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Consistent Income Tax Structures When Households Are Heterogeneous[1]

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The paper examines the redistributive impact of income taxation for heterogeneous populations. An equivalent income function is introduced in order to adjust the incomes of different types of households and the redistributive performance of the tax system is evaluated by comparing the Lorenz curves of the distributions of before and after tax equivalent incomes. Inequality reduction after tax imposes mild consistency conditions which are met by most current tax systems. If the inequality reducing effect of taxation is required to be independent of the reference household type, then the structure of the equivalent income function is fully determined by the inequality concept. *Journal of Economic Literature* Classification Numbers: D31, D63, H24. © 2000 Academic Press

Key Words: household composition; equivalence scales; income taxation; Lorenz dominance.

1. INTRODUCTION AND SUMMARY

1.1. *Motivation and Relationship to the Literature*

The aim of the paper is to uncover the rationale of the different tax systems one observes in practice starting from basic principles of distributive justice.

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In the case of a homogeneous population, progressive taxation is usually associated with a reduction of inequality after tax. Fellman [16] and Jakobsson [19] have shown that a necessary and sufficient condition for after-tax incomes to be more equally distributed than before-tax incomes according to the relative Lorenz criterion is that the average tax rate be nondecreasing with income. If, following Kolm [21], one takes the view that it is absolute income differentials that matter when making inequality comparisons, then a nondecreasing tax liability is the condition to be met for after-tax incomes to be more equally distributed than pretax incomes according to the absolute Lorenz criterion (Moyes [26]). Similar results can be obtained for less extreme views on inequality (see, e.g., Pfingsten [32], Moyes [27]), but typically the shape of the tax schedule is inherited from the inequality concept one initially chooses.

The elegance of these theoretical results contrasts, however, with their applicability for policy purposes. In reality the population of income tax payers is not homogeneous and households differ not only with respect to their incomes, but also in other characteristics such as the household size, the number of adults, the number and age of children, the health status of family members, the place where the household is living as well as any other relevant information. Besides the level of income, these socio-demographic characteristics are obviously pertinent when determining the needs and living standards of the households' members. Since these characteristics are observable, they can be employed when designing a tax system in order to discriminate between households with differing needs, as is the case in the real world where households' tax liability depends on their composition.

Various procedures, including income-splitting, allowances, and tax credits, are used by the tax authorities in order to take needs into account when designing the tax system.[2] The income-splitting rule applies to a couple and consists in dividing the total income of the spouses by a factor of two, applying the single tax schedule to this split income, and then multiplying by two the resulting figures in order to obtain the tax to be paid by the couple. The so-called "quotient familial" rule, employed in France and Luxembourg, extends this procedure to households of arbitrary composition. In this case the factor of two, which is employed for income-splitting, is replaced by a value reflecting the size and the needs of the respective household. Total income is divided by this factor, the tax liability corresponding to this "per-capita" income is determined, and then the latter is multiplied by this factor again, giving total tax liability (see

[2] We do not consider in this paper separate taxation of husband and wife, which relies on ethical principles different from the ones we examine here. However, in such a case, the costs of children are generally associated to one of the spouses, and similar techniques to the ones we discuss can in principle be used for determining the resulting allowances.