Household decision making in rural China: Using experiments to estimate the influences of spouses

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A B S T R A C T

Many economic decisions are made jointly within households. Running an experiment on intertemporal choice, we investigate the relative influence of spouses on joint household decisions. We let each spouse first decide individually and then jointly with the other spouse. We propose the use of a random parameter probit model to measure the relative influence of spouses on joint decisions. We find that joint choices are in between husbands' and wives' choices with respect to impatience, indicating that both spouses have an influence on joint decisions. However, we estimate that in 99% of households husbands have a stronger influence than wives.

1. Introduction

Many important economic decisions are made by households, implying joint rather than individual decisions. For example, decisions regarding labor supply, savings, and investments are often made jointly within the household. This implies that such decisions will be a function of the preferences of household members and the relative influence of each household member on the joint decisions. However, it is not straightforward to measure the relative influence of spouses on joint decisions. One often used approach has been to look at who is in control of the household income and correlate this with household behavior and outcomes.[1] However, this approach has its obvious limitations as a means to study the relative influence of spouses since with field data it is by definition difficult to obtain data on preferences or choices of the spouses

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[1] For instance, Thomas (1990, 1994), Lundberg et al. (1997), Phipps and Burton (1998), Duflo (2003), and Qian (2008) find that child health and survival rates, nutrition, expenditures for different goods and services (such as tobacco and child care), and the educational attainment of children depend strongly on whether the household income is controlled by the husband or the wife.

and the joint household decisions. Therefore, an alternative and increasingly popular approach is to use experiments or survey methods to study household decision making, since they allow for collection of data for both individual and joint decisions under controlled conditions.

In the present paper, we investigate the relative influences of husbands and wives on joint household decisions with respect to intertemporal choice. We conduct a high-stakes artefactual field experiment (Harrison and List, 2004) in rural China in which spouses have to choose between earlier, but smaller, rewards and later, but larger, rewards. We consider the study of household decision making in intertemporal choice as a novel contribution in itself, because household decision making has, so far, only been examined experimentally with respect to risk taking (Bateman and Munro, 2005; Iversen et al., 2006; Munro et al., 2008; Carlsson et al., 2009; de Palma et al., 2011), actual consumption choices (Arora and Allenby, 1999; Browning and Chiappori, 1998), behavior in social dilemma situations (Cochard et al., 2010), or stated preferences (Quiggin, 1998; Dosman and Adamowicz, 2006; Strand, 2007; Beharry-Borg et al., 2009). Knowing more about household intertemporal choices is certainly important, because important decisions with long-term consequences, such as investments in education or farming, are crucial for the development of poorer regions. However, we consider as our main contribution the development of a method for estimating the relative influence of husbands' and wives' own decisions on their joint decisions. To achieve this, we build on earlier work by Dosman and Adamowicz (2006) and Beharry-Borg et al. (2009), who use a survey approach to study stated preferences of individual spouses and of the couple as a joint decision maker. They assume a bargaining model where the joint decision depends on a weighted average of the two spouses' preferences. This is (unnecessarily) restrictive since it does not allow for the influence of other (socio-demographic) aspects and does not allow for the possibility that joint choices can be more extreme than those made by either of the spouses something which can be expected to happen in some cases; see Mazzocco (2004) or Eliaz et al. (2006).

Our approach is more general by using a random parameter model where we first estimate the preferences of each spouse from his or her individual choices. From that we derive the predicted probability of choosing a particular alternative in a given choice situation of the experiment. This means that we obtain a measure of the strength of the preferences of each spouse. These predicted probabilities are then included as explanatory variables in a model explaining the joint decisions. We find that in 99% of households, the husband has a stronger influence on household decisions than the wife. When trying to identify the determinants of the spouses' relative influence, we only find a significant effect of the husband's parents living in the joint household, where the influence of wives increases.

We would like to note that our approach to study the relative influence of spouses on household decisions should be seen as complimentary to experiments in the field in which access to or control of financial assets by any of the spouses is exogenously changed. For example, Ashraf et al. (2010) find that access to and marketing of an individually held commitment savings product increase women's decision making power within households, in particular for women with little initial influence on household decisions. Using a framed field experiment, Ashraf (2009) investigates the effects of information and communication on financial choices of married individuals. She finds that making choices public prevents husbands from allocating money to their own consumption, thus leaving more for their wives' and children's needs, and communication with their spouse leads men to actually redistribute income to their wives. Contrary to these exogenous variations, we estimate the relative influence of husbands and wives from their individual preferences.

Naturally, our paper is also related to a large literature dealing with the experimental elicitation of time preferences (see Thaler, 1981, for an early contribution, and Frederick et al., 2002, for a survey). Time preferences are very often elicited through the use of multiple price lists (Coller and Williams, 1999), in which subjects make choices between earlier, but smaller, and later, but larger, rewards. For instance, Harrison et al. (2002, 2005) have used such lists to estimate discount rates for a representative sample of the adult Danish population, showing that their data are consistent with constant discount rates. Using a representative German sample, Dohmen et al. (2010) have shown that time preferences – elicited through multiple price lists – are related to cognitive abilities, with more patient subjects having higher cognitive abilities. A similar relation is found for truck drivers in Burks et al. (2009). Tanaka et al. (2010) have shown that lower discount rates of individual household members in Vietnam are positively correlated with higher household income. Eckel et al. (2005, 2010) have investigated time preferences of the working poor in Canada and under which conditions they are willing to invest in their family's education. The latter issue is closely related to our paper, since Eckel et al. (2010) are also interested in intertemporal decision making within households. While they have investigated how parents decide for their children, we are going to focus on how husbands and wives agree on a joint decision for their own household. To the best of our knowledge, the latter issue has not yet been addressed.

Before proceeding to our experiment, it seems useful to mention that most studies on time preferences present the multiple price lists in a transparently ordered form, i.e., the discount rate implied between the two options increases or decreases monotonously along the list. In our experiment, subjects faced a randomized order of the choices. The strength of using an ordered list is to make time-consistent choices more likely. It might have the drawback, however, to somehow "force" consistent choices. More importantly, in real life people make decisions in a random order, which potentially will create inconsistency. Our approach of a randomized list may show more inconsistent choices, but has the advantage of most likely measuring the lower bound of consistency and be similar to real life where choices are not ordered.

The outline of the paper is as follows: Section 2 introduces the experimental design and procedure, Section 3 presents the empirical model, Section 4 reports the experimental results, and Section 5 concludes the paper.