edu, University of California, Department of Economics, 549 Evans Hall #3880, Berkeley, CA 94720, Andrew Shephard, Institute for Fiscal Studies, andrew.s@ifs.org.uk. We thank Stuart Adam, Tony Atkinson, Kate Bell, Richard Blundell, Hilary Hoynes, Paul Johnson, Guy Laroque, Costas Meghir, James Mirrlees, Robert Moffitt, James Poterba and numerous conference participants for helpful comments and discussions. Saez acknowledges financial support from the National Science Foundation grant SES-0134946. The Survey of Personal Incomes, the Labour Force Survey, and Family Expenditure Survey, the Family Resources Survey and the General Household Survey datasets are crown copyright material, and are reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland. The SPI, LFS and GHS data-sets were obtained from the UK Data Archive, and FRS from the Department for Work and Pensions, and the FES from the Office for National Statistics. None of these government department nor the UK Data Archive bears any responsibility for their further analysis or interpretation.

1 Summary and key findings

The setting of income tax rates and the generosity and structure of income support programmes generate substantial controversy among policy-makers and economists. At the centre is a trade-off between the goals of equity and efficiency: governments want to transfer resources from the rich to the poor; on the other hand, such transfers reduce people's incentive to work.

The key insight from the standard "optimal income tax model" developed by James Mirrlees is that marginal rates of tax and benefit withdrawal should be higher when people's choices of how much to work are relatively unresponsive to them and when the government is relatively keen to redistribute resources from rich to poor. Furthermore, the government should apply high marginal rates at points in the earnings distribution where there are few taxpayers relative to the number of taxpayers who have earnings exceeding this amount. Using data on the UK earnings distribution, we show that the optimal structure of marginal rates in this simplified model has a U-shaped pattern, with high marginal rates imposed on high and low earners and lower marginal rates on those in the middle. We show how this structure changes as both the assumed responsiveness of hours of work and the government's assumed preferences for redistribution vary.

The way that incomes have responded to the large changes in top marginal tax rates over the past 40 years suggests that if the richest 1% see a 1% fall in the proportion of each additional pound of earnings that is left after tax, then the income they report will rise by less than half that - only 0.46%. Although a tentative estimate, this suggests that the government would maximise the revenue it collects by imposing an overall marginal rate on the highest earners of 56.6%, very close to the 53.0% currently charged in the UK (including income tax, national insurance contributions and indirect taxes). So there does not seem a powerful case for increasing the income tax rate on the very highest earners, even on redistributive grounds - it would not generate much if any extra revenue to transfer to the less well off.

When the optimal tax model is enriched by allowing individuals to respond to taxes and benefits by deciding whether or not to work, as well as how hard, then the optimal structure of marginal rates changes dramatically. In particular, when the decision whether to work becomes relatively more important to the decision about how much to work, then marginal rates and the proportion of gross income taken in tax and withdrawn benefits when people

enter work should be set low (and perhaps even negative) for potential low earners rather than set high as the standard model suggests. We also discuss how the design of taxes and benefits affecting an individual should be affected by the presence of a co-resident partner or dependent children, although it is difficult to reach definitive conclusions. We argue that the practical operation of benefits and tax credits for low-income families is important and that they would be of greatest help to beneficiaries if they were assessed over short periods and paid promptly without retrospective adjustment.

These insights from optimal tax theory are contrasted with the work incentives inherent in the current UK tax and benefit system. Four key deficiencies are identified:

1. The amount of gross income taken in tax and withdrawn benefits when people enter work at low earnings is too high: for most groups it is close to 100% before individuals are entitled to the working tax credit, and they remain high even with it.
2. The marginal rate of 73.4% that many low to moderate earners face when having tax credits withdrawn is likely to be above the optimum rate even if people's decision to work a little harder is relatively unresponsive.
3. Housing Benefit, the main means-tested programme through which the government helps people on relatively low incomes with their housing costs has an extremely high withdrawal rate. This exacerbates the problem of undesirably high marginal rates. It is also hard to administer and is not claimed by many working families entitled to it.
4. While the system for administering income tax and national insurance contributions in the UK is simple and efficient, tax credits, housing benefit and council tax benefit are all burdensome to claim, relatively expensive for the government to administer, and prone to significant fraud and error.

Given this diagnosis, we suggest a set of changes to the existing tax and benefit structure that could be made immediately based on the lessons from our analysis. Our package of "immediate reforms" involves:

- Increasing the amount people can earn before they have means-tested benefits withdrawn. This would increase the financial gain to entering work at low earnings;

- Increasing the amount that second earners can earn before a family's tax credits are withdrawn. This would improve the financial incentive for a second earner to enter work, especially if they have children;
- Reducing the rate at which child and working tax credits are withdrawn with every extra pound earned;
- Targeting increases in working tax credit on groups other than lone parents.

This would cost around £9 billion per year. If it had to be financed from within the income tax and benefit system, the money could be raised by cutting child benefit and/or increasing the basic rate of income tax. Neither would undo the objectives of the reform package to improve work incentives, although both would pose big political challenges.

We also suggest a more radical and comprehensive plan for reforming the UK household tax and benefit system that attempts to deal not only with these work incentive issues, but also the administrative failings that we identify. Our plan replaces the existing piece-meal benefits for low-income families (income support, working and child tax credits, housing benefit and council tax benefit) with a single Integrated Family Support (IFS) programme which provides stronger and simpler incentives for work at the bottom, reduces compliance costs for families, and is means-tested by employers' withholding from earnings in the same way as National Insurance contributions. We show how, after including an assessment of the behavioural responses, the IFS manages to redistribute more income with minimal impact on total earnings and total net tax revenue, by targeting net tax cuts where incentives to work are currently at their weakest.

2 Introduction

The setting of income tax rates, and the generosity and structure of income support (or transfer) programmes generate substantial controversy among policy-makers and economists. At the centre is an equity-efficiency trade-off. On the one hand, governments value redistribution, and so want to transfer resources from the rich to the poor, usually by taxing the incomes of the rich and subsidising the incomes of the poor. On the other hand, this redistribution is generally costly in terms of economic efficiency because of the disincentive effects of taxes and transfers (we explain this in more detail in section 3). The costs arise for two reasons : first,

raising income taxes may weaken the labour supply and entrepreneurship incentives of middle and high income individuals who face the taxes. Second, income transfer programmes may weaken the labour supply incentives of their recipients. These two responses can substantially raise the cost of improving the living standards of low income families.

The goal of this chapter is to provide an overview of the way economists think about the design of taxes and benefits affecting households, and to apply the lessons from this literature to the design of the UK tax and benefit system.

In economics research, the problem of designing taxes and benefits is tackled in two steps. The first step is a positive analysis, where economists develop models of individual behaviour to understand how individuals' work decisions respond to taxes and benefits. The central part of the positive analysis is the empirical estimation of models of individual behaviour, and there is a very broad literature that tries to estimate the size of the behavioral responses to taxes and benefits.¹

The second step is the normative analysis, or optimal policy analysis. Using models developed in the positive analysis, the normative analysis investigates what structure and size of the tax and benefit system would best meet a given set of policy goals; following Mirrlees (1971), economists call this line of research "optimal tax theory". Despite its name, optimal tax theory concerns itself just as much with the design of benefits as it does the setting of income tax rates: one of the key concepts of optimal tax theory is that of a net tax function, whereby people with high incomes pay some of that income in positive taxes to the government, and people with a low income receive money from the government (by paying negative taxes); no conceptual distinction is made between net recipients from and net contributors to the state's finances.²

At its heart, optimal tax theory says that the two desirable features of a tax and benefit system are that it be fair, and that it minimise disincentive effects.³ But the problem of having two desirable features is that one has to know how much weight to give to each. For example, a poll tax (under which all individuals have to pay the same level of tax) might have

¹The way that these models are estimated, and the key insights, are summarised in Meghir and Phillips, this volume.

²One difference between the tax system and the transfer system is that the former is usually cheaper to administer, and these distinctions can be reflected in more complicated optimal tax models.

³More complicated models can allow for other desirable features: one might be that a tax and transfer system is cheap to administer; Shaw et al, this volume, consider how this alters optimal tax models.

no disincentive effects, but is rather unfair to those on low incomes. As Heady (1993, p17) says, “the approach of the optimal tax literature is to use economic analysis to combine these criteria into one”. It does this by saying that the objective of the government when designing the tax and benefit system should be to maximise social welfare (subject to a need to raise a certain amount of revenue). Precisely how social welfare is expressed is not relevant at this stage, but the idea is that it reflects in a single index (or number) the desire both to have the economy as large as possible (because this directly increases people’s well-being) but also to have the income distributed as equally as possible. The expression for social welfare precisely quantifies the trade-off between these two desiderata: returning to the previous example of an economy with only a poll-tax, replacing that with an income tax which raised the same amount of money would give a more equal distribution of income, but - if there any disincentive effects to taxation - a smaller economy.

The normative analysis is crucial for policy-making because it shows how taxes and benefits should be designed in order to best attain the goals of the policy-maker. In particular, the normative analysis allows one to assess separately how changes in the redistributive criterion of the government, and changes in the size of the behavioural responses to taxes and transfers, affect the optimal tax and benefit programme. Conversely, the normative analysis makes it explicit that one cannot hope to say how best to design taxes and transfers without both knowing how individuals will respond, and without specifying what one is trying to achieve overall. Often, these two elements are confused in policy debates: right-of-centre policy-makers rarely state explicitly that they have little taste for redistribution, but instead justify their lack of taste for redistribution because they believe that the adverse behavioural responses to high taxes or generous benefits are large. Conversely, left-of-centre policy-makers emphasize the redistributive virtues of benefits and assume that adverse behavioural responses to these and the high tax rates needed to fund them are negligible.

We provide this overview as follows: section 3 introduces the standard optimal tax model developed in Mirrlees (1971). This shows directly how the the optimal tax and benefit system is determined by both the social welfare criterion used by the government and the size of behavioural responses to taxation. Despite the simplifications inherent in the model, we can use it to analyse the optimal tax rate that should apply to top incomes, where we present new, albeit tentative, evidence on the response of top incomes to the large changes in top marginal

tax rates that have taken place in the UK over the last 40 years. Section 4 extends the optimal tax model to allow for labour supply participation effects, and shows that allowing for such responses can drastically change the optimal tax system affecting low income individuals: instead of traditional welfare programmes with high withdrawal rates, large in-work benefits such as Working Tax Credit in the UK or the Earned Income Tax Credit from the US, which can have very low or negative withdrawal rates, can be optimal.⁴ We also discuss the issue of migration and tax design, which can be dealt with in optimal tax models in a similar manner to the issue of labour market participation. Throughout Sections 3 and 4, we make use of the summary of the literature on the behavioural response to taxation provided in Meghir and Phillips, this volume.

In Section 5, we analyze a set of additional issues relevant to the design of the tax and benefit system affecting households. First, we discuss how the family should be taxed: the models considered in sections 3 and 4 abstract from family issues, but a majority of adults in reality live in couples, and so can be assumed to pool income to some extent. We also discuss how the presence of children should be reflected in the optimal tax design. Lastly, we discuss administrative and operational issues concerning benefits.⁵ Section 6 describes how the main elements of the current UK personal tax and benefit system affect incentives to work and earn more and, in Section 7, we provide a critique of the UK tax and benefit system, and set out the direction of reform suggested by the insights from optimal tax theory, and the latest evidence on the behavioural response to taxation. To crystallise ideas, we propose specific changes that could be implemented in the short-run. But most optimal tax theory uses simplified models which leave aside a number of important practical issues such as administrative burden for the government and employers, and ease of use for families.⁶ Those issues have always been important in practice, and the recent “behavioral economics” literature is starting to incorporate them in the analysis. Therefore, we go further and propose a longer-term reform that builds on the short-run changes to incentives by addressing the main practical issues with the current benefits in the UK. Our plan replaces the piece-meal benefits for low-income families (income support, working and child tax credits, housing benefit and

⁴To anticipate our discussion in section 5, the WTC can lead to negative PTRs, but not negative METRs, whereas the EITC can lead to negative METRs as well.

⁵Shaw et al, this volume, discusses administrative and operational issues affecting tax design.

⁶A number of those issues are discussed in more detail in the chapter by Shaw et al, this volume.

council tax benefit) into a single *Integrated Family Support* programme which provides stronger and simpler incentives for work at the bottom, reduces compliance costs for families, and is provided “as-you-earn” and administered in the same way as social contributions through the PAYE withholding system. We show how this can be done in a revenue-neutral fashion, and estimate the behavioural responses to such a reform.

3 The standard optimal income tax model with intensive responses

This section presents the standard model of optimal income tax, based on Mirrlees (1971), in which individuals respond to the tax and benefit system by choosing only how much to work. We then give two applications of the model to the UK:

- first, we can derive an expression for the optimal top marginal tax rate (ie, the marginal tax rate facing the highest income individuals), and we go on to calculate this using new, albeit tentative, evidence on the responsiveness of top incomes in the UK to changes in top marginal tax rates over the last 40 years.
- second, we simulate the entire optimal tax system for the UK given some various highly simplifying assumptions in order to show how the optimal tax system is determined by both the social welfare criterion used by the government, and the size of behavioural responses to taxation.

Before that, though, section 3.1 sets out some of the key terms which will occur throughout this chapter.

3.1 Key concepts

3.1.1 The budget constraint, PTRs and METRs

A useful tool to investigate the disincentive effects of taxes and transfers is the budget constraint.⁷ This shows the relationship between gross earnings (or hours of work) and net income after taxes and transfers, and an example is given in Figure 1A (the example is for a lone parent with 2 children, and we discuss this Figure in more detail and look at other family types in section 6).

⁷This draws on chapter 2 of Adam et al (2006).

