Book review of *Optimal Redistributive Taxation*


The hardest thing to understand in the world is the income tax
Albert Einstein

Optimal taxation (OT) has been at the heart of public economics ever since Mirrlees (1971) and Diamond and Mirrlees (1971). Mirrlees’ main point (beyond his technical contribution), which was later reiterated by Atkinson and Stiglitz (1976) (AS) is that tax design is first and foremost a problem of asymmetric information. Taxes are used both to raise revenue and to redistribute. Under full information both problems are trivial; a system of lump-sum taxes and transfers can achieve the “optimal” outcome. The solution is efficient and no other instruments are needed. When some of the individual characteristics and/or actions are not observable, this is no longer true. Feasible policies are then restricted to be incentive compatible which essentially means that they have to be designed to distinguish the lazy high ability individuals from the less able who try hard. And this is not just a problem for income tax or even taxation in general. The issue of tax design is intertwined with the more general concept of the welfare state, which relies on a wide variety of instruments, including social insurance, public goods and in-kind transfers. In other words, the problem is not just to determine the “optimal” income tax but also to examine which other instruments should be part of the redistributive toolbox available to public authorities in a welfare state. While this book concentrates on taxation of labor income, it does also study the role and design of other instruments including in-kind transfers, welfare benefits, commodity taxes and capital income taxation.

Matti Tuomala is a prominent public economist who has made significant contribution to essentially all subjects covered by this book. OT theory is often rather technical, so that many papers (including Mirrlees’s groundbreaking contribution) are not easily accessible to a non specialist. This book is both sufficiently advanced and up to date to be of interest to tax theory researchers, while it is sufficiently simple to be of great interest to a more general readership, including graduate students. The author has opted for a parsimonious modeling and presentation strategy following Albert Einstein’s tenet: “Everything should be made as simple as possible, but not simpler.”

The book starts off with a “background” chapter, which is rather eclectic. It presents some real world data and then introduces the concept of social welfare function, starting with the conventional Paretian specifications and then discussing alternative approaches,
referred to as “non-welfarist”. Finally the chapter presents the basic two-type nonlinear optimal taxation problem à la (Stiglitz 1982), graphically in the main text, and algebraically in the Appendix. This model is very useful for a reader (like Albert Einstein) who may not be familiar with the OT literature. It establishes Mirrlees’s main results, namely that low ability individuals face a positive marginal tax rate, while the marginal tax rate at the top of the ability distribution is zero. Most significantly it brings across one of the main insights of the OT (and more generally mechanism design literature) namely that distortions may be desirable in a world of asymmetric information if they relax an otherwise binding incentive constraint. In other words, they have to be designed to hurt the mimicking individual more than the mimicked. And the exposition makes it very clear how this can be accomplished through a distortion on labor supply.

The next chapter takes both one step forward and one step backwards. It considers a more general distribution of abilities, but it restricts the tax function to be “linear” (or more precisely affine). It implies a constant marginal tax rate and a uniform lump-sum transfer. Such a function provides the simplest example of a progressive tax scheme in the sense that (as long as the transfer is positive), the average tax rate increases with income. The optimal tax policy then strikes a balance between costly distortions and redistributive benefits.

Chapter 4 presents a “simple” version of Mirrlees’ continuous types model. The simplifying assumption, which is commonly used in the literature, is that preferences are quasi-linear. In other words, labor supply is not subject to income effects. The objective is utilitarian but applies a concave transformation $W(u)$ to individual utilities, where the degree of concavity of $W$ reflects the redistributive concern. The results are essentially the same as in the two-type model, except that more can now be said about the pattern of marginal tax rates across the range of abilities. For this the $ABC$ decomposition of the expression for the marginal tax rate, introduced on page 70 is very helpful. It is widely used in the recent literature, particularly for empirical estimations. The first term is referred to as the elasticity term, while the second term reflects the distribution of abilities; it depends on the inverse of the hazard rate. Finally, the last term, $C$, measures redistributive concern.

Various extensions of the basic model are provided. Probably the most notable is the property that the zero marginal tax rate at the top goes away (even asymptotically) when the ability distribution is unbounded. Roughly speaking this means that the highest ability level is not known. Another important result is that there may be bunching at zero for all individuals below a certain ability level. In other words, it is better to pay them for not working at all, rather than inducing them to work a bit. This result is explained by incentive considerations; a positive labor supply of the lowest ability workers would have an adverse effect on the incentive constraints.

The following chapter is devoted to numerical calculations. The optimal income tax schedule is derived for a variety of distributions, degrees of inequality aversion and labor supply elasticities. These results have some realistic flavor because key parameters are calibrated to reflect some stylized facts. However, they are meant to be mainly illustrative, and show how the optimal scheme is affected by the underlying parameter values. The complete source code (in Fortran) is provided in the Appendix so that readers or their students can play around with this at ease.

If taken at face value Mirrlees’ result that marginal tax rates are nonnegative implies that policies like the Earned Income Tax Credit (EITC) in the US or the Working Tax Credit in the UK are never optimal. These policies are intended to encouraging labor force participation among potential welfare recipients by subsidizing their earnings. In other words, they imply negative marginal tax rates at the low end of the income distribution. The so-called