Field Experiments on Risk, Time and Social Preferences and Intra-Household Decision-Making: A Road Map

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Abstract:

The household is the locus of a number of important economic decisions, including decisions on household expenditure, savings and investment, and migration and household formation. To be effective, development and family policies that target poor and vulnerable households need to be informed by a proper empirical understanding of the well-documented theoretical complexities of intra-household decision-making. Experimental and Behavioural Economics, the current state-of-the-art in Economics for studying human behaviour, is a key to advancing our understanding of the black box of intra-household decision-making. A central component of Behavioural Development Economics includes the study of individual preferences, including risk, time and social preferences. Although field experiments have experienced a major surge in the past decade, only a handful of field experiments have investigated the role of risk, time and social preferences intra-household decision-making. The aim of the paper is to provide a bird's eye view of field experiments on risk, time and social preferences and intra-household decision-making, using a mapping and/or scoping review. The paper has the following broad objectives: (1) to identify field experiments on risk, time and social preferences and intra-household decision-making; (2) to describe key characteristics of each field experiment; (3) to outline the methods used to investigate risk, time and social preferences in intra-household decision-making, (4) to summarise the theoretical approaches and theoretical findings of each experiment; and (5) to identify various windows of opportunity for advancing the experimental research agenda in this field of study.

JEL codes: D13, C93, D03

Keywords: intra-household decision-making; field experiments; family studies

1. Introduction

The family is at the core of the development challenge, particular in poor communities. Families on a daily basis make decisions of importance to achieving various development goals, including household expenditure, savings and investment, and migration and household formation, or more generally, what Elliot and Gray (2000) describe as decisions of an instrumental (money, health and food), economic (use and gathering of resources), and social (values, roles and goals) nature. Yet, intra-household decision-making is not well understood by economists and other social scientists. Experimental and Behavioural Economics, the current state-of-the-art in Economics for studying human behaviour, is a key to advancing our understanding of the black box of intra-household decision-making. One central component of Behavioural Development Economics includes the study of individual preferences, including risk, time and social preferences. Field experiments in particular have experienced a major surge in the past decade (Card, Dellavigna & Malmendier, 2011), in what Levitt and List (2009) describe as the third main period in the use of the experimental method by economists. Yet, only a handful of field experiments have investigated the role of risk, time and social preferences intra-household decision-making. The aim of this paper is to present an overview of these studies, with a view to informing the development of the Lesika Family Field Laboratory, a research programme focused on the investigation of the dynamics of intra-household decision-making in the extended, multi-generational family by adopting a multi- and inter-disciplinary approach to field experiments grounded in Experimental and Behavioural Economics. The paper is structured as follows: first, we describe the approach employed in identifying the studies included in the review, followed by an outline of the framework employed in mapping out key features of these field experiments on intra-household decision-making. Next, we present a summary of the results of the mapping review. Based on these findings, we outline various windows of opportunity for advancing the experimental research agenda on intra-household decision-making.

2. Methodology

This paper employs a mapping and/or scoping review to (a) map out and categorise existing literature on field experiments on intra-household decision-making and to (b) conduct a preliminary assessment of the size and scope of this literature, with a view to describing the

nature and extent of this body of research and for identifying research gaps and opportunities for further research in this field of study (Grant & Booth, 2009).

Selection criteria:

Studies to be screened for inclusion in the review were identified by conducting a search on various online academic databases, in particular EconLit. The search string included the following terms: ((decision OR preference OR choice) AND experiment* AND (household OR couple OR spouse OR family)). The advanced search function was employed, restricting results to those publications where the search terms appear in the title, abstract and/or key words and to peer-reviewed publications. Publications meeting these search criteria were screened for inclusion in the mapping review against four main selection criteria, assessed by means of browsing through the full text of the relevant journal article:

Firstly, the experiment, in accordance with Harrison and List's (2004) taxonomy of field, must introduce realism into one or more of the six "field context" classification criteria employed to distinguish field experiments from conventional laboratory experiments, natural experiments and econometric analysis of observational data.

Figure 1: A Field Experiment Bridge

Controlled Data			Modeling Naturally-Occurring Data	
LAB	AFE	FFE	NFE	NE, PSM, IV, STR

Where:

- LAB: Lab experiment
- AFE: Artefactual field experiment
- FFE: Framed field experiment
- NFE: Natural field experiment
- NE: Natural experiment
- PSM: Propensity score matching
- IV: Instrumental variables estimation
- STR: Structural modeling

Source: Figure 2 in List (2006: 7).

Harrison and List (2004) developed a rather comprehensive typology or taxonomy for the classification of experimental designs (Figure 1). On the extreme right (the "east"), the focus is on quantitative and econometric analysis of observational, survey data, with an emphasis

on the use of a number of advanced econometric tools developed for the purpose of establishing a counter-factual, and in the process, recovering an estimate of the treatment effect(s) or impact(s) of a specific intervention. These include instrumental variables (IV), difference-in-difference (DD), regression discontinuity designs (RDD), propensity score matching (PSM) (Harrison & List, 2004; Angrist & Pischke, 2010). On the extreme left (the "west"), we have the conventional laboratory experiment, which is strong on theory and almost always use volunteer student subjects. Field experiments in methodological terms provide a bridge between these two study designs, the one, conventional laboratory experiments, which is high on internal validity, being designed to meet Smith's (2010) four tenets of control (i.e. non-satiation, saliency, dominance, privacy), the other, econometric analysis, stronger on external validity and generalisation, which Smith (2010) describes as the requirement of replication or parallelism (Harrison & List, 2004). A distinction is made between experiments with different "field contexts", based on six factors. These include (a) the nature of the subject pool, (b) the nature of the information that the subjects bring to the task, (c) the nature of the commodity, (d) the nature of the task or trading rules applied in the experiment, (e) the nature of the stakes or rewards, and (f) the nature of the environment in which subjects operate during the experiment (Harrison & List, 2004; List, 2006). The three main types of field experiments are distinguished as follows: (i) arte-factual field experiments (AFE) introduce reality into the experiment in terms of the first factor only, the subject pool; (ii) framed field experiments (FFE) introduce a degree of reality into one or more of the second, third, fourth and fifth factors; (iii) natural field experiments (NFE) extend reality into the environmental domain.

Secondly, the study needs to be experimental in the sense of including a decision-related treatment, which, in its most basic form, requires the assignment to and execution of decision tasks by individuals and groups, where groups are organised along family-lines, such as in couples, parents and children, or based on some other form of kinship or marital arrangement.

Lastly, the study is required to include an experimental evaluation of risk, time and/or social preferences, in line with experimentation in Behavioural Economics, using one or more of the standard experimental tools developed for this purpose (Cardenas and Carpenter, 2008). Croson and Gächter (2010) describe the use of such tools as the use of experiments as measurement tools, which represents an important intersection between Experimental and Behavioural Economics.

Framework:

The field experiments were described, classified and compared in terms of the following:

First, we describe where and when the experiments were conducted.

The *second* core component of the overview comprises the experimental features of the studies. In line with the basics of causal inference as described by Shadish, Cook and Campbell (2002), we include in our overview details on the treatments or manipulable causes (X) of each field experiment. In regards to Harrison and List's (2004) taxonomy, we tabulate information on the subject pool, pay-offs and environment, and, based on this and other information, classify the experiments according to the taxonomy's typology of field experiments: arte-factual, framed and natural field experiments.

The review outlines how each study employ experimental tools from Behavioural Economics to study the role of risk, time and social preferences in intra-household decision-making. We use Cardenas and Carpenter's (2008) classification of individual preferences, and, within each category, identify the specific experimental evaluation tools employed in eliciting information on these categories of preferences. The classification (with experimental tools) is as follows: (a) propensity to cooperate in social dilemmas (prisoner's dilemma (PD); voluntary contribution mechanism (VCM), and common pool resources (CRP), games), (b) trust and reciprocity (dictator (DG) and trust (TG) games), (c) norms of fairness and altruism (ultimatum (UG) and dictator (DG) games), and (d) risk and time preferences. We delineate the latter into two separate categories for risk and time preferences, respectively.

Last, we assess the extent to which each experiment adopts an Economic or Psychological approach to experimentation. Hertwig and Ortmann (2001: 383) identify four key differences in the approach to experimentation adopted in Economics and Psychology. The Economic approach entails (a) the use of a precisely defined script, (b) conducting repeated experiments to allow subjects to familiarise themselves with the task and environment, (c) paying subjects in accordance with clearly defined criteria, and (d) not employing any kind of deception.

A *third* component of the review focuses on the role of theory in the field experiments. Harrison and List (2004) emphasise the role of thought experiments in informing the design of laboratory and field experiments, or for that matter, any empirical study of economic behaviour. Card, Dellavigna and Malmendier (2011) adopt a four-way scheme to distinguish

the roles of theory in field experiments, namely (a) descriptive (D) – no formal model specification, (b) single model (S) – testing one formally specified model, (c) competing models (C) – testing of two or more alternative models, and (d) parameter estimation (P) – specification of a complete data-generating process for recovering estimates of structural model parameters from observational data. This classification is employed to map out the theoretical features of each experiment, in particular regarding theories of intra-household decision-making. In addition, we summarize the theoretical implications of the empirical findings of each field experiment and identify non-economic theories that may be useful in providing an explanation for particular empirical findings of the field experiments.

Fifth, we provide information on the use in these field experiments of additional data collected by means of questionnaire from experimental subjects, describing the methods of data collection, the type of data collected and the use to which this information is put in documenting the field experiment.

Box 1:

Field Experiments on Risk, Time and Social Preferences and Intra-Household Decision-Making

Bateman, I. & Munro, A. (2005) An experiment on risky choice amongst households. *Economic Journal* 115: C176-C189.

Carlsson, F., He, H., Martinsson, P., Qin, P. & Sutter, M. (2012) Household decision making in rural China: Using experiments to estimate the influence of spouses. *Journal of Economic Behavior & Organization* 84: 525-536.

Carlsson, F., Martinsson, P., Qin, P. & Sutter, M. (2013) The influence of spouses on household decision making under risk: an experiment in rural China. *Experimental Economics* 84: 525-536.

De Palma, A., Picard, N. & Ziegelmeyer, A. (2011) Individual and couple decision behaviour under risk: evidence on the dynamics of power balance. *Theory & Decision* 70: 45-64.

He, H., Martinsson, P. & Sutter, M. (2012) Group decision making under risk: An experiment with student couples. *Economics Letters* 117: 691-693.

Iversen, V., Jackson, C., Kebede, B., Munro, A. & Verschoor, A. (2011) Do Spouses Realise Cooperative Gains? Experimental Evidence from Rural Uganda. *World Development* 39(4): 56-578.

Peters, H.E., Ünür, A.S., Clark, J. & Schulze, W. (2004) Free-riding and the provision of public goods in the family: A laboratory experiment. *International Economic Review* 45(1): 283-299.

3. Findings

A total of seven publications are included in the mapping review (Box 1). Two articles employ data collected as part of the same field experiment, the one using the risk preference data and the other the time preference data. Of the six field experiments, two are conducted in China, one in rural and the other in urban China, three in developed countries, namely Germany, the United Kingdom and the United States, and one only in a developing country, Uganda. Two studies were published around ten years ago (Peters et al., 2004, which, in fact, is described by the authors as the "first economics experiment of family decision-making"; Bateman & Munro, 2005), while the others were published relatively recently (2011-13).

Experimental features:

The experiments have the same design in regards to the decision-making "treatment": in each case, individual preferences and choices are elicited first, with individual spouses or family members answering questions individually, physically separated from each other, followed by an elicitation of joint preferences and choices, where couples or groups of family members answer the same questions together, communicating in the process. In some cases, individuals were also asked to record their expectation of the choice or preference of the couple or family prior to the joint elicitation of preferences (De Palma et al, 2011).

In regards to the subject pool, the studies, except for Peters et al (2004), who conduct an experiment with parent-child groups, focus exclusively on decision-making by married, cohabiting couples (Table 1). The number of subjects in each experiment ranges from 22 (De Palma et al, 2011) to 240 (Iversen et al, 2011). (Generally speaking, experiments using volunteer student subjects are classified as laboratory rather than field experiments. In the case of He et al's (2012) experiment, however, the use of actual student couples introduces realism into the experiment, unlike in laboratory experiments of group decision-making, where students are randomly assigned to groups, and may be classified as a field experiment.) These couples or family groups participating in the experiment, which one can describe as "naturally occurring groups with a joint history" (He et al, 2012), bring their own real-world information and past experience regarding decision-making and joint decision-making with spouses or other family members into the experiment.

Real pay-offs to a large extent is the single most important cornerstone of the methodology of Experimental Economics, ensuring the incentive compatibility necessary for experimental

subjects to reveal their true preferences. All seven studies employed real monetary rewards and insofar as rewards were sufficient and substantial in relation to average daily wages (Table 1), the experiments can all be described as high-stakes experiments. Randomised lottery systems were employed to randomly select one choice task to be executed for payment, often per experimental round (e.g. for individual and joint choice) and/or task-type (e.g. time and risk preferences tasks).

Three of the experiments are conducted in a natural, real-world environment, namely in the couple's apartment or the household residence (Carlsson et al, 2012/13; He et al, 2012). Two other experiments conducted the study in a field-type, non-laboratory environment, a public place (village hall or government office building), either with all subjects (Iversen et al, 2011) or for a sub-set of subjects (Bateman & Munro, 2005).Three studies, those by Peters et al (2004), Bateman and Munro (2005) and De Palma et al (2011) conducted the experiment in a computer laboratory situated on the university campus.

Based on this evidence, four of the experiments (Peters et al, 2004; Bateman & Munro, 2005; De Palma et al, 2011; Iversen et al, 2011), can be classified as framed field experiments (FFE), using a real-world subject pool and ensuring realism in the information subjects bring into the experiment and the rewards or stakes, i.e. actual money, but being conducted in a relatively artificial setting, i.e. a computer laboratory, village hall or government building. The experiments by Carlsson et al (2012/13) and He et al (2012) may be classified as hybrid types, given the real-world nature of the environment (couple's homes), characteristic of natural field experiments (NFE), but, as in the case of the former four experiments, the artificial nature of the rules and tasks (the risk, time and social preference elicitation tools), a feature of framed field experiments (FFE).

True to Harrison and List's (2004) call for researchers to conduct not only single experiments, but a range of experiments, to amongst others determine how evidence travels from the laboratory to the field, and vice versa, and to bring to bear as much evidence as possible on any single research question, on experiment comprises a "mixed" type experiments. Peters et al (2004), in addition to family group subjects, conducted their "strangers" experiment with a group of under-graduate students, employing these results as a "baseline" against which to compare the findings from the "mixed strangers" treatment.

The experimenters for the most part adopt the Economic approach to experimentation, using a clearly defined script, providing participants with real monetary rewards, and not employing deception. The only exception perhaps in terms of following the Economic approach to experimentation is the use of repeated trials. Almost all studies include only a small number of practice rounds to familiarise study subjects with the experimental procedures, often only one, normally including a verbal explanation and visual illustration of the tasks. Peters et al (2004) and De Palma et al (2011) executed a relatively large number of repeated experimental rounds, in this case eleven sessions, each with eight decision rounds (Peters et al, 2004) and 22 couples playing a total of 3,828 lotteries (De Palma et al, 2011).

Risk, Time and Social Preferences:

The majority of studies focus on risk preferences and employ multiple price list-type (MPL) investment series or accept/reject lotteries to elicit risk preferences of individuals and couples. Generally speaking, couples are found to be more risk averse than individual spouses. Only one study focused on time preferences (Carlsson et al 2012), but, given the fact that time and risk preferences are related and more specifically inter-related, adjusted in their data analysis of time preferences for differences in risk preferences. Two studies, Peters et al (2004) and Iversen et al (2011), focus on social preferences, in particular cooperation. There is scope to employ a broader range of experimental tools or games in field experiments of this nature to elicit information on related risk, time and social preferences. An example includes Peters et al (2004), where in testing for altruism the experimenters could have employed Ultimatum (UG) or Trust (TG) games to obtain a measure of altruism. Trust and reciprocity moreover is a social preference of particular importance to inter-generational decision-making, thus warranting the use of Dictator (DG) and Trust (TG) games in field experiments focused on intra-household decision-making in extended families.

Theory:

The experiments all adopt either a single [S] and/or competing [C] approach to the use of theory, either testing for one specific theoretical model of intra-household decision-making or conducting a test comparing specific features of alternative theoretical models. One can distinguish three main theoretical “projects” across the seven experiments, testing the Rotten Kid Theorem, investigating the nature of intra-household bargaining processes, and assessing

whether behavioural anomalies common to non-EUT theories of decision-making characterise intra-household decision-making:

Altruism, family public goods and the Rotten Kid Theorem:

An important assumption in economic models of intra-household decision-making is that families are sufficiently altruistic to provide an efficient level of family public goods. Peters et al (2004) aims to test for the Rotten Kid Theorem in their experiment, assessing the extent of free-riding by parents and children. The study finds that parents and children, as one would expect under conditions of altruistic cooperation, contribute more to family public goods. Parents however in some instances contribute more to the group account than do children, suggesting that there is some support for the Rotten Kid Theorem.

Bargaining and cooperative bargaining decision-making processes:

The majority of studies, all except Peters et al (2004) and Bateman and Munro (2005), (interestingly these are the two oldest experiments) focuses on an investigation of the nature of the bargaining process taking place in the household, in particular how individual preferences and specific socio-demographic and socio-economic characteristics of individual and couples impact on couple's joint preferences. Iversen et al (2011) takes the latter one step further by investigating whether and to what extent spouses realise cooperative gains under conditions of asymmetric information, at the hand of five hypotheses.

There is strong evidence of bargaining: joint decisions generally lie somewhere in between individual decisions. De Palma et al (2011) find that the balance of power in households shifts. In their experiment, the decision-making power of men initially exceeded those of females, i.e. joint decisions were closer to the individual preferences of men, a finding similar to that reported by Carlsson et al (2012/13). Yet, in De Palma et al's (2011) experiment, those women ultimately implementing decisions gained power over the course of the decision-making process. Carlsson et al (2013) in turn find that when it comes to couple's risk preferences, that women have a stronger influence relative to men, specifically where women contribute more to household income, live in higher income households, and, interestingly, are members of the communist party. Gender so too features prominently in Iversen et al's (2011) experiment, which finds that,

"Spouses frequently do not maximise surplus from cooperation and perform better when women are in charge of allocating the common pool. Women contribute less to this household common pool than men and opportunism is widespread. These results cast doubts on many models of household decision making. Experimental results are correlated with socio-economic attributes and suggest that assortative matching improves household efficiency. Developing non-cooperative household models sensitive to the context-specificity of gender relations emerges as a promising future research agenda."

Behavioural anomalies:

Bateman and Munro (2005), clearly the most involved theoretically of all seven experiments, aims to determine if household preferences exhibit the same behavioural anomalies observed in individual preferences. The experiment investigates the following three anomalies, each of which contradicts the expected utility theory (EUT) of decision-making: common ratio effect; common consequence effect; betweenness property. According to the results, decision-making by couples are subject to both the common ratio and common consequence effect. Bateman and Munro (2003) in conclusion hint at the potential use of non-EUT theories of behaviour such as regret and prospect theory to investigate such behavioural anomalies, which presents yet another avenue for further experimental research on the topic of intra-household decision-making.

Multi- and inter-disciplinary theoretical perspectives:

There is substantial scope in experiments on intra-household decision-making to adopt a more multi-disciplinary theoretical perspective, drawing on insights from sociology, psychology and anthropology, not only in the interpretation of the findings, but potentially in the design of further laboratory and field experiments, including the collection of additional relevant primary data as part of the experiment, such as through pre- and post-experimental questionnaires. Peters et al (2004) recognise the potential role of the biological model of kin selection in explaining why they find that parents are more altruistic than children. De Palma et al (2011), in their explanation of shifts in decision-making power among spouses over the course of the experiment's multiple rounds, make reference to the social exchange perspective on family power dynamics from social psychology and evidence from the marketing literature of an adaptive, learning curve-type spousal decision-making dynamic. The strong evidence on how important gender is in explaining the outcomes of bargaining

and cooperative bargaining decision-making processes emphasises the potentially very useful role for Sen's cooperative conflict model regarding gender-based perceptions regarding common household interests (Iversen et al, 2011).

Non-experimental data collection and analysis:

All experiments, with the exception of He et al (2012), collected quantitative data on the basic socio-economic and socio-demographic characteristics of study participants, most often administered at the start of the experiment in a pre-experimental questionnaire, at the completion of the individualised part of the experiment and prior to the joint decision-making component, or as a post-experiment questionnaire. Common attributes on which individual-level data are collected are age, gender, occupation and education. A number of experiments also collect data on the characteristics of the decision-making units, in this case couples mainly, either from individual subjects, or, most commonly, from the couples, including the duration of the relationship, number of children, and family or household income. This quantitative information in some cases are only used for descriptive purposes, to describe the characteristics of the subjects (Peters et al, 2004) and, in others, to compare the subject pool to the general population to draw some conclusions regarding the representativeness of the subject pool (De Palma et al, 2011). In more recent studies, however, the empirical approach followed by the authors is to conduct multivariate regression analysis where couple's preferences are regressed on estimates of individual preferences and a series of these covariates or determinants of individual and household-level preferences (Carlsson et al, 2012/13; He et al, 2012). At the more qualitative-level, Iversen et al (2011) complemented the quantitative analysis of their experimental data with data from marital histories collected for a sub-sample of experimental subjects a number of weeks after the completion of the field experiment.

Some studies collect additional, more "qualitative" information on aspects of intra-household decision-making to complement the experimental data. De Palma et al (2011) for example employed video recordings to record how long couples discussed joint decision, who among the spouses participated in the discussion for how long, and who 'ultimately" made the decision, in terms of clicking the mouse. (The latter information is biased, however, because joint decision-making took place in the computer cubicle occupied by the female spouse in the first part of the experiment when the experimenters elicited information on individual

preferences.) De Palma et al (2011) also collected information on the perceived influence of spouses on the couples' decision-making in regards to situations of everyday life. (There is no evidence however that De Palma et al (2011) actually used this information their analysis. Carlsson et al (2012) likewise collect information on social capital from study participants, but fail to report on the outcome or employ the data in any empirical analysis.) Carlsson et al (2013) in their experiment asked study participants whether mainly the wife, both husband and wife, or, mainly the husband make decisions regarding daily household finances and small and large investment decisions, whereas Iversen et al (2011) collected information on whether subjects felt they have full or incomplete information on their spouse's finances. In some cases, however, these data are mainly employed for descriptive purposes and not included in the main part of the empirical analysis aimed at investigating intra-household decision-making processes.

4. Limitations

The scoping and mapping review at present includes only field experiments published in scientific journals. A next step, therefore, is to include in the overview field experiments published in working paper series of research institutes and universities and in the greyer literature beyond, which documents ongoing research, a requirement of scoping reviews (Grant & Booth, 2009). Examples include Cochard et al's (2009) experiment in Toulouse, France, on cooperation between spouses using Prisoner Dilemma (PD) games; Abdellaoui et al's (2011) study of the risk and time preferences of Parisian couples; Kebede et al's (2011) experiment on intra-household efficiency in Ethiopia using Voluntary Contribution Mechanism (VCM) games, which reject both the unitary and collective models of intra-household decision-making; Couprie et al's (2012) investigation of the social preferences of French and German couples and the equity-efficiency trade-off; Beblo and Beninger's (2012) study in Mannheim, Germany on income pooling between husbands and wives; Ambler (2013) and Ambler et al's (2013) educational subsidy experiment on trans-national household decision-making by El Salvador migrants.

For a more complete understanding of the larger body of experimental research on and/or relevant to aspects of intra-household decision-making, it is imperative to expand the rather strict selection criteria employed in this paper. One obvious way to do this is to include experimental studies that do not investigate risk, time and social preferences in relation to

intra-household decision-making. Using such inclusion criteria will result in the inclusion in the review of at least five relatively prominent field experiments in the intra-household decision-making literature: Ashraf's (2009) study on spousal control and intra-household decision-making in the Philippines; Attanasio et al's (2012) research in Columbia on risk preferences and risk pooling in groups of Familias en Acción (FeA) programme beneficiaries related in terms of kinship or friendship; Robinson's (2012) experiment on the impact on household expenditure of random income shocks to couples in Kenya; Munro and Popov's (2013) set of goods exchange experiments in the UK with individuals and couples testing for individual decision-making anomalies in household decision-making in regards to the compromise and endowment effects, asymmetric dominance, and "more-is-less" preference reversals; and Munro et al's (2013) investigation in India into the labour productivity of work teams composed of spouses as opposed to mixed-sex strangers.

The mapping and scoping review moreover is only a precursor to a more in-depth literature review and a practical investigation into the experimental designs, recruitment strategies, experimental protocols and experimental tools employed in these and other experimental studies, as the groundwork for the design and execution of a series of field experiments focused on the investigation of the dynamics of intra-household decision-making in the extended, multi-generational family.

5. Conclusion

The experiments are high-stakes, incentive compatible experiments conducted in accordance with the economic approach to experimentation. There is evidence that intra-household decision-making is subject to the same behavioural anomalies as individual decision-making, of a strong gender-element in intra-household bargaining processes, evidence that cooperative bargaining does not well characterise decision-making of couples, which necessitates the development of uncooperative bargaining theories

There is scope for conducting field experiments of this nature in South Africa. The studies, with one exception, focus on joint decision-making by married, cohabiting couples. Advancing knowledge in this field, from a South African perspective, requires field experiment(s) that focus on inter-generational aspects of decision-making within the extended family context, moving beyond the exclusive focus in field experiments conducted to date on decision-making by married couples in nuclear families. Within this context, the transmission

of risk, time and social preferences between generations is a particularly interesting research question, a question that has mainly been investigated in conventional laboratory experiments and hence can be extended to field experiments.

Insofar as the majority of studies focus on a study of risk preferences, there is scope for the further investigation of time preferences and intra-household decision-making, including the relationship between risk and time preferences. There is scope too for employing social preference games, such as Ultimatum (UG) or Trust (TG) games, as measure of altruism, and Dictator (DG) and Trust (TG) games, to measure trust and reciprocity, which are important in understanding cooperative decision-making and investments in family public goods.

There is scope, moreover, for field experiment(s) which, unlike almost all those discussed here, adopts a more multi-disciplinary perspective in the study of intra-household decision-making, including in the study theoretical perspectives on family life from sociology, social psychology, social work and anthropology. There is also ample scope for the use of research methods from other disciplines to better understand the complex social context in which household decisions are made, including the use of family narratives and family histories (Miller, 2000). One potential novelty comprises the adaptation of geno-gram-type techniques to map out the complex social, cultural and economic spaces of inter-generational decision-making in the extended family (McGoldrick, Gerson & Petry, 2008).

Another important window of opportunity is to nest such field experiments in a larger social experiment. One example is to investigate the role of family strengthening programmes in improving family functioning and family cohesion, to increase trust, altruism and reciprocity, which in turn may result in an increase in investments in family public goods such as education, health and family time. Such evaluations most likely are of particular interest to policy makers, as the Department of Social Development embarks on the implementation of the White Paper on Families. Another example is the South African Social Security Agency's (SASSA) adoption of an automated bio-metric, smart card for the payment of social grants, which, depending on who uses the card and how, may impact positively or negatively on household expenditure on items such as food, education, health care and savings. A third possibility is financial literacy programmes, which may impact risk and time preferences as well as financial decision-making processes in the household.

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Table 1: Field Experiments on Intra-Household Decision-Making – Summary of Selected Study Characteristics

	Bateman & Munro (2005)	Carlsson et al (2012)	Carlsson et al (2013)	De Palma et al (2011)	He et al (2012)	Iversen et al (2011)	Peters et al (2004)
Location (year)	Norwich [urban] and Norfolk [rural], United Kingdom (2002/03)	Guizhou province, rural China (2007)	Guizhou province, rural China (2007)	Jena, Germany (2005) [urban]	Guiyang, China [urban]	Eastern Uganda [rural]	Ithaca, United States of America (UDS) (1996/97) [urban]
Treatment(s)	Individual choice; individual prediction of spouse's choice; joint choice	Individual choice; joint choice	Individual choice; joint choice	Individual choice; joint choice	Individual choice; joint choice	Size of individual endowment; control over allocation of common resource pool	Mixed Strangers [S] versus Family Groups [F] [S-F-S; F-S-F]
Subjects	76 cohabiting couples [≥21 years, living together for >1 year]	101 officially married couples	117 officially married couples	22 couples [≥30 years, living together for >1 year	100 cohabiting university student couples	240 married couples	41 family groups [1P2K; 2P1K, 2P2K]; 20 under-graduate students
Pay-offs	~£17/person [>2 times the median hourly post-tax wage]	~ 30 yuan [expected; ~2 days of paid work]	37 yuan [~3 days of off-farm labour]	€50/person [~5 times the median hourly post-tax wage]	~ 49 yuan plus 10 yuan show-up fee [~$8.30]	4,000-6,000 shillings/couple [~3-4 times the daily agricultural wage]	$68/family plus $10 show-up fee [parents $12-22, children $13-26]
Risk, Time, and Social Preferences	Risk	Time	Risk	Risk	Risk	Social	Social
	Thirteen lottery pairs	18 pair-wise lottery choices with time intervals of 0-4, 0-8 and 4-8 month intervals	Holt & Laury's (2002) MPL with 10 pair-wise accept-reject lottery choices	Twelve accept/reject lottery series	Holt & Laury's (2002) MPL with 10 pair-wise accept-reject lottery choices	DG TG CPR VCM	VCM: allocate 50c to private or group account
Environment	Village hall, computer laboratory	Household residence	Household residence	Computer laboratory	Couple's apartment	Village hall; government offices	Computer laboratory

Notes: Prisoner's Dilemma (PD); Voluntary Contribution Mechanism (VCM), and Common Pool Resources (CRP), games), Ultimatum (UG), Dictator (DG) and Trust (TG) games, (c) norms of fairness and altruism (ultimatum (UG) and dictator (DG) games; 1P2K: one parent, two kids; 2P1K: two parents, one kid; 2P2K: two parents, two kids (Peters et al, 2004).