



# The choice of the personal income tax base<sup>☆</sup>

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## ABSTRACT

Starting with Vickrey (1945) and Mirrlees (1971), the optimal tax literature has studied the design of a personal income tax. The assumed ideal would be to tax earnings ability. Earnings ability is unobservable for tax purposes, however. Past papers have focused instead on designing a tax on labor income.

Existing tax bases, though, depend on a broader range of information about each individual than just labor income. In principle, this supplementary information can help in designing a tax that has more attractive distributional properties, by more closely approximating an ability tax. The objective of this paper is to lay out theoretically and estimate empirically how to make best use of available information about each individual in addition to earnings, in a setting where the first-best tax would be an ability tax. The theory lays out an equity/efficiency trade off when choosing the tax base. In the empirical work, we find the tax base that is best on equity grounds alone.

We find that the choice to tax couples based on their joint income, and the inclusion of dividends, interest income, and dependents' deduction in the tax base in roughly their current form can be rationalized simply based on their value in better approximating an ability tax, without any need for supplementary motivations for these provisions. However, the inclusion of mortgage and property tax payments in the list of itemized deductions cannot be defended on these grounds.

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## 1. Introduction

The choice of a personal income tax consists first of the choice of a tax base and then the choice of a tax rate schedule. The past literature on the optimal design of the income tax, as exemplified by Vickrey (1945) and Mirrlees (1971),<sup>1</sup> presumes that the ideal tax base is the earnings ability of each individual, since this is the only characteristic that is assumed to differ across people. In practice, however, earnings ability cannot be monitored for tax purposes. A close observable proxy for earnings ability is labor income. The initial optimal tax literature presumed that labor income is the natural choice of a tax base and then derived the optimal rate schedule given this tax base.

While the correlation between labor income and ability (proxied by wage rates) is high (around 0.87), differences between the two certainly remain. Fig. 1 compares the average wage rate for each married couple in the PSID data with their joint labor income,<sup>2</sup> including a

non-parametric estimate for the curve characterizing the joint relationship that minimizes least-squared deviations. Particularly among those with lower levels of labor income, the relationship between labor income and wage rates is remarkably weak.

These limitations to the use of labor income as a proxy for ability in the tax code at least raises the question about whether there would be welfare gains from extending the tax base to include as well other observable information about individuals. Actual tax bases certainly include information beyond labor income, such as interest, dividend, and capital gains income. In addition, by taxing couples as a unit rather than taxing each spouse separately, the labor income of one's spouse affects one's own tax rate. Mortgage and property tax payments are allowed as deductions for those who itemize. The tax base is certainly more complicated than labor income. To what degree can these additional elements in the tax base be explained simply by the value of these other indicators in coming up with a tax base that better approximates ability, without taking into account any subsidiary objectives or externalities?

Atkinson and Stiglitz (1976) derive conditions under which the ideal tax base should include just labor income, and not make use of information about consumption of other goods.<sup>3</sup> Saez (2002) then extended these results to a setting where individuals have heterogeneous tastes

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<sup>1</sup> For recent work in this tradition, see Saez (2001) and Gruber and Saez (2002).

<sup>2</sup> See Appendix C for details about how the data are constructed.

<sup>3</sup> For more recent attempts to explicate this result, see Laroque (2005), and Kaplow (2006).

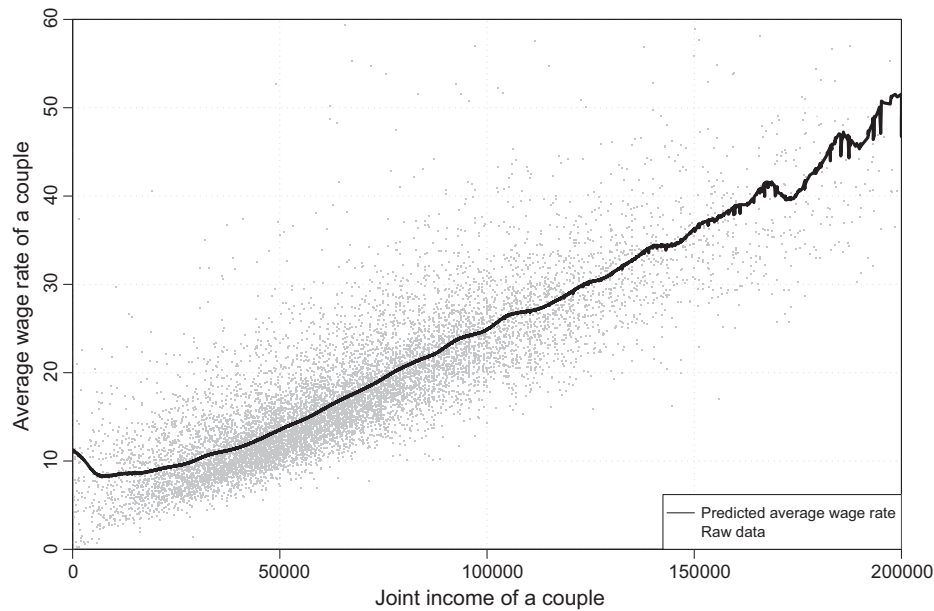


Fig. 1. Prediction of the average wage rate of a couple based on joint labor income.

and not just heterogeneous abilities. His paper derives three assumptions under which the ideal tax base is just labor income, even when consumption patterns are observable for tax purposes. The first assumption is that the marginal utility of income is uncorrelated with consumption of each good among individuals with the same labor income. Given this assumption, there are no equity gains from modifying the tax base.<sup>4</sup>

We examine both theoretically and empirically how the optimal tax base changes on equity grounds when this assumption does not hold.<sup>5</sup> In particular, we derive an expression for the potential equity gains from varying the tax treatment of individuals with the same labor income and then proceed to estimate the tax base that does best on equity grounds using PSID data.

Of course, ours is not the first paper to consider how observable information about individuals beyond their labor income may provide useful information about their ability. For example [Besley and Coate \(1992\)](#) argue that providing low-quality in-kind rather than cash transfers helps reveal who among low earners have low earnings ability, on the presumption that only those with low earnings ability are in fact willing to consume low quality goods. Similarly, [Blomquist and Christiansen \(2005\)](#) argue that users of excludable public goods should be charged a price different from marginal cost to the degree that demand depends on earnings ability. [Kopczuk \(2001\)](#) argues that tax avoidance should be facilitated if the low skilled can avoid taxes more easily than the high skilled, conditional on labor income. Closer to the choice of income tax base, [Gordon \(2004\)](#) argues that income from savings (dividends or interest income) should be part of the tax base to the degree to which those with high ability save more (or in different forms) than those with low ability, among those with the same labor income.

Our first objective, undertaken in [Section 1](#), is to reexamine the theory for the optimal tax structure, allowing for multiple observed characteristics for married couples that are each correlated with the unobserved earning abilities of the two spouses. As in [Mirrlees](#), but applied to couples rather than single individuals, we begin with the assumption

that the first-best would be to tax couples based on their earning abilities, implemented by assuming that the social marginal utility of income for a couple under the current allocation depends solely on some function of the earning ability of the two spouses. While earning ability is not observable, many other attributes of the couple can be observed, including but not limited to the labor income of each spouse. How should this set of indicators best be used in the design of the tax base, trading off any resulting equity gains vs. efficiency costs? Here, we find that indicators beyond labor income should be included in the tax base to the extent that they are correlated with the marginal utility of income to the couple, conditional on the couple's observed labor income.<sup>6</sup> These equity gains from better approximating an ability tax, though, must be traded off with the efficiency implications arising from a changing pattern of distortions to the couple's economic decisions.

Our second objective is to make use of PSID data to estimate the degree to which various indicators now in use under the personal income tax are correlated with a couple's marginal utility of income, conditional on the existing tax base. We then make use of the first-order conditions from the theory to approximate the optimal tax base from an equity perspective, given these correlation patterns.<sup>7</sup> Our sample is restricted to married couples from ages 18 to 65. The indicators we consider are: dividend income, interest income, mortgage payments, property tax payments, and perhaps number of children. We also consider whether there are equity (and not just efficiency) reasons for imposing different tax rates on the labor income of primary vs. secondary earners within a couple.

Our basic results, in [Section 2](#), focus on the optimal tax base for married couples under a personal income tax in which each couple is taxed jointly based on their combined labor income along with information about the couple's joint income from interest and dividends and joint expenses for mortgage interest payments and property tax payments.

<sup>4</sup> The first assumption in [Saez \(2002\)](#) is that these correlations will all be zero.

<sup>5</sup> Our focus is limited, though, to the equity effects of changes to the tax base. We made no attempt to measure any resulting impact on economic efficiency. Measuring the equity and efficiency effects requires completely different approaches: The equity effects rely on cross-sectional non-causal evidence on the relationship of ability and observable attributes of a couple, whereas the efficiency effects depend on causal impacts of tax rates. In general, absent specific assumptions about heterogeneity and preferences, there is no link between the magnitudes of the two effects. A large literature estimates the latter effect and in this work we focus on the novel former one.

<sup>4</sup> The other two assumptions assure that there are no efficiency gains from any deviation from a tax base equal to labor income.

<sup>5</sup> Two more recent papers by [Diamond and Spinnewijn \(2011\)](#) and [Golosov et al. \(2013\)](#) incorporate specific forms of taste heterogeneity and analyze their implication for optimal capital taxation theoretically and in calibrations.

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