Optimal tax and transfer programs for couples with extensive labor supply responses[☆,☆☆]

Herwig Immervoll [a], Henrik Jacobsen Kleven [b,*], Claus Thustrup Kreiner [c], Nicolaj Verdelin [c]

[a] OECD and ISER at University of Essex, United Kingdom
[b] London School of Economics, United Kingdom
[c] University of Copenhagen, Denmark

ABSTRACT

This paper analyzes the optimal design of general nonlinear tax-transfer schedules for couples under unitary and collective approaches to family decision making. We consider a double-extensive model of labor supply where each spouse makes a labor force participation choice for given hours of work. We present simple and intuitive optimal tax rules that generalize existing findings on the optimal taxation of single-person households with extensive responses (Saez, 2002) to the case of two-person households with double-extensive responses. Without income effects on labor supply, optimal tax rules as a function of sufficient statistics are the same under the unitary and collective approaches. With income effects on labor supply, optimal tax rules under the two approaches continue to depend on the same sufficient statistics, but the collective model features an additional Pigouvian term arising from a within-family participation externality. Finally, we present microsimulations of tax reform for 15 European countries suggesting that a reduction of tax rates on secondary earners relative to primary earners is associated with strong welfare gains in all countries.

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1. Introduction

The large literature on optimal income redistribution focuses almost exclusively on models of single-person households. These models fit poorly with real-world tax and transfer schemes, which redistribute income across families that are formed around couples. This has triggered a recent interest in generalizing the theory of optimal income redistribution to deal with couples. This can be seen as a multi-dimensional screening problem where agents (couples) are characterized by a multi-dimensional parameter (ability and taste-for-work parameters of each spouse) that is unobserved by the principal (the government which maximizes social welfare). Due to the technical difficulties associated with multi-dimensional screening problems, very few studies have tried to tackle the general problem and there are few general results regarding the optimal shape of tax schedules.[1] To sidestep these issues, most papers eliminate the multi-dimensional screening aspect of the problem by assuming that the tax treatment of spouses is separable and therefore individual-based (albeit gender

[1] Recently, Kleven et al. (2007, 2009) analyze the optimal nonlinear taxation of couples as a multi-dimensional screening problem, and characterize the optimal form of jointness in the taxation of spouses. Papers by Brett (2007) and Cremer et al. (2007) also analyze the optimal taxation of couples as a multidimensional screening problem.

specific).[2] However, this assumption is inconsistent with actual redistribution schemes, which are never fully separable due to the existence of family-based transfers and elements of jointness in the tax code (Immervoll et al., 2009).

Besides these issues, a key tension in the literature is that no consensus exists on what is the most suitable model of family decision making in the analysis of optimal taxation. The literature is divided into two main strands. One set of papers adopts the unitary approach in which each couple is modeled as a single decision-making unit.[3] While this approach provides a simple tool of analysis, it ignores intra-household distribution issues and is empirically unrealistic.[4] A second set of papers adopts an individualistic approach in which the family consists of members with conflicting interests bargaining over household resources. The dominating framework within this tradition is the collective labor supply model (Chiappori, 1988, 1992), which does not restrict itself to a particular bargaining process but assumes only that family allocations lie on the Pareto frontier.[5] Because the existing optimal tax papers in these two traditions differ in a number of other key dimensions (tax instruments, labor supply responses, dimensions of heterogeneity, etc.), it is currently not clear what are the precise differences between the unitary and collective approaches in terms of normative tax implications.

This paper takes a step to resolve these technical and conceptual issues in the design of optimal tax-transfer schemes for couples. We characterize optimal redistribution schemes that allow for realistic policy instruments (nonlinear, non-separable taxes and transfers) and under multi-dimensional heterogeneity in ability and work costs of each spouse across families. Moreover, we solve this problem under both the unitary and collective approaches, allowing us to explore the precise role of the family decision making model for optimal taxation.

Since the general problem just described is extremely complex, we make two key simplifying assumptions. First, we consider an extensive model of labor supply where each spouse makes a labor force participation choice for given hours of work. This double-extensive model greatly simplifies the analysis while allowing us to capture the key empirical difference in labor supply behavior between married men and women: the fact that participation elasticities are much higher for married women than for married men. By contrast, the elasticity of hours worked conditional on working is much more similar for men and women and both tend to be small.[6] Second, we impose an assumption on the joint distribution of spousal work costs that make one spouse the "primary earner" and the other spouse the "secondary earner" in the following sense: the primary earner is always the working spouse in a one-earner household, while the secondary earner works only in a two-earner household. This implies that the household optimization problem can be solved *as if* it were sequential: first it is decided if the primary earner should enter the labor market and then, conditional on primary-earner participation, it is decided if the secondary earner should also enter. This primary–secondary earner model is consistent with much empirical work in this area (e.g., Eissa, 1995; Eissa and Hoynes, 2004) and greatly simplifies the optimal tax analysis.

Our paper offers the following main findings. First, starting from a unitary model with no income effects on labor supply, we present very simple optimal tax rules for the optimal taxation of primary and secondary earners. These rules show that the optimal participation tax on secondary earners at each income level is a simple function of the participation elasticity of secondary earners and the social welfare weight on two-earner couples at the given income level. The optimal participation tax on primary earners is a simple function of the participation elasticity of primary earners and the social welfare weight on both one-earner and two-earner couples. Generalizing the model to allow for income effects on labor supply, we show that income effects are associated with a minor modification of the results and have no substantive importance for optimal taxation.

This first set of results extends the influential work by Saez (2002) for the case of single-person households with extensive labor supply responses to the case of two-person households with double-extensive responses. The central result in Saez (2002) is that, if the social welfare weight on low-income working individuals is greater than the average social welfare weight in the population, then it is optimal to impose negative participation tax rates at the bottom of the distribution. While this has been interpreted as providing a normative underpinning of means-tested in-work benefit programs (such as the EITC in the United States), the link between theory and policy is in fact not straightforward as EITC-style programs provide participation subsidies to families based on the combined income of spouses. What we show is that, in a setting with couples, a negative participation tax on the secondary earner requires that the social welfare weight on low-income two-earner couples is greater than the average social welfare weight in the population. In our model, because two-earner couples are better off than one-earner couples (for given spousal abilities), it is harder to justify a negative tax rate on low-income secondary earners than on low-income singles. Moreover, given a positive tax on secondary earners, we show that it also becomes harder to justify a negative tax rate on low-income primary earners in couples. This is because a lower participation tax on primary earners (and by implication a lower tax on one-earner couples) induces some two-earner couples to become one-earner couples, which is associated with a negative fiscal externality if the second-earner tax is positive. For this reason, a negative participation tax on the primary earner requires that the social welfare weight on low-income one-earner couples is *sufficiently* greater than the average social welfare weight in the population. If this condition is satisfied, it is possible to get an optimum that combines negative participation taxes on primary earners at the bottom along with positive participation taxes on secondary earners everywhere. Interestingly, this is consistent with the EITC in the U.S., which subsidizes first-earner entry while taxing second-earner entry (e.g., Eissa and Hoynes, 2004).

Second, we explore the robustness of the above results to collective family bargaining and intra-family equity issues. In the collective model, the social welfare function is defined over individual utilities instead of family utilities, and in general the government may put different weights on spouses than the actual bargaining weights in the intra-family allocation problem. We analyze the collective model in situations with and without income effects on labor force participation. In the case without income effects, we show that the optimal tax rules are qualitatively unchanged compared to the unitary model, i.e., the tax rules are unchanged as a function of sufficient statistics: participation elasticities of the two spouses along with social welfare weights on one-earner and two-earner couples. If the government disagrees with the intra-family bargaining weights, this will affect the social welfare weights on one- and two-earner couples, but it remains to be the case that those welfare weights provide sufficient statistics for policy evaluation. The key insight behind this result is that, in a collective model with no income effects, each spouse

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[2] The first paper in this tradition is Boskin and Sheshinski (1983), who considered the optimal linear taxation of couples allowing for the possibility of selective tax rates on husband and wife. The linearity assumption implies fully separable tax treatment. A large set of subsequent papers has considered linear separable taxation of spouses, including Apps and Rees (1988, 1999, 2007) and Alesina et al. (2011). A paper by Schroyen (2003) extends the analysis to nonlinear taxation, but keeps the assumption of separable tax treatment.

[3] Papers in this tradition include Boskin and Sheshinski (1983), Schroyen (2003), Brett (2007), Cremer et al. (2007), Kleven and Kreiner (2007), and Kleven et al. (2007, 2009).

[4] The two key empirical failures of the unitary model are the income pooling hypothesis (e.g., Thomas, 1990; Browning et al., 1994; Lundberg et al., 1997) and the Slutsky symmetry of spousal labor supplies (e.g., Browning and Chiappori, 1998).

[5] Papers in this tradition include Apps and Rees (1988, 1999), Brett (1998), and Alesina et al. (2011).

[6] Surveys of the empirical labor supply literature are provided by, e.g., Heckman (1993), Blundell and MaCurdy (1999), and Meghir and Phillips (2010).