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# Intensive margins, extensive margins, and spousal allowances in the Japanese system of personal income taxes: A discrete choice analysis



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### ABSTRACT

**Bessho, Shun-ichiro, and Hayashi, Masayoshi**—Intensive margins, extensive margins, and spousal allowances in the Japanese system of personal income taxes: A discrete choice analysis

This study explores the effects of spousal allowances (SAs) in the Japanese system of personal income taxes, using the micro-simulation method based on the discrete choice model of labor supply. Our simulations show that the complete abolishment of SAs would increase the average annual working hours of all wives by 1.6% only, which is smaller than previous findings in the Japanese literature. If we focus on households benefiting from SAs, the rate of increase in the wife's working hours is even smaller (.1%). In addition, one particular case of SA reduction leads to a *decrease* in the labor supply of wives. We argue that these unexpected results are due to our explicit consideration of the fixed cost of labor market participations, which has been previously ignored in the Japanese studies. *J. Japanese Int. Economies* **34** (2014) 162–178. Faculty of Economics, Keio University, 2-15-45 Mita, Minato-ku, Tokyo 108-8345, Japan; Faculty & Graduate School of Economics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan.

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## 1. Introduction

The treatment of incomes of household members, typically husband and wife, has been an important factor in designing the system of income taxes (Apps and Rees, 2009). There are two archetype tax treatments of personal income: joint taxation and individual taxation. In their pure forms, joint taxation uses the combined earnings of household members to assess tax liability, while individual taxation regards each of the household members as a tax unit and assesses his/her tax liability using individual earnings. While a majority of OECD countries has moved from joint to individual taxation over the decades, their tax systems have retained some degree of “jointness” among family members’ incomes. Since such jointness affects the incentives to work for family members, several studies have examined its effects in different countries. Examples include studies on tax reforms in Ireland (Callan et al., 2009), Canada (Crossley and Jeon, 2007), Belgium (Ghysels et al., 2011), and the UK (Stephens and Ward-Batts, 2004).

Japan is no exception. While its system of personal income taxes is based on individual taxation in principle, it includes the property of jointness between spousal earnings through a set of spousal allowances (SAs). SAs allow the primary earner (usually, the husband) in the pair to reduce his/her taxable income by a specified amount if the secondary earner (usually, the wife) earns less than a certain income threshold. In other words, households can save taxes if their secondary earners earn income that is less than a specified amount. Indeed, an observation of their earning distribution shows that a noticeable proportion of married part-time female workers fall just below this particular threshold income (Abe, 2009; Yokoyama, 2013). Regarding such labor income adjustment by secondary earners in response to the tax saving incentives created by the SAs, several Japanese studies have criticized the system of SAs as distorting the labor supply decisions of married women.<sup>1</sup> Such studies have typically estimated the effects of the SA on secondary income by focusing on the labor responses of married women (Abe and Ohtake, 1995; Kantani, 1997; Oishi, 2003; Sakata and McKenzie, 2005; Yokoyama, 2013). However, these only provide reduced-form estimates that do not allow simulations of tax policy. A policy simulation requires structural estimates that at least characterize households’ preferences.

To the best of our knowledge, only Akabayashi (2006) and Takahashi (2010) explored the effects of SAs through the structural (static) estimation of female labor supply.<sup>2</sup> Nonetheless, these two studies have several shortcomings. First, they focused on female labor supply responses only along the intensive margins. However, we should also be interested in the labor market participations (extensive margin responses) of married women, since the majority of them are out of the labor market. Second, they did not consider local taxes in their budget data. However, since local governments in Japan levy personal income taxes after allowing their own SAs, ignoring them misidentifies the piece-wise linear budget sets of consumers. In addition, their use of the Hausman method (Hausman, 1979, 1980, 1985) exacerbated this problem, as it is not robust to measurement errors (Blomquist, 1996; Ericson and Flood, 1997; Eklöf and Sacklén, 2000). Third, their linear specification of labor supply may impose too many restrictions on consumer preferences. The linearity assumes the Slutsky condition *a priori* (MaCurdy et al., 1990; Blomquist, 1995) and further renders a unique form of individual utility that does not allow for a backward-bending labor supply curve (Stern, 1986; Flood and Islam, 2005). Lastly, the labor supply of husbands is assumed to be exogenously fixed. This is understandable since the Japanese system of personal income taxes indeed creates quite complex budget sets if husbands are allowed to adjust their labor supply. However, in fact, they might also be able to adjust their labor supply to changes in SAs.

In this study, we improve on the Japanese literature to explore the effects of SAs on family labor supply. For that purpose, we take advantage of the discrete choice model (DCM) of labor supply, which is now a widely accepted method for labor supply analysis. Indeed, the method has advantages that allow for the shortcomings mentioned above. First, the DCM allows us to consider labor responses along both extensive and intensive margins, as it formulates the labor supply decision in terms of

<sup>1</sup> In addition to the effects of SAs, the literature also considered other factors that affect female labor supply in Japan. See for example, Abe (2011) and Lee and Lee (2014).

<sup>2</sup> Bessho and Hayashi (2005, 2011) conducted static structural estimations for male labor supply. For a review of the Japanese literature, see Hayashi (2009).

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