

Intra-household resource allocation and familial ties[☆]Harounan Kazianga^{a,*}, Zaki Wahhaj^b^a 324 Business Building, Spears School of Business, Oklahoma State University, Stillwater, OK 74078, USA^b School of Economics, Keynes College, University of Kent, Canterbury CT2 7NP, United Kingdom

ARTICLE INFO

JEL classification:

O12

D13

Q1

Keywords:

Intra-household allocation

Social norms

Extended families

Altruism

Household farms

Income shocks

Risk-sharing

Consumption smoothing

ABSTRACT

In this paper, we investigate the link between intra-household resource allocation and familial ties between household members. We show that, within the same geographic, economic and social environments, households where members have 'stronger' familial ties (nuclear family households) achieve near Pareto efficient allocation of productive resources and Pareto efficient allocation of consumption while households with 'weaker' familial ties (extended family households) do not. We propose a theoretical model of the household based on the idea that altruism between household members vary with familial ties which generates predictions consistent with the observed empirical patterns.

1. Introduction

The question as to how resources are allocated within households has long been of interest to economists. Particularly in societies where state support and market institutions are weak, the household remains an important unit of production, and investment in the human capital of children.

The two models of intra-household allocation that have received the most attention in the literature and tested most frequently using household data are the unitary and the collective household models. The unitary model, which assumes that the household acts as a single decision unit maximizing a common utility function, has been consistently rejected by empirical evidence (reviewed by Haddad et al., 1997; Doss, 2013). In contrast to the unitary model, the collective model allows the representation of individual behavior within the household. Chiappori (1988, 1992) has shown that simply assuming Pareto efficient allocations implies a set of testable restrictions. The basic model has been extended in several directions, including household production (e.g. Udry, 1996) and children (e.g. Thomas, 1990), among others.

The empirical tests of the collective household model, however, have been less consistent than those of the unitary household model. Attanasio and Lechene (2014), Bobonis (2009), Browning et al. (1994), Browning and Chiappori (1998), Chiappori et al. (2002), Rangel and Thomas (2005), among others, fail to reject Pareto efficiency of intrahousehold resource allocations in various contexts. On the other hand, Dercon and Krishnan (2000), Duflo and Udry (2004), Goldstein and Udry (2008), Udry (1996) reject efficient intrahousehold resource allocations. A broad pattern emerges, however, from these seemingly conflicting empirical results. On the one hand, the studies that reject Pareto efficiency are concentrated in Africa and have tended to focus on household productive resources (e.g. Udry, 1996; Goldstein and Udry, 2008; Kazianga and Wahhaj, 2013; Guirking et al., 2015). On the other hand, studies that fail to reject efficiency tend to focus on consumption in developing countries (e.g. Bobonis, 2009; Attanasio and Lechene, 2014) or labour supply in developed countries.

It has been widely noted that a key element of interactions within a household is their repeated and regular nature. Game theoretic reasoning implies that individuals who expect to interact repeatedly into the future should be able to sustain greater levels of cooperation compared

[☆] We thank the Direction de la Prospective et des Statistiques Agricoles et Alimentaires (DPSAA) from the Ministry of Agriculture of Burkina Faso for the sharing their data with us. We thank the Co-Editor and two anonymous referees for their very constructive comments. We would also like to thank Harold Alderman, Jean-Marie Baland, Catherine Guirking, Jean-Philippe Platteau, Rodney Smith, T. Paul Schultz, Chris Udry, seminar participants at the University of Sussex, Ouagadougou, Georgia, Namur and Geneva, Universidad Autonoma de Barcelona, the AAEA 2015 annual meeting, the Hayami Conference 2015, the NEUDC 2015, and the Oxford CSAE Conference 2015, for useful comments and feedbacks. Any remaining errors are our own.

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to those who interact sporadically. If household members care about future outcomes sufficiently, then they will be able to achieve efficiency in consumption and production decisions (Browning and Chiappori, 1988; Udry, 1996; Duflo and Udry, 2004). This reasoning would apply to all individuals living under the ‘same roof’, whatever the nature of familial or kinship ties between them.

However, if cooperation between household members are sustained through altruism, or norms of familial rights and obligations, then households with different types of familial composition may well diverge in their behaviour. For example, if individuals exhibit higher levels of altruism towards members of their nuclear family unit, then nuclear family households may be able to achieve more efficient outcomes than households consisting of extended family members or unrelated individuals.

Despite a growing literature, there remain significant gaps in our understanding of the role of extended families and kinship networks in economic interactions (see Cox and Fafchamps, 2008 for a review; and Di Falco and Bulte (2011, 2013), Baland et al. (2016) for recent work on sub-Saharan Africa). Furthermore, this literature is largely focused on extended family members who inhabit separate households but not on cohabiting members of the same extended family. By contrast, there is scarce evidence on whether or how family ties affect intra-household allocation.

In this paper, we contribute to the literature on intra-household allocation and the role of familial ties in economic outcomes in two ways. First, we show, within the same geographic, economic and social environments, that – conditional on the co-residence decision – individuals with ‘stronger’ familial ties achieve near Pareto efficient allocation of productive resources and Pareto efficient allocation of consumption within the household while individuals with ‘weaker’ familial ties do not. Thus, we are able to reconcile two strands of empirical evidence in the literature that have either failed to reject or have rejected Pareto efficient allocation of household resources. This is in line with early research by Lundberg (1988) who attempted to relate labour supply of husbands and wives in the US labour market to the household structure. She found evidence that husbands and wives without pre-school children behaved like separate individuals in determining their labour supply, while families with young children appeared to determine labour supply jointly. More recently, Angelucci and Garlick (2015) found evidence of Pareto efficient consumption allocation for households with relatively old heads but not for households with relatively young heads, in Mexico.

Second, we develop a theoretical model where we explicitly link the household decision-making process to the nature of familial ties within the household and account for the observed differences in efficiency between household with ‘stronger’ familial ties and those with ‘weaker’ familial ties. In the rest of the paper, we refer to households with ‘stronger’ familial ties as ‘nuclear’ family households; i.e. households consisting of the head, his spouse or spouses and their children, and we refer to households with ‘weaker’ familial ties as extended family households, i.e. households that include at least one member in addition to the nuclear unit.

The setting for the empirical analysis in this paper is rural Burkina Faso. Agricultural households in Burkina Faso provide an interesting setting for exploring the topic because of the diversity of family ties that exist within the same household (discussed in Section 4) and the practice of assigning farm plots, individually, to adult household members for which they control production choices, as well as the proceeds of farm output (Udry, 1996). Besides these ‘private’ plots, the household farms on one or more ‘collective’ plots, under the management of the household head (Kazianga and Wahhaj, 2013). According to a social norm, each able household member is expected to contribute some labour to the ‘collective farm’ and the head is expected to use its proceeds for expenditures on household public goods (Hammond, 1966; Fiske, 1991; Lallemand, 1977).

We find that, controlling for plot characteristics and household-

crop-year fixed-effects, collective plots use labour more intensively and achieve higher agricultural yields than private plots. Using the test of efficiency in agricultural production based on the approach pioneered by Udry (1996), we are able to reject the hypothesis of efficiency in production for both extended family households and nuclear family households. However, (i) yields achieved on private plots in nuclear family households are close to those achieved on collectively farmed plots while the corresponding gaps in extended family households are significantly larger. Using data on consumption expenditures by different household members, we implement two tests of intra-household risk-sharing, based on data on (ii) food consumption expenditures and idiosyncratic shocks to household income, following Duflo and Udry (2004) and (iii) child anthropometrics and shocks to mothers’ farm income. With both approaches, we are able to reject the hypothesis of efficient risk-sharing for extended family households but not for nuclear family households.

Our data-set on agricultural resource allocation allows us to examine which household members are providing labour on which farm plots and, thus, the role of familial ties in labour allocation. We find that (iv) household members who share a nuclear family tie provide more labour on each other’s private farm plots, as compared to household members who share an extended family tie, or no family ties; (v) for a given relation to the household head, household members provide more labour on collective farm plots in nuclear family households than in extended family households, controlling for individual and plot characteristics and household-year fixed-effects.

To explain these empirical patterns, we propose a model of household decision-making in which nuclear family members exhibit greater altruism towards each other, or a greater alignment of preferences, compared to a pair of individuals who are unrelated or are connected by extended-family ties. This assumption can be motivated by the evolutionary approach to altruism and familial ties, based on the work of Hamilton (1964), as discussed in Cox and Fafchamps (2008). Then, labour contributions and transfers that nuclear family members make to each other voluntarily (more precisely a subgame perfect equilibrium) may be sufficient to achieve efficiency in production and consumption decisions within a nuclear family household. In the case of the extended family household, such voluntary contributions may be insufficient to achieve the first-best. But the existence of the social norm described above enables the household head to commit to using the output of the collective farm for the well-being of the entire household. This leads to a distortion of productive resources in favour of the collective farm but enables the household to achieve a second-best allocation.

If nuclear family households are able to allocate resources more efficiently, it raises the question why do extended family households exist at all? To this question, we are able to provide two types of answers based on the available data. First, in a setting where labour markets function poorly or are non-existent, co-habitation can provide the basis of labour exchange (Berry, 1993), allowing more effective monitoring of labour by the head, as well as the remuneration in the form of private plots and provision of household public goods. Second, in the absence of formal insurance and lack of effective risk-sharing arrangements between households, an additional member allows greater income diversification and improves the ability of the household to engage in consumption smoothing. The addition of a extended-family member or unrelated individual to the household may reduce efficiency but would nevertheless increase net welfare if these benefits are sufficiently high. Consistent with these hypotheses, we find that (vi) households where the head has more inherited land, and consequently the marginal product of labour is higher, is more likely to include the co-residence of extended family members and unrelated individuals; (vii) household heads exposed to greater income volatility due to the characteristics of their inherited land and local rainfall conditions are more likely to end up with extended-family households; (viii) household food consumption is more sensitive to shocks to agricultural

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