Pathways to Development

Veier mot utvikling

Philosophiae Doctor (PhD) Thesis

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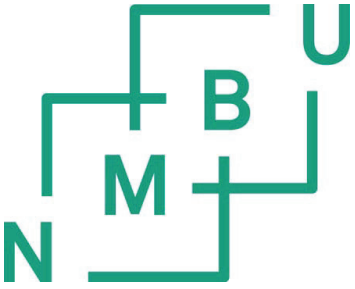

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Ås, July 2014

Maren Elise Bachke

Summary

This thesis consists of four articles and an introduction. It contributes to the debate on development, development aid and poverty reduction, and identifies possible pathways to development. In particular, I study financing of development aid projects, and farmers' organizations and legal origins contributions to poverty reduction.

Most charity organizations depend on contributions from the general public, but little research is conducted on donor preferences in Norway. Designing a conjoint analysis experiment in which people rate development aid projects by donating money in dictator games, we find that our sample show strong age, gender, regional, and thematic preferences for development aid projects run by non-governmental organizations. We also find significant differences in preferences between female and male donors. We develop a model of charitable donations with uncertainty. We increase the uncertainty of the projects by omitting information about some of the characteristics and varying the presented project information to induce differences in utility derived from the donations. As predicted by our theory, we find that omitting information about the project reduces donations.

I study the welfare effect of membership in farmers' organizations in Mozambique using difference-in-difference estimators that control for unobservable selection bias. I find a positive impact of membership on the marketed surplus, the value of agricultural production and on total income, indicating that support to farmers' organizations can contribute to poverty reduction.

Finally, I study the associations between legal origin in explaining levels of poverty, income inequality, and miserliness of countries, and I find no consistent difference

between countries with French and English legal origin on these outcomes. Moreover, French legal origin correlates negatively with income inequality and miserliness in Sub-Saharan Africa.

Sammendrag

Denne avhandling består av fire artikler og en innledning. Det bidrar til debatten om utvikling, bistand og fattigdomsbekjempelse, og identifiserer mulige veier til utvikling. Jeg ser spesielt på finansiering av bistandsprosjekter, og bondeorganisasjoner og juridiske opprinnelse sine bidrag til fattigdomsreduksjon.

De fleste frivillige organisasjoner er avhengige av bidrag fra publikum, men det finnes lite forskning på giver preferanser i Norge. Vi utviklet et *conjoint* analyse eksperiment der folk vurderer bistandsprosjekter ved å gi penger i diktatorspill, og finner at utvalget vårt har sterke alder-, kjønns-, region- og tema-preferanser for bistandsprosjekter i regi av frivillige organisasjoner. Vi finner også signifikante forskjeller i preferanser mellom kvinnelige og mannlige givere. Vi utvikler en modell for veldedige donasjoner med usikkerhet. Vi øker usikkerheten i prosjektene ved å utelate opplysninger om noen av egenskapene og ved å variere prosjektinformasjon for å indusere forskjeller i nytten folk får fra å gi. Som forutsagt av vår teori, finner vi at å utelate informasjon om prosjektet reduserer donasjonsnivået.

Jeg studerer velferdseffekten av medlemskap i bondeorganisasjoner i Mosambik ved hjelp av en forskjell-i-forskjell (*difference-in-difference*) estimator som kontrollerer for uobserverbare skjevheter i utvalget. Jeg finner en positiv effekt av medlemskap på markedsført overskudd, verdien av jordbruksproduksjonen og den samlede inntekten, noe som indikerer at støtte til bondeorganisasjoner kan bidra til fattigdomsreduksjon.

Endelig studerer jeg sammenhengen mellom rettssystemets opprinnelse og fattigdom, inntektsulikhet, og lands gjerrighet (unødvendig fattigdom). Jeg finner ingen konsistent forskjell mellom landene med fransk og engelsk juridisk opprinnelse på noen av disse

målene. Videre korrelerer fransk rettstradisjon negativt med inntektsulikhet og gjerrighet i Afrika sør for Sahara.

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List of papers

This thesis is based on the following four papers:

Paper 1: Eliciting donor preferences

Maren Elise Bachke co-authored with Frode Alfnes and Mette Wik.

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Paper 2: Information and donations to development aid projects

Maren Elise Bachke co-authored with Frode Alfnes and Mette Wik.

Paper 3: Do farmers' organizations enhance the welfare of smallholders?

Maren Elise Bachke

Paper 4: English legal origin: Good for Wall Street, but what about Main Street?

Maren Elise Bachke

Introduction

1. Introduction

Poverty reduction is, and has been, a major goal of international development aid, with altruism as an important motivation (Easterly 2002, Simensen 2003). In 2000, the UN agreed upon the Millennium Development Goals (MDG), which represents the international community's commitment to poverty reduction, improving health, and promoting peace and environmental sustainability, and they represent the overarching objective of development aid internationally. Despite good progress since 2000, it is estimated that more than 1.2 billion people still live in poverty (UN 2014).

During the last decade, donations from private individuals to development aid projects have more than doubled, and are growing at a faster pace than Official Development Aid (ODA) (OECD 2014a). This indicates that individuals act altruistically, care about others' welfare, and are committed to the overall objective of poverty reduction. Despite the fact that they do not get anything tangible in return for their donation, they seem to have preferences for development aid projects. What type of project do they prefer to support? Do they want to support men as much as children? Poor people in any geographical region or only certain regions "believed to be" poorer? How does information affect their donations? More information on these preferences and the effect of information on donations can be important for non-governmental organizations (NGOs) collecting the money.

With a clear objective and the money raised, how can we end poverty most efficiently? What policy instrument or sector reduces poverty the most? Economists still do not agree on how growth can be spurred nor on how to best redistribute income, and therefore neither on the role of development aid can play and has played (see eg. Sachs 2005, Easterly 2006a, Arndt et al. 2010). While the big growth and development aid

question might still be unanswered, progress is continuously being made on pinpointing possible pathways to development and poverty reduction.

The overarching objective of this thesis is to contribute to the debate on development, development aid and poverty reduction, and identify possible pathways to development. The research questions are:

1. What are the preferences among private donors for development aid projects run by non-governmental organizations (NGOs)?
2. How does information affect donations to development aid projects?
3. Does membership in farmers' organizations strengthen smallholders' welfare?
4. What is the relationship between legal origins and poverty levels?

The first question is addressed in Paper 1 where we characterize donors geographical, recipient and thematic preferences for development aid projects. The second question is addressed in Paper 2 where we study how less information increases the uncertainty felt by the donor, and hence reduces the donation levels. The third question is addressed in Paper 3 where I study the impact of membership in farmers' organizations on member farmers' income, value of production and marketed surplus in Mozambique. The fourth question is studied in Paper 4 where I look at the relationship between legal origin and levels of poverty, income inequality and miserliness using country level data.

2. Poverty and development aid

"What is happening on the ground?"

This question was raised repeatedly by FAO Representative Peter Vandor during my time as assistant professional officer in Mozambique. It catches the essence of what development aid should be about: changing poor people's lives.

2.1 Poverty, inequality and development

Who are the poor we would like to help? People are usually defined as extremely poor if they live on less than 1.25 PPP$ a day and poor at 2 PPP$ a day. In everyday life, this means that people struggle to fulfill their basic needs such as; i) food and shelter, ii) access to essential services such as water, sanitation, and transport, and iii) ability to get work. In practice, the poverty lines are either calculated on food-energy-intake (FEI) or on cost-of-basic needs see e.g. Ravallion (2008). According to Sen (1999) poor people lack capabilities due to the fact that they are poor. To a certain degree this makes them less able to develop and contribute to development and growth in their own society (Sen 1999). Thus, poverty in itself might actually reduce the ability to generate income.

Where are the poor? Absolute poverty is mainly a feature of very poor countries, and therefore internal redistribution may not always be an option if overall income per capita is too low. For these countries, their only option for reducing poverty is to grow. But there are other countries that have the potential to redistribute wealth to reduce poverty. These latter countries can be defined to behave miserly (Lind and Moene

2011). Inequality is seen as both supporting and constraining growth, also depending upon the degree of inequality (Banerjee and Duflo 2003, Bénabou 1996, Forbes 2000, Lundberg and Squire 2003, Wade 2004)

How can poverty be reduced and what is the role of development aid? Economist still argue whether countries over time will converge to the same level of growth or not (see e.g. Domar 1946, Harrod 1939, Jones 1997, Murphy et al. 1989, Rosenstein-Rodan 1943, Solow 1956, Swan 1956, Quah 1997), and therefore also on the theoretical potential for development aid to spur growth and reduce poverty. Recent empirical research summarized in Arndt et al. (2010), indicates that aid contributes to growth. Earlier evidence has shown that aid has a positive impact on growth in countries with good intuitions (Burnside and Dollar 2000), while others have argued that it does not (Rajan and Subramanian 2008). At the same time it is largely agreed that aid at the micro level may have a good effect (Arndt et al. 2010), however, as Easterly (2006b) points out, there might be challenges related to scaling up the aid from the micro level to the macro level. Thus, there are many potential pathways to development.

2.2 Financing of development aid projects

Private donations to development aid have increased from 12 to 30 billion[1] USD from 2002 to 2012, and have increased its weight in total development financing by 6

[1] One large donor here is the Bill and Melinda Gates foundation. In 2011 this foundation disbursed 2.66 billion USD (OECD 2013)

percentage points compared to Official Development Aid (ODA)[2] in the same period (2002-2012) (OECD 2014a). Norway is an exception as it is a large donor to development aid both as a nation and as private citizens (Knowles 2007). Normally, in countries with large governmental donations, the private sector donates less (Knowles 2007). Despite high levels of donations to development aid projects run by non-governmental organizations (NGOs) in Norway, there has been little research on donor preferences and how information affects donations.

The donation of money to somebody without receiving anything tangible in return does not fit with standard preferences of neoclassical economic, but they are a common finding in experimental economics. Altruism, fairness, inequality aversion, warm glow[3] and several other justifications have been proposed for these donations (e.g. Androni 1990, Fehr and Schmidt 1999 – see Andreoni 2006 and Engel 2011 for overviews). All these motivations can explain donations to development aid projects. Still altruism[4] is often cited as the main motivation (Easterly 2002, Simensen 2003). Duncan (2004) claims that donors are motivated by the impact their donation has on the recipients, thus the more vulnerable or poorer the person is, the larger is the impact of your contribution on their lives. Thus, donors to development probably have preference for their donations. Paper 1 in this dissertation elicits donor preferences with regards to

[2] Development financing is changing and the forthcoming OECD report for 2014 will address exactly this issue (OECD 2014b). In 2013 ODA reached a new top at 138 billion USD (OECD 2014c), however, the share of ODA of total development financing has decreased from 92 to 35 percent of total development financing flows, mainly due to the increase in foreign direct investments and remittances (OECD 2014). However, ODA remains the largest source which main objective is development (OECD 2013).

[3] Warm glow is the good feeling people get when they donate money to a good cause (Andreoni 1990).

[4] I would like to mention that countries might have other motivations than altruism arising from the overall geopolitical picture such as the cold, however, this is not the focus of this PhD.

development aid projects focusing on recipient person and region, as well as thematic issues.

Schelling (1968) was the first to report on the *identifiable victim* effect on private contributions, indicating that information about the recipient matters for donations. Several studies found support for the identifiable victim effect (see e.g., Bohnet and Frey 1999, Charness and Gneezy 2008), while Breman and Granström (2006) did not when studying cross-country altruism. For a complete literature review on empirical studies of philanthropy, see Bekkers and Wiepking (2011). Further research has shown that information on what type of organization that receives the money (Benz and Meier 2008, DellaVigna et al. 2012, Carpenter et al. 2008) and how the money is spent matters for giving (Carlsson and Martinsson 2001, Johansson-Stenman and Svedsäter 2008), but few reasons are given for how information matters. A key characteristic of donations to development aid project is uncertainty: who receives the money and how is it used? Paper 2 of this thesis supplements the current models explaining donations to development aid using rational actors acting in an environment of uncertainty, and tests some of the models predictions.

2.3. Poverty reduction, agriculture and development aid

Three quarters of the world's poor are rural semi-subsistence small-scale farmers, and the agricultural sector account for about one third of GDP in Sub-Saharan Africa (World Bank 2014a). Recent research shows that the agricultural sector's contribution towards poverty reduction is significant since agricultural growth, directly and indirectly, to a larger extent affects the rural poor than growth in the non-agricultural sector (Diao et al.

2010, Christiaensen et al. 2011, Dorosh and Haggblade 2003, Johnston and Mellor 1961). One pathway to development is therefore to support agricultural development with the aim of increasing these farmers, income, and hence reducing poverty.

One way to increase semi-subsistence farmers' income is to support their integration into the market so they can enjoy the benefits of comparative advantage and escape poverty traps (Carter and Barrett 2006, Barrett 2008). Smallholders' non-participation in markets is explained by high household specific transaction costs making market participation non-profitable (Singh et al. 1986, de Janvry et al. 1991). Transaction costs includes transport, information, contract, and risks related costs (Barrett et al. 2012, de Janvry et al. 1991), and interventions aimed at reducing these can reduce poverty (Barrett 2008). Paper 3 in this thesis addresses membership in farmers' organization as a way to reduce household transactions cost. This paper also sheds light on another strand in the literature, addressing the integration of smallholders into international markets (Reardon and Weatherspoon 2003, Sykuta and Cook 2001), and the potential and challenges this has for smallholders welfare (Barrett et al. 2012, Glover, 1987, Sivramkrishna and Jyotishi, 2008).

2.4 Poverty reduction, growth and institutions and development aid

Douglas North (1991:1) defines (economic) institutions as "*the humanly devised constrains that structure political, economic and social interactions*". Economists today agree that institutions matter for economic growth, and hence poverty reduction (Acemoglu et al. 2001). It is also widely acknowledged that "bad" institutions partly explain why developing countries do not grow as fast as other countries (Rodrik 2000).

However, there is still no agreement on what explains the "bad" institutions developing countries have or which type of institutions foster growth best, and thus, indirectly reduces poverty the most (see e.g. Acemoglu and Johnson 2005, La Porta et al. 2008, Rodrik 2000). One potential explanation is the legal origin theory which builds on the fact that different legal systems, originating in France and England, were spread around the world based on conquest, colonization and imitations (Djankov et al. 2003, Glaeser and Shleifer 2002, La Porta et al. 2008), and that the main structures and ideologies still influence the legal system today.

Furthermore, the legal origins literature has important impacts on regulations related to business as it forms part of the back ground for the Doing Business report, first launched in 2003 (Deakin 2009). The Doing business report is a World Bank project that collects indicators on the business environment in the world (Doing Business 2014), and has been used as a bench mark for reform in both developing and developed countries (Davis and Kruse 2007) to foster financial development. Paper 4 studies the relation between legal origin, and levels of poverty, income distribution and miserliness.

3. Data

This thesis draws on several different sources of data, both primary and secondary. The data are presented in detail in the respective papers. The objective of this section is to give an overview of the different data sources. First, I present the primary data used in Paper 1 and 2. Then the data from Mozambique, which is used in Paper 3, is presented, and finally, the data used in Paper 4.

3.1 The experimental and survey data (Paper 1 and 2)

These studies are based on (primary) experimental data collected in the fall 2009. The objective was to both provide information on preferences and measure the effect of information on donations to development aid projects. The data consists of experimental data from a dictator game and survey data. The sample consists of 240 students that participated in 11 different sessions evaluating a total of 60 development aid project profiles. The recruitment process and the experimental sessions[5] are explained in detail in Paper 1 – Eliciting Donor Preferences.

The experimental data

The experimental data used in this thesis is from a dictator game constructed as a conjoint analysis experiment with real economic consequences. Each participant received 250 NOK that they were to divide between themselves and a development aid project. The development aid project was describe with up to three categories of information: *recipient group* (children[6], girls, boys, women, and men), *recipient region* (Sub-Saharan Africa, South and South-East Asia, Middle-East, Latin America, and Eastern Europe), and *project type* (education, health, peace and reconciliation, agriculture, and business development. The dictator game had five treatment where we manipulated the information about the development aid projects for each treatment. The treatments were: *Full profile information* treatment where all three categories of information were presented (see Appendix B for an example of this form), *no recipient information* where the information on the recipient was removed, *no regional*

[5] See Appendix A for the presentation given during the full profile treatment.

[6] The only intended difference between children, boys and girls was gender, and these concepts were not defined further in the introductory talk. We see in retrospect that we should have defined the age range. We discuss this further in the results section in Paper 1.

information where regional information was removed, *no theme information* where thematic information was removed, and finally the *matching* treatment where the participants were informed that their money would be matched by the government at a varying rate of 10 to 90 percent. Thus, the data has manipulated variation between the treatments as is standard in dictator games. The 60 projects were blocked into groups, and each participant evaluated 15 projects.

The survey

The participants filled out a questionnaire (see Appendix C) on their knowledge about, and attitudes toward, development, political preferences, behavior, and demographics.

A total of 27 380 NOK was donated to 22 different aid projects as a results of the experiment. Thus, the students kept on average 54% of the money they received.

3.2 The official Mozambican agricultural household survey (Paper 3)

The data used for Paper 3 are taken from the official agricultural household survey produced by the Ministry of Agriculture in Mozambique with the assistance of Michigan State University. This is a semi-regular agricultural household survey, which started in 1992. The data used in this thesis is the only panel in the data, and collected in 2002 (Ministry of Agriculture 2002) and 2005 (Ministry of Agriculture 2005). In 2002, 4908 household were interviewed in 80 districts throughout the country. In 2005, it covered 6149 households throughout Mozambique, and 657 different selected interview sites were selected in 94 different districts, i.e. the 80 original districts and 14 new ones. The objective was to keep the stratified and clustered sample representative and at the same time keep a panel component of the survey. At each of the selected sites, which

could be small villages, rural settlements or urban city parts, 8 households were randomly chosen. The survey collected detailed information on household characteristics, welfare indicators, landholdings employment types and remittances as well as detailed information regarding farming practices, crops grown, harvested and sold. In addition, there is a community level survey for both years, which contains information on different issues related to marketing, prices and infrastructure. The balanced panel excluding attrition and new households included in 2005 is around 3480 households. Attrition was around 18% overall, while only around 10% of the members in farmers' organization where lost due to attrition. The attrition is not very high compared to normal panel data settings, and particularly taking into account that this is in one of the poorest countries in the world.

3.3 Legal origin, poverty, inequality and the Miser index (Paper 4)

The legal origin data[7] used for Paper 4 are from La Porta et al. (1999) and La Porta et al. (2008). The main basis for classification are the commercial laws, and La Porta et al (1998) documented systematic differences depending upon the origin of the legal system and the commercial laws. The two main origins being civil law, originating from Roman law, and common law also called English legal origin. Civil law has been divided into four sub-categories; French, German, Scandinavian and Socialist law. In 2008, La Porta et al. recoded all of the socialist countries except three (Cuba, Myanmar and North Korea) back to either French or German legal origin depending upon the main influence of their commercial laws.

[7] Data was downloaded from http://scholar.harvard.edu/shleifer/publications/quality-government on May 14th 2014.

The legal origins data are supplemented with data from the World Development Indicators, open access data compiled from officially recognized international sources, and provided by the World Bank (World Bank 2014b). I also use the Miser index (Lind and Moene 2011), which is calculated based on the average income per capita, the head count ratio and gap at 2 PPP$ with data from the World Bank, World Development Indicators, in 2007.

4. Methods

"*Trade-aid is what matters for poverty reduction!*

Increase our salaries and poverty will fall!"

The above exclamation was made by a group of trade aid development workers[8] just after the release of the first *Doing business report*, and the report indicated that aid given to support trade reduced poverty much more than other types of aid. Thus, increasing spending on trade-related development aid would reduce poverty quicker, and for us, a fast and obvious way to increase spending on trade-related development aid was to increase our salaries. And then, by a miracle, poverty would fall! (In reality, we did of course not believe there was a causal mechanism between our salaries and poverty reduction).

Empirical economic methodology pays a lot of attention to finding causal relationship, and the methodological approach depends upon the data to be used. This thesis applies both experimental and non-experimental approaches. In the following section, I shortly

[8] I was one of those aid workers.

discuss; (1) causality in experiments, and (2) causality in real world data. The overarching method applied is econometrics, a method merging economic theory, mathematics, and statistics (Frisch 1933) and in the recent decades computer science. The specific econometric methods are explained in detail in each paper.

4.1 Causality in experimental data

To infer causality one need to know that only X and nothing else - *ceteris paribus* leads to the change in Y. This is challenging in economics as it is a study of human behavior, and in a natural setting it is difficult, if not impossible, to know that only one thing and nothing else changed. Economic experiments have proven to be a useful tool in economics due to their efficiency in capturing causal relationships, and the method has become and is increasingly used in the field of economics in the last decades (Falk and Heckman 2009). Economic experiments are designed to study specific human behavior where the researcher can control the setting and information given to the participant (Smith 1976).

In laboratory experiments, the participants, often students, are invited to participate in an experiment. This experiment is usually designed as a game, and the choice of the game reflects the economic issue to be studied; market games to study market behavior (Smith 1962, 1994), coordination game to study if and how pareto optimal outcomes can be achieved (Cooper 1988,Van Huyck 1997), and dictator or ultimatum games to study social preference such as altruism, warm glow and fairness considerations (Androni 1990, Andreoni and Miller 2002, Fehr and Schmidt 1999). Within the lab, the researchers control what information is given to which group, i.e. exogenously control

the information given to the different groups participating in the experiment. This way we can ensure that the only variation between the treatments is the factor the researcher provided. In lab experiments, researches usually use real money to best reproduce actual human behavior, and it is important that experimenters do not lie.

The main criticisms against experimental methods are that they lack realism, generality due to their small samples and usual unrepresentative sample of students (Falk and Heckman 2009). An advance to counter this criticism is field experiment where the experiment is taking place in the natural setting compared to the lab, which is an artificial setting. See e.g. Carlsson et al. (2013) for a study of behavioral differences in the lab versus the field. For a good overview of field experiments, see e.g. Levitt and List (2009).

4.2 Causality in non-experimental data

In non-experimental data, we have no possibility to exogenously control the variation of X and at the same time keep everything else the same - *ceteris paribus,* thus knowing that the change in X leads to the change in Y. Thus, questions of causality are usually impossible to prove empirically, and causal statements do depend on a set of assumptions.

The simplest way is to assume that the independent variable X is not affected by anything relevant to the model at hand. We can then estimate the relationship with OLS. In many cases, the assumption that X is completely exogenous is unreasonable. One popular way to still show causal effects of X on Y is to find some other variable Z that is exogenous and only affects X. This is the instrumental variables method, see e.g.

Angrist and Krueger (2001) for a more thorough discussion. However, when studying humans and developments within societies it is not easy to find such a variable Z. Two interesting and debated examples of such instruments are settler mortality used by Acemoglu et al. (2001), and legal origin used by Beck et al. (2003). Without exogenous variation, you get correlation and not causation.

One specific issue where questions of causality are tantamount are questions of program evaluation, that is, studies with the purpose of investigating whether some policy, policy reform, or program has any effect (and the intended effect). The core of the evaluation problem is that you cannot observe a person with a treatment and at the same time without the treatment. To overcome this problem of the impossible, several methods of establishing the counterfactual have been applied (Blundell and Costa Dias 2000). Panel data is usually useful for such evaluation as you can compare the change in the selected outcome before and after the treatment and compare this difference to the same difference for people who did not participate. For a review of evaluation methods on non-experimental data, see e.g. Blundell and Costa Dias (2000), and a review of the issues of impact assessment for smallholder participation in modern value chains and contract farming is found in Barrett et al. (2012).

The main challenge with non-experimental data is the degree you either manage to find relevant and valid exogenous sources of variation and/or manage to control for selection biases and thus create a representable counterfactual.

5. Summary of papers with key findings

This thesis consists of four empirical and applied papers. They address different pathways to development. Paper 1 and 2 study the preferences among private donors and how information amount and type affect private financing of development aid projects. Paper 3 evaluates the income effect of membership in farmers' organizations in Mozambique, while Paper 4 addresses the relationship between legal origins and poverty levels, income inequality and miserliness.

Paper 1: Eliciting donor preferences

Most charity organizations depend on contributions from the general public and they have ample experience in collecting money. Research has shown that donors have preferences regarding recipient and donor organizations, despite the fact that they do not get anything tangible in return for their money, only what economists call *warm glow* (Andreoni 1990) – a positive felling from conducting an altruistic action. However, little research is conducted on donor preference. We examine charity donors preferences for *recipient group* (children, girls, boys, women, and men), *recipient region* (Sub-Saharan Africa, South and Southeast Asia, Middle East, Latin America, and Eastern Europe), and *project type* (education, health, peace and reconciliation, agriculture, and business development).

Combining well-tested methods from marketing and experimental economics, we designed an incentive-aligned method with real donations to elicit donors' preferences for attributes of charity projects. We applied it in an experiment with three five-level project attributes, and asked each participant to rate 15 of the project profiles by

donating money in a dictator game. Thus, our respondents show their liking for development aid projects by the amount of real money they donate to the project in an experiment using the *dictator game* from behavioral economics. The advantages of this method is two folded; first, we can study more attributes than usually is done in a dictator game where you usually only study few attitudes. Second, we can reduces the potential over-reporting according to what is socially desirable, as the answers will have direct economic consequences for the participants.

We find that our sample show strong age, gender, region, and thematic preferences. The differences in donations are consistent with differences in donors' attitudes toward development aid and their belief about differences in poverty and vulnerability of the recipients. Children are seen as most vulnerable and receive the largest donations, while men are seen as the least vulnerable and receive the smallest donations. Sub-Saharan Africa is seen as the poorest region and receives the largest donations, while Eastern Europe is seen as the least poor and receives the smallest donations. When it comes to recipient groups, female donors place more weight on gender than age, in contrast to male donors, and thus give more to women than to boys. It also seems that male donors focus on income-generating activities to a greater extent than female donors, and female donors are more inclined to believe in peace and reconciliation projects than male donors.

Paper 2: Information and donations to development aid projects

Information is crucial when collecting money to charities, and particularly for international development aid charities working on issues far from home. Earlier

research on information and charitable giving focused on who receives the money, in other word the identifiable victim as defined by Schelling (1968), what type of organization that receives the money (Benz and Meier 2008, DellaVigna et al 2012, Carpenter et al. 2008), how the money is spent (Carlsson and Martinsson 2001, Johansson-Stenman and Svedsäter 2008), and social distance and giving (Eckel, De Oliveira and Grossman 2007). All found that information affects donations. However, to our knowledge, this is the first study to look at the effect on donations of varying both the amount of and the type, of information on project characteristics.

We develop a model on charitable donations that build on portfolio theory. The model supplements the existing theoretical literature on identifiable victim (Schelling 1968), altruism and warm glow (Andreoni 1990) and impact philanthropist (Duncan 2004). These factors are all captured in the concept *donors' yield from donations (DYD*), which we define as the yield the donor gets from donation money to development aid projects. The advantages of this model are that it explains charitable giving using rational donors that act in an environment of uncertainty. Uncertainty is a key characteristic of donations to development aid projects where the final objective is to reduce poverty, a public good that is not easy to see. The uncertainty have a high direct impact on the utility of the donor. Furthermore, the model predicts that the higher the *donor's yield from donations,* the more they will donate, and the larger spread in *donors' yield from donations*, the lower donations if the donors are uncertain about the outcome.

We use a dictator game to test how information affects overall donation levels. We investigate how private donors in a Norwegian sample change their donations when we vary the amount and category of information regarding project attributes such as recipient, region and project theme. We find that omitting information reduces

donations, and omitting information regarding recipients and the theme of the project has the largest effect on donations. The experimental behavior seems to be in line with the assumptions and predictions of our model. We find that most donors donate a share of their endowment to a development aid project as predicted by our model and in line with the usual finding in experimental economics. They also vary their donations between the different project profiles indicating that they get different satisfaction or *donors' yield from donations* from different project characteristics.

Paper 3: Do farmers' organizations enhance the welfare of smallholders?

The majority of the poor are rural inhabitants who depend on agriculture for their livelihoods. Raising the income of the smallholders is therefore crucial to reduce poverty. It is widely recognized that increased commercialization among smallholders lead to higher production, specialization and higher incomes (Barrett 2008). One policy to this end has been to create and support farmers' organizations in development countries (Bernard and Spielman 2009, Lele 1981).

Farmers organizations' can improve small-scale farmers livelihood by: (1) reducing transaction costs in output and input markets (Barrett et al. 2012, Kelly et al. 2003, Markelova et al. 2009, Nilsson 2001, Poulton et al. 2010), (2) strengthening the bargaining power of the farmers in relation to buyers (Glover 1978, Sivramkrishna and Jyotishi 2008), (3) providing information about and access to technology (Caviglia and Kahn 2001, Devaux et al. 2009), and (4) being their voice in the political landscape (Jayne et al. 2010, Poulton et al. 2010). Furthermore, farmers' organizations are a good

way to reach the rural poor for governments and non-governmental organizations (Bernard and Spielman 2009, Nyyssölä et al. 2012).

I investigate the impact of farmers' organization membership on a household's marketed surplus, agricultural production and total income. An obvious challenge is selection of farmers with certain valuable characteristics into membership in farmers' organizations. To solve this issue, I use the panel structure of the Mozambican agricultural household survey (Ministry of Agriculture 2002 and 2005). First, following a farmer in and out of membership using a difference-in-difference estimator eliminates the effect of all unobserved farmer characteristics on the impact estimations. To further eliminate potential selection biases, I also employ a matching difference-in-difference estimator where initially comparable farmers are followed along different membership paths.

I find a significant and positive impact of membership in farmers' organizations on the marketed surplus of 25% and the value of production of 18% in the full sample. The effect on the total income seems to be around 15%. For those who mainly depend upon agriculture for their livelihoods, the effect is even larger and the coefficients are respectively 40%, 28% and 20%. Thus, farmers' organizations seem to reduce transactions cost and increase market integration and agricultural production for smallholders in Mozambique. Despite this positive welfare impact, I find a surprisingly erratic membership pattern among the small-scale farmers.

Paper 4: English legal origin: Good for Wall Street, but what about Main Street?

The legal origin theory builds on the fact that England and France historically developed different styles of legal systems, which later were spread to the rest of the world through colonization, conquest, and imitation (Djankov et al. 2003, Glaeser and Shleifer 2002, La Porta et al. 2008). The theory advocates that these legal systems maintain some key features after the transplant that matter for economic and social development today (La Porta et al. 2008). La Porta et al. (1997, 1998) show that English legal origin is beneficial for financial markets and financial development – the claim that legal origin matters for Wall Street.

Research to date shows that English legal origin protects the investors better and this has positive impact on financial development (Beck et al. 2003, La Porta et al. 1997, 1998, 2008, Mahoney 2001). Moreover, English legal origin countries have less regulations and governmental ownership than French legal origin countries (La Porta et al. 2008, Mahoney 2001). Another difference is that French legal origin uses written codes and statues as the main legal source while precedence of former settlements of disputes is more important in English legal origin (La Porta et al. 1998, 2008). Implicit in the theory is that better financial development leads to growth, and thus to economic and social development. Therefore, legal origin should be good for the general population, and hence for Main Street. So far, however, the evidence for growth is mixed (Beck et al. 2000, Berkowitz et al. 2003, Mahoney 2001), and only one study as far as I know find that financial development is disproportionally advantageous to the poor (Beck et al. 2007).

In a global sample, I find no consistent difference in levels of poverty, income inequality, and miserliness between countries with French and English legal origin.

Hence, it seems that English legal origin have few beneficial effects on the lower part of the income distribution. Furthermore, I find that German legal origin is correlated with less income inequality and miserliness, i.e. these societies do not have major poverty and wealth at the same time. Unsurprisingly, I also find that Scandinavian legal origin countries are by far the most egalitarian societies. In a sub-sample with only the Sub-Saharan African countries, French legal origin seems to have lower levels of income inequality, and a lower score on the Miser index. Poverty still seems to be unrelated to legal origin. Thus, there is little evidence that English legal origin matter for Main Street despite the good effect is has on Wall Street.

6 Overall contribution of this dissertation

6.1 Contribution of this thesis

The objective of this thesis is to contribute to the debate on development, development aid and poverty reduction. This dissertation has made the following contributions:

- Combined dictator games and conjoint experiments in to a new method to elicit donor preference where the choices have real economic consequences.
- Developed a new model explaining donations to development aid projects by uncertainty and information.
- Elicited Norwegian private donors' preference for development aid projects.
- Investigated how the amount of information matter for donation levels to development aid projects.
- Investigated that membership in farmers' organization in Mozambique increased marketed surplus, value of agricultural production and total income among

members, particularly those who depend upon agriculture as main source of cash income.

- Investigated how legal origin, and particularly English versus French legal origin, is not robustly related to levels of poverty, inequality and miserliness.

6.2 Limitations

As all research, this work also has had its limitations. Here, I will only shortly address two points to my primary data and the experimental design. With the knowledge I have today form working with these data, I would have made at least two changes in the experimental design. First, I would have defined the age range for children, girls, and boys to remove any unclarities about the age range of the recipients. Second, I would have presented only one category of information in each treatment instead of two, which we did. I believe this would have made it easier to isolate the effect of each category of information, which might have led to better insights on which categories of information that matters the most. And of course, I would have liked to increase the number of observations in all the data sets.

6.3 Policy conclusions

From this thesis, there are two main policy conclusions, one regarding financing of development aid projects and one regarding development aid projects.

First, Norwegian donors contributions depend upon the development aid projects characteristics, and they react positively to more information to raise more money. Non-governmental organizations should therefore focus their information campaigns on

children and women, education and health and Sub-Saharan Africa, and they should address male and female donors differently.

Second, membership in farmers' organizations increases smallholders' total income, value of agricultural production and marketed surplus. Thus, this indicates that supporting farmers' organizations can lead to reduced poverty among small-scale farmers, and that traditional agricultural development projects can contribute to poverty reduction.

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Paper 1

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ORIGINAL PAPER

Eliciting Donor Preferences

Maren Elise Bachke · Frode Alfnes · Mette Wik

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Abstract Most charity organizations depend on contributions from the general public, but little research is conducted on donor preferences. Do donors have geographical, recipient, or thematic preferences? We designed a conjoint analysis experiment in which people rated development aid projects by donating money in dictator games. We find that our sample show strong age, gender, regional, and thematic preferences. Furthermore, we find significant differences between segments. The differences in donations are consistent with differences in donors' attitudes toward development aid and their beliefs about differences in poverty and vulnerability of the recipients. The method here used for development projects can easily be adapted to elicit preferences for other kinds of projects that rely on gifts from private donors.

Résumé La plupart des organisations caritatives dépendent des dons du public, mais on ne possède que peu d'études sur les préférences des donateurs. Les donateurs ont-ils des préférences géographiques, de bénéficiaires ou de thèmes? Nous avons conçu une expérience d'analyse conjointe évaluant l'appréciation d'individus pour des projets d'aide au développement en fonction de leurs dons d'argent dans le cadre de jeux de dictateur. Nous constatons que notre échantillon démontre de fortes préférences d'âge, de sexe, de région et de thème. Nous constatons aussi des différences significatives entre groupes. Les différences en matière de dons sont en phase avec les différences dans les attitudes des donateurs vis-à-vis de l'aide au

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développement et leurs croyances quant au niveau de pauvreté et de vulnérabilité des bénéficiaires. La méthode utilisée ici pour des projets de développements peut être facilement adaptée pour étudier les préférences à l'égard d'autres types de projets dépendant des dons de donateurs privés.

Zusammenfassung Die meisten gemeinnützigen Organisationen sind auf öffentliche Spenden angewiesen, aber es wurden bislang nur wenige Untersuchungen über die Prioritäten von Spendern durchgeführt. Haben Spender Präferenzen mit Hinblick auf die geographische Lage, den Empfänger oder den Zweck? Wir haben ein Experiment im Rahmen der Conjoint-Analyse entworfen, bei dem Personen in Diktatorspielen Entwicklungshilfsprojekte durch die Vergabe von Spenden bewerteten. Das Ergebnis unserer Stichprobe zeigt stark ausgeprägte Präferenzen abhängig von Alter, Geschlecht, Region und Zweck. Darüber hinaus sind große Unterschiede zwischen den Segmenten erkennbar. Die Unterschiede in den Spendenbeträgen entsprechen den unterschiedlichen Einstellungen der Spender gegenüber der Entwicklungshilfe sowie ihrer Bewertung der Unterschiede zwischen der Armut und Verletzlichkeit der Empfänger. Die hier angewandte Methode für Entwicklungsprojekte kann durchaus angepasst werden, um Präferenzen für andere Projekte, die auf die Gelder privater Spender angewiesen sind, zu ermitteln.

Resumen La mayoría de las organizaciones benéficas dependen de las aportaciones del público en general, pero se ha realizado poca investigación sobre las preferencias de los donantes. ¿Tienen los donantes preferencias geográficas, temáticas o de receptores? Diseñamos un experimento de análisis conjunto en el que las personas calificaron los proyectos de ayuda al desarrollo mediante la donación de dinero en juegos del dictador. Encontramos que nuestra muestra señala fuertes preferencias de edad, género, regionales y temáticas. Asimismo, encontramos diferencias significativas entre segmentos. Las diferencias en donaciones son coherentes con las diferentes en las actitudes de los donantes hacia la ayuda al desarrollo y sus creencias sobre las diferencias en la pobreza y vulnerabilidad de los receptores. El método utilizado en este caso para proyectos de desarrollo puede ser adaptado fácilmente para obtener preferencias para otros tipos de proyectos que dependen de legados de donantes privados.

Keywords Altruism · Charitable giving · Conjoint analysis · Dictator game · Segmentation

Introduction

Governments, companies, and private donors give large amounts of money in development aid, and the total net official development aid from the OECD countries was USD 148 billion in 2011 (OECD 2012). A large share of these donations goes to development projects run by nongovernmental organizations (NGOs) such as Save the Children and the Red Cross. The level of private funding varies significantly among NGOs working with development aid. Taking Norway as

an example, some Norwegian NGOs collect more than 90 % of their income from private donors, while others receive as much as 80 % from the Norwegian government (Bolle 2010). The percentage of Norwegian households giving to development aid organizations was 43 % in 2009 (Wollebæk and Sivesind 2010). Hence, the organizations have ample experiences in collecting money from the public, but they have little empirical research on private donor preferences on which to build their campaigns. This despite the very large sums collected by these charity organizations.

Development projects differ from ordinary products in that the donors do not get anything tangible in return for their money, however, they might get what economists call *warm glow*—a positive feeling from conducting an altruistic action. Following Andreoni (1990), warm glow represents a purely egoistic motivation for the altruistic action. Donors are likely to have preferences regarding the use and consequences of their donations. Most of the research on donor preferences is based on surveys, and as discussed by, e.g., Burt and Popple (1998) and Lee and Woodliffe (2010), the data validity of surveys on giving to charities are likely distorted by donors over-reporting according to what is socially desirable. One way of making it costly for the respondents to deviate from their true preferences and thereby reduce the social desirability bias (Fisher 1993), is to impose real economic incentives in the method used to elicit preferences (Norwood and Lusk 2011). In this paper, we present a *conjoint analysis* experiment with real money donations to provide insights into the kind of projects private donors want to support.

Conjoint analysis is a widely applied marketing research method used to investigate consumer preferences for a large number of product attributes and attribute combinations (Wittink et al. 1994). By asking participants to evaluate a series of products that differ in attributes, one can use statistical methods to analyze how the presence or absence of various attributes influence people's choices. This type of analysis can provide implicit valuations, which can be used to design new products or services, or in guiding marketing campaigns.

The conjoint analysis methodology can be divided into rating-based conjoint methods (see, for example, Otter et al. 2004) and choice-based conjoint methods (see, for example, Vermeulen et al. 2008). In rating-based conjoint studies the respondents rate their liking for a series of product profiles on a scale such as 1–20, while in choice-based conjoint studies (often referred to as choice experiments) respondents choose between product profiles. In both cases, the product profiles include a series of product attributes, and by investigating the effects of changes in the attributes on the product rating or choice frequencies one can estimate the underlying preference function for products in terms of their attributes (see, for example, Green and Srinivasan 1990; Green et al. 2001; Rao 2008).

Our study uses a rating-based conjoint, but the design departs from other rating-based conjoint studies in that it uses a well-tested game from behavioral economics in the rating of the development aid projects. Whereas most rating-based conjoint studies ask the respondents to rate their liking for products on a scale (Otter et al. 2004), our respondents show their liking for development aid projects by the amount of real money they donate to the project in an experiment using the *dictator game*

from behavioral economics. Hence, the rating has real economic consequences for the participants.

The dictator game is a common way to measure altruistic preferences in behavioral economics. In dictator games people are asked to divide a pile of money between themselves and a second party (see, for example, Hoffman et al. 1996; Cappelen et al. 2007). People can keep all the endowed money for themselves or give some or all of it to the second party. Contrary to the predictions of traditional economic theory, people seldom keep all the money for themselves, and the amounts they give away depend on who the receiver is (see, for example, Andreoni et al. 2007, or the recent meta-analysis by Engel 2011).

Most dictator game studies involve only one type of recipient, an anonymous person that usually has the same background as the one dividing the money. In a few studies, the participants are informed about one or two characteristics of the recipients like the gender (e.g., Dufwenberg and Muren 2006), the name of the organization (e.g., DellaVigna et al. 2012) or specific programs within a charity organization (Helms et al. 2012). To our knowledge, no previous study using dictator games has tried to elicit donor preferences for a large number of recipient characteristics. Our design, combining conjoint analysis and dictator games allows us to elicit and compare donor preferences for a large number of recipient characteristics, and therefore differ from other dictator game designs in the scope of different recipients included.

A dictator game used for rating charity projects has direct economic consequences for the participants. We are not aware of any previous studies using real economic incentives in a rating-based conjoint study, but several studies use real economic incentives in choice-based conjoint experiments. Three of these studies compare the ability of conjoint analysis experiments with and without real economic incentives to predict market shares of goods (Ding et al. 2005; Chang et al. 2009; Dong et al. 2010). All three studies conclude that research using real economic incentives outperformed the hypothetical studies. For a comprehensive discussion of the pros and cons of real economic incentives in experiments, see Bardsley et al. (2010, pp. 244–285).

We used a Norwegian student sample to illustrate how conjoint analysis and dictator games can be combined to elicit donor preferences for a large number of development aid project characteristics in an experiment with real economic incentives. Combining the conjoint analysis with a dictator game, we are able to shed some light on donor preferences for various development aid project characteristics such as the age and gender of the recipient group, recipient region, and project type. To illustrate the possibilities for segmentation, we also include gender segments in the results.

The remainder of this paper proceeds as follows. First, we provide a short overview of earlier literature on charitable giving. Second, we describe the sample, questionnaire, and experiment. Third, we present hypothesis and an empirical model to analyze the experiment data. Fourth, we present results from the questionnaire. Fifth, we present results from the conjoint analysis dictator game. Sixth, we conclude with a discussion of the method and the results in relation to earlier literature on charitable giving, and its relevance to the charity industry.

Previous Research on Charitable Giving

Motivation, Fundraising Strategies, and Cost of Giving

A general finding from dictator games is that the majority give money when they are asked to divide a sum of money between themselves and another party. This has induced numerous researchers to investigate the motivation for such behavior (see Andreoni 2006; Engel 2011, for an overview). The most common explanations for giving are altruism, warm glow (Andreoni 1990), and social pressure (Akerlof and Kranton 2000). For some types of fundraising, such as door-to-door, both altruism and social pressure are likely to play an important role (DellaVigna et al. 2012).

Andreoni (2007) divide the actors in the charitable marketplace into three types: the donors of money, the charity organizations that receive it, and governments. Charitable organizations represent the demand side of the market. A few studies have investigated how fundraising strategies such as revealing the identities of donors, offering seed grants, holding lotteries, or earmarking the donations can affect the donations (Rege and Telle 2004; List and Lucking-Reiley 2002; Landry et al. 2006, Helms et al. 2012). However, to our knowledge, no studies have focused on the type of projects charity organizations should promote in order to induce private donors to give.

Governments are involved in charities in a number of ways, including giving money to charity organizations, allowing individual tax payers to deduct charitable donations from their taxable incomes, and in some case even running them. A few studies have looked at crowding-out effects from governmental giving to charities (see, for example, Andreoni 2007), some have measured the responsiveness of giving to cost (see, for example, Andreoni and Vesterlund 2001), while others have compared voluntary donations to similar programs run either by charity organizations or government agencies (Li et al. 2011). We do not discuss the role of the government in this paper.

The Effect of Knowledge About Recipient Characteristics

The standard procedure in experimental economics is to maintain the anonymity of laboratory participants. However, several studies have been conducted to observe how donations in dictator games are affected by information about the recipient, a continuation of the idea of the "identifiable victim" first presented by Schelling (1968). These studies found clear evidence that the size of donations is affected by the identity of the recipient. The focus in the literature has mainly been on varying degrees of anonymity and social distance between people (see, for example, Bohnet and Frey 1999; Charness and Gneezy 2008). In this paper, we focus on the literature on donations to organizations.

According to the meta-analysis by Engel (2011), people share on average 28.35 % of the pie in dictator games. Yet, these studies show large variation in donations. Working for money, anonymity, and the possibility of taking money from the respondents all significantly reduce the amounts given (Cherry et al. 2002; List 2007). The recipients being charity organizations instead of fellow students or

similar, result in significantly higher donations. Eckel and Grossman (1996) were the first to investigate the latter. They compared dictator games where the recipients were either anonymous individuals or the American Red Cross, and found that their participants gave three times more when the American Red Cross was the recipient.

Based on the results of their manipulation (the recipient being a student or the Red Cross) Eckel and Grossman (1996) concluded that subjects are rational in the way in which they incorporate fairness into their decisions. Other studies have found that subjects also differentiate between charity organizations and between charity projects. DellaVigna et al. (2012) found that people are more likely to give money to a more popular charity than to a less popular one in a door-to-door fundraiser. Benz and Meier (2008) reported that students at the University of Zurich gave more to university charities than to other charities. Carpenter et al. (2008) found that their participants donated more when the charity was of their own choice. Fong and Luttmer (2009) conducted a dictator game to investigate how characteristics of charity beneficiaries affected donations after Hurricane Katrina. They found that respondents significantly increased their giving when beneficiaries of the charities were perceived to be living in a more economically disadvantaged city.

Donors also have preferences for how the money is used. Breman and Granström (2008) found that donors gave more in situations where they could decide exactly how the money would be spent than if they could only donate money to a general cause. Helms et al. (2012) found that participants donated more when they could choose which program within the charity that would receive the money than when they only could donate to the charity. Carlsson and Martinsson (2001) used a choice-based conjoint experiment with real economic consequences to evaluate preferences for donations to environmental projects run by the World Wildlife Fund. They found that Swedes preferred environmental projects conducted in the nearby Baltic Sea or in the rainforest over those conducted in the Mediterranean. Johansson-Stenman and Svedsäter (2008), using a similar design, found that individual donors were more willing to give to a campaign supporting the African Elephant than one supporting the Green Sea Turtle.

Altogether, these papers provide strong evidence that people have preferences for how the money they donate is used, and vary their donations based on characteristics of the recipients. However, none of the above papers differentiates between more than five different recipients. Nor do they look at characteristics of development aid projects such as the age and gender of the recipients, the regions the money will go to, or the type of project the money will be use for.

Donor Segments

Several researchers have investigated gender effects in dictator games and the results are mixed. Eckel and Grossman (1998) found that women give more than men in these games, while Bolton and Katok (1995) found no significant difference. Andreoni and Vesterlund (2001) compared gender behavior in dictator games by varying the monetary value of the tokens being divided among players. They found that women gave more overall and were more likely to divide tokens evenly despite the different monetary values, while men became less generous as the value of their

tokens increased relative to the value of the responders' tokens. Carpenter et al. (2008) found that the age of the donor played an important role, and older people gave more than younger people. Engel's (2011) meta-analysis confirms that gender and age significantly affect the amount given in dictator games. Supphellen and Nelson (2001) developed a typology of private philanthropic decision-making based on cognitive and behavioral questions in a survey, and found that segments behave differently with respect to donations to charities. Altogether, these papers provide strong evidence that contributions to charities vary among donor segments.

Donations to Charities

Micklewright and Schnepf (2007) investigated donors giving financial contributions to overseas development causes in the UK. They found that a larger proportion of women donated to overseas charities than men, but that the mean value of donations did not differ significantly between men and women. This contrasts with giving to domestic causes, where men on average donate more than women. Another paper by Atkinson et al. (2008) investigated changes in behavior of individual donors in the UK during 25 years. They found that private donations to development charities increased at an annual rate of 7.5 % over the period, compared with an average of 2.5 % growth in GDP. The growth was not steady, however, but surged at times such as during and after the African Famine in 1983–1985.

External Validity of Giving in the Laboratory

Most studies of people's willingness to give are conducted in laboratories, however, many factors vary between experimental settings and the field (Levitt and List 2007). Most notably, the context of the giving differs with respect to where the money is coming from (earned in the labor market vs. endowed in the experiment) and the awareness of being observed, which might increase tendencies towards socially desirable behavior. Does this mean that people behave differently in the laboratory than in the real world? Andreoni and Miller (2002) found that most of the participants in their dictator games were rational altruists, meaning that they had consistent and predictable preferences for altruistic giving. This indicates that altruism seen in dictator games does not contradict economic theory. Benz and Meier (2008) found correlations between laboratory and field donations of around 0.3, and that more people donated money in the laboratory than in the field. Similar, Laury and Taylor (2008) found that laboratory behavior could predict contributions to naturally occurring public goods, but not on an individual level. Both papers indicate a positive correlation in individual behavior between lab and field, but the level of noise indicated by the level of the correlation means that the predictions about field behavior should not be done on an individual level. Furthermore, Levitt and List (2007) argue that since the properties of the situation are potentially quite different across the laboratory and field domains, one should not expect the quantitative insights to be congruent. Rather, it is comparative statics that are most reliably transferred across domains. As a consequence of the difference between

laboratory and field, the focus of most laboratory studies is on the qualitative effects of various treatments and differences between segments, and little is inferred from the absolute amount given. For a balanced discussion of external validity issues related to experiments, see Falk and Heckman (2009).

Survey data on donations have also been found to have validity problems. Burt and Popple (1998) studied participants' memory for charitable acts, including the amounts they donated to charity and the frequency of such donations. They find that recall of both the amount donated and frequency of donations produced significant overestimations. They therefore question the validity of survey data on donation size and frequency.

The Experiment

The Sample

The experiments were conducted at a Norwegian university in October and November 2009. Ninety students participated in one of five sessions lasting approximately 1 h.

The students were recruited at the university, either through visits during class hours, posters on campus billboards, or flyers in the main cafeteria. In the recruitment process, the students were asked to take part in an experiment in human decision-making. They were neither informed about the purpose of the experiment, nor about how much money they would receive. The students who wanted to participate in the experiment could choose a suitable time and date from a list of alternatives. Groups of 9–27 students met in a classroom with ample space.

Table 1 presents some descriptive statistics for the participants. Their ages ranged from 19 to 46 years, with an average of 23 years. Seventy percent of the participants were women. On average they had studied almost 3 years at university level, half were bachelor students and the other half were master students. Thirty-three percent of the participants were students in economics, 15 % studied other social sciences, and the rest were science students.

Students are of course a very special group of respondents, and one should be careful with generalizations of results from student samples to the general population. Many things change greatly after the student year, like age, income and family situation, while others are the same all the way through life, like gender. We therefore later restrict our segmentation to gender.

The Experimental Session

When the participants arrived they were given an envelope with NOK 250,[1] and asked to take a place in a large classroom. We started the session by giving the participants an introduction to the experiment, told them about the financing from

[1] According to www.oanda.com, NOK 1 = US$ 0.17 and NOK 250 = US$ 43.02 on October 1, 2009.

Table 1 Descriptive statistics of the student sample

Variable	Definition	Mean	Standard deviation
Gender	Gender of participant	0.7	
	Male = 0, Female = 1		
Age	Age of participant	22.83	3.77
Years at university	Years as a student at university level	2.86	1.63

$n = 90$

The Norwegian Research Council, and informed them about the five charity organizations[2] that would receive the money they donated during the experiment.

After the introductory talk, the participants filled out a questionnaire on their knowledge about, and attitudes toward, development aid. Second, we conducted a dictator game, in which each participant had to decide how to split the NOK 250 between himself or herself and a charity project. This was repeated for 15 charity projects. We had four versions of the form, and across all participants 60 charity projects were included. Third, one of the participants drew a number between 1 and 15, and all participants were asked to mark the corresponding project on their form. They were informed that this project would receive the money they had decided to donate. Fourth, the participants completed the stated choice experiment. Fifth, the participants answered the second part of the survey, which included questions about political preferences, behavior, and demographics. Finally, the participants entered a separate room one by one and put their completed questionnaires and the money they wanted to donate to the selected charity project into a blank envelope, which was then placed in a box. We used this double-blind procedure to secure anonymity and thereby minimize the effect of social pressure and any potential perceived reciprocity effects.

The Dictator Game

The dictator game was constructed as a conjoint analysis experiment with real economic consequences. The experiment included 15 project profiles, each described by three factors: *recipient group* (children,[3] girls, boys, women, and men), *recipient region* (Sub-Saharan Africa, South and Southeast Asia, Middle East, Latin America, and Eastern Europe), and *project type* (education, health, peace and reconciliation, agriculture, and business development). However, unlike ordinary conjoint analysis studies in which participants evaluate their liking for the profiles on a scale, our participants took part in a dictator game and were asked to donate anything from NOK 0 to 250 of the NOK 250 they had received at the start of the experiment. See Table 2 for an example of three of the 60 project descriptions used in the dictator game.

[2] These organizations were CARE (Norway), the Development Fund (Utviklingsfondet), Norwegian Church Aid (Kirkens Nødhjelp), Norwegian People's Aid (Norsk Folkehjelp), and SOS Children's Village (SOS-Barnebyer).

[3] The only intended difference between children, boys and girls was gender, and these concepts were not defined further in the introductory talk. We see in retrospect that we should have defined the age range. We discuss this further in the result section.

Table 2 Examples of the project descriptions used in the dictator game

Project	Project description	How much do you want to give?
1	Peace and reconciliation project aimed at men in a country in Latin America	NOK:_____
2	Health project aimed at girls in a country in Africa south of the Sahara	NOK:_____
3	Educational project aimed at children in an Eastern European country	NOK:_____

Each participant got 15 out of 60 project profiles

When we explained the dictator game, we illustrated the regions on a world map and provided examples of projects in each of the project types. For example, an educational project could include building schools, buying books, or educating teachers. We also carefully explained the drawing of one binding charity project and the anonymity secured by the final step of the experimental procedure. Anonymity is an important part in the design, to make the experiment as authentic as possible and to reduce the effect of social pressure from scrutiny.

After creating the project profiles we asked the five charity organizations to suggest matching development projects. We explained to the participants that behind the different project profiles there were real development aid projects run by the five charity organizations. However, we did not tell them which organization was responsible for each project. This was done intentionally as we did not want organization characteristics to influence the decisions to donate, but to focus on the project characteristics. We informed them that the money they gave to the drawn project would be donated to a similar project run by one of the charity organizations we cooperated with. Some of the profiles did not have matching projects. These profiles were therefore excluded from the draw.

Fractional Factorial Design

With three attributes (recipient group, recipient region, and project type) which have five levels each, there are 125 possible combinations of the attribute levels, i.e., the full factorial has 125 project profiles. This is too many project profiles for each of the participants to evaluate, so we decided to go for fractional factorial design, i.e., a subset of the full factorial. We decided that each participant could evaluate 15 profiles spread over three pages. To get a good spread in attribute combinations we decided to create four versions with 15 profiles each, in total 60 project profiles.

To secure identification of the main-effects we used a SAS macro (*%mktex*) to generate the fractional factorial design with minimal correlation between the attributes. We restricted the design so that children were not combined with the agriculture and business development project types. SAS reported a D-efficiency of 93.91 (out of 100) for the design, indicating that the attributes exhibit very little correlation across the project profiles. A D-efficiency score of 100 indicate no correlation between the attributes, but with our restrictions on combinations with children, that was not possible. The 60 project profiles were divided into the four

groups of 15 profiles using the SAS procedure proc optex. This secured that even within the four groups of 15 profiles, the correlation in attributes should be minimal and that the attribute levels should be spread equal over the four groups of profiles. Finally, to mitigate any ordering effects the order of the project profiles was randomly arranged within each of the four groups. For a description of the SAS macro and procedure, see Kuhfeld (2009).

Theoretical Underpinnings and Empirical Model

Theoretical Underpinnings

To reveal the preferences for development aid projects, we assume that the donors' utility depend upon both moral and wealth arguments. Following Levitt and List (2007) we assume that these arguments are additively separable, and that there is a trade-off between morality and wealth. The wealth effect depends on whether one donate money or not and on the monetary value of the donation. The moral argument depends upon: (i) the effect of the action itself on others, (ii) the set of social norms or legal rules in the society, and (iii) to what degree other people can scrutinize the action. In our study, we expect the following: (H1) donations should be highest for project benefiting those perceived most vulnerable and poor and to the those project types perceived most effective in improving the lives of the recipients (*perceived impact*); (H2) donations should be highest among groups most positive to increasing Norwegian official development aid (*attitudes and norms*); and (H3) donations should be higher than what one could expect outside the lab (*scrutiny*). The scrutiny was reduced as far as possible using a double-blind design, and was held constant over all participants. Therefore, we do not report any further on the scrutiny.

Empirical Model

Each of the 90 participants ($i = 1$–90) evaluated 15 project profiles ($j = 1$–15) by pledging donations for each project. Each project profile described a charity project using 3 five-level categorical attributes: recipient group (x_{1ij}), recipient region (x_{2ij}), and project type (x_{3ij}). To assess the effects of the various project attributes on the amount donated, we set up an additive main effect model. Because the project attributes (x_{1ij},x_{2ij},x_{3ij}) are five-level categorical variables, we transform them into a series of dummy variables, yielding the following model:

$$Y_{ij} = \beta X'_{ij} + v_i + \varepsilon_{ij} \quad (1)$$

where Y_{ij} is the donation made by participant i for the jth project offered to him, X_{ij} is a vector including the attributes of the jth project offered to participant i, v_i is the individual-specific random term, and $\varepsilon_{ij}$is the residual. We estimated the model using a panel Tobit estimator,[4] with the dependent variable censored at the lower and upper

[4] The model was also estimated using an interval regression, however, these results were not significantly different from the results we present here, thus for presentational reasons we have only presented the Tobit results.

limits of the donations, NOK 0 and NOK 250. We assume a random effects model with normal distribution random effects. Finally, we used the panel structure in the estimations because we use panel data with 15 observations per participant. It is worth noting that the main effect model allows us to estimate expected donations for 125 (5*5*5) different attribute combinations, which is significantly more than the number of recipient types included in earlier dictator games.

In addition to exploring the effect of project attributes on willingness to give for the whole sample, we also illustrate how the method can be used to investigate segmentation variables. We split the sample and estimated Eq. (1) for women and men separately.

Results from the Survey

Participants' Impressions of the Levels of Poverty and Vulnerability in the Recipient Groups and Regions

The participants were asked to assess the vulnerability of the recipient groups from "extremely vulnerable" (value 1) to "not vulnerable at all" (value 7). They were also asked to make similar assessments from "a high degree of poverty" to "very little poverty" for each of the recipient regions.

Table 3 shows how the participants evaluated vulnerability and poverty in the different groups.[5] On average, they believed that girls were the most vulnerable, followed by women, boys, and men. They also deemed Sub-Saharan Africa to be the most impoverished region, while Eastern Europe was the region with the least poverty. All differences were significant at a 5 % level using *t* tests, except the differences between Latin America, the Middle East, and Asia, which were not significant in neither the total sample nor the sub-samples.

Participants' Attitudes Toward the Level of Development Aid?

We asked the participants whether they thought the level of Norwegian development aid should increase or be reduced. The options ranged from "increase considerably" (value 1) to "be reduced considerably" (value 5). Table 4 shows that on average the participants were slightly positive towards increasing Norwegian development aid, but women were significantly more positive than men.

Results from the Conjoint Analysis Dictator Game

We discuss the results as follows: First, we look at distribution of the donations. Next we study the various project attributes and how they affect willingness to donate to development projects. Finally, we split the sample into female and male donors and study the effect of gender differences on willingness to donate money to the different project attributes.

[5] We did not specify the age of the boys and girls, and we did not ask for children as a group.

Table 3 Participants' views of vulnerabilities of different recipient groups and poverty in recipient areas

	All participants		Women		Men	
	Mean	SD	Mean	SD	Mean	SD
Recipient group[a]						
Girls	1.89	1.02	1.89	1.04	1.89	1.01
Women	2.30	1.04	2.25	1.06	2.41	1.01
Boys	3.52	1.06	3.53	1.05	3.48	1.12
Men	4.65	1.08	4.69	1.06	4.55	1.12
Recipient region[b]						
Sub-Saharan Africa	1.66	0.98	1.71	1.02	1.52	0.89
Middle East	2.81	1.26	2.79	1.03	2.85	1.26
Asia	2.98	1.02	2.92	1.0	3.11	1.05
Latin America	2.99	0.98	3.0	0.95	2.96	1.04
Eastern Europe	3.62	1.09	3.48	1.08	3.96	1.06

$n = 90$

[a] Question: How vulnerable do you think each of the following recipient groups is? Measures were from 1 to 7, where 1 was extremely vulnerable and 7 was not vulnerable

[b] Question: How much misery and poverty do you think there is in each of the following regions? Measures were from 1 to 7, where 1 was very much and 7 was very little

Table 4 Attitudes towards Norwegian development aid: should it increase or decrease?

Participants	*n*	Mean value	Median value	SD
Women	63	2.51	2	0.88
Men	27	3.02	3	1.07
All respondents	90	2.70	3	0.99

Note: Question: Do you think Norwegian development aid should increase, remain the same, or be reduced? Measures were from 1 to 5. One means increase development aid considerably, while 5 means reduce it considerably

Figure 1 shows the distribution of donations. Most students varied their pledged amount between the 15 projects. Only three students gave systematically zero to all projects and eight students systematically 250 NOK to all projects. Furthermore, most students donated the amount they pledged in the experiments, only four students gave a different amount—two gave more and two gave less than they pledged.

The Willingness to Give to Different Project Attributes

Table 5 presents the results from the panel Tobit regression estimations of the willingness to give to different project attributes (Eq. 1). The first column shows the results for the whole sample, the second column the results for the female participants, the third column those for the male participants, and the fourth column presents the difference in parameter values between the two subsamples.

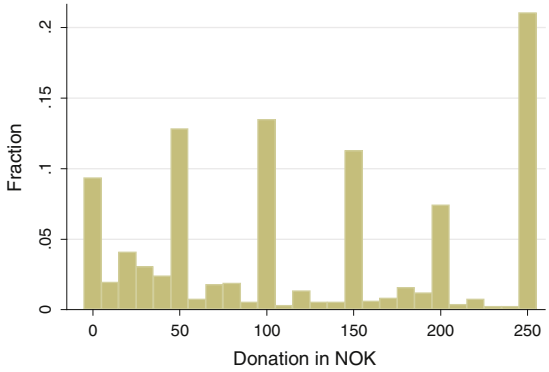

Fig. 1 Donation histogram

First, we consider the results for the whole sample. The average donation was NOK 125. Comparing the three attributes, we find that the recipient group had the highest impact on willingness to give. The participants were willing to give an average of NOK 55 more to projects directed at children compared with projects for men. The other two attributes had a smaller spread between the different options. Sub-Saharan Africa was the most popular region and it received an average of NOK 26 more than the least popular region, Eastern Europe. For the third attribute, project type, health projects received an average of NOK 22 more than peace and reconciliation projects, which were allocated the smallest average donation.

Regarding recipient groups, we find that all groups receive significantly larger sums than the comparison group (men), and children get the most, followed by girls, women, and boys. This experimental result shows the same order of the recipient groups as we found in the vulnerability of recipient groups (Table 3). Projects for children receive significantly more money than those for girls (Wald $W = 7.90$; $p < 0.01$), boys ($W = 28.51$; $p < 0.01$), or women ($W = 17.71$; $p < 0.01$). It is also the case that projects to help girls receive significantly larger sums than similar projects for boys ($W = 7.03$; $p < 0.01$), while there is no significant difference between projects aimed toward women compared with projects focusing on boys or girls. However, the results indicate some gender sensitivity when donating money. Here it is worth noting that we did not specify the age of the recipients, and the larger donations to children than to girls and boys can have two reasons. First, children may be perceived as younger than girls and boys. A second explanation may be that people dislike charity projects differentiating with respect to gender when it comes to children.

Considering recipient regions, our results indicate a significantly greater willingness to give to all other regions compared with Eastern Europe. Sub-Saharan Africa receives NOK 26 more than Eastern Europe, the Middle East NOK 22 more, Asia NOK 18 more, and Latin America NOK 14 more. The difference between the parameter values of Sub-Saharan Africa and Latin America is significant ($W = 5.26$; $p = 0.02$), while those of the others are not. All significant

Table 5 Willingness to give to different recipient groups, regions, and project types: Tobit estimation of the conjoint analysis dictator game

	Overall sample (1)	Women (2)	Men (3)	Parameter diff. gender seg. (4)
Recipient group (compared to men)				
Children	55.03*** (9.54)	61.74*** (8.56)	42.34*** (4.61)	18.20 (1.47)
Girls	39.16*** (7.22)	42.46*** (6.41)	30.58*** (3.36)	10.75 (0.90)
Boys	25.06*** (4.59)	23.86*** (3.54)	28.96*** (3.24)	−5.75 (−0.48)
Women	30.87*** (7.07)	36.58*** (6.84)	17.13** (2.36)	19.09** (1.99)
Recipient region (compared to Eastern Europe)				
Sub-Saharan Africa	26.01*** (5.40)	26.15*** (4.39)	25.30*** (3.20)	0.19 (0.02)
Middle East	21.81*** (4.44)	20.57*** (3.39)	24.50*** (3.04)	–4.26 (–0.40)
South and Southeast Asia	18.93*** (3.88)	15.55*** (2.59)	28.30*** (3.50)	−13.37 (−1.25)
Latin America	14.30*** (2.76)	10.59* (1.67)	23.41*** (2.72)	−13.50 (−1.18)
Project type (compared to peace and reconciliation)				
Health	21.59*** (4.91)	16.65*** (3.06)	32.16*** (4.49)	−16.20* (−1.69)
Education	19.80*** (4.39)	17.39*** (3.13)	23.42*** (3.15)	−6.63 (−0.67)
Agriculture	15.86*** (2.68)	11.19 (1.54)	26.59*** (2.71)	−16.21 (−1.25)
Business development	7.709 (1.31)	2.215 (0.31)	19.58** (2.02)	−17.90 (−1.39)
Female dummy				52.38* (1.72)
Constant	80.68*** (5.73)	96.19*** (5.84)	45.01* (1.75)	
Sigma_u	121.2*** (11.38)	117.6*** (9.51)	123.2*** (6.26)	
Sigma_e	51.00*** (40.76)	52.79*** (34.18)	45.24*** (22.23)	
N	90	63	27	

Note: *t* statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$. (4) is the difference between the parameter in the female and male sample

differences correspond to the results of perceived poverty in the regions (Table 3), with Sub-Saharan Africa at the top and Eastern Europe at the bottom.

Looking at the project types, we find that health (NOK 22) and education (NOK 20) projects receive relatively more support than agriculture (NOK 16), and all three types receive significantly more than peace projects (the comparison project type). There is no significant difference between willingness to give to peace projects and to business development projects. Furthermore, the difference is significant between willingness to give to business development projects and to both health ($W = 5.66$; $p = 0.02$), and education projects ($W = 4.13$; $p = 0.04$), but not between the other.

From these results we can conclude that the project triggering the highest average donation would be a health project aimed at children in Sub-Saharan Africa. The results in Table 5 indicate that this project would receive an average of NOK 184 in our dictator game [health project (NOK 22) plus children (NOK 55) plus Africa (NOK 26) plus the constant (NOK 81)]. The project receiving the least would be a peace project aimed toward men in Eastern Europe. According to our model, such a project would receive only NOK 81 (the constant) on average in the dictator game.

Do Men and Women Have Different Preferences When It Comes to Donations?

Previous research has found that men and women have different preferences for development aid, and we also found a significant difference between female and male donors in our questionnaire (see Table 4). We therefore investigate this difference further using the dictator game. From the overall statistics of the donations, we find that female donors donated an average of NOK 133 while male donors gave NOK 105, a highly significant difference. We explore this difference by estimating male and female specific Tobit parameters. These parameters are presented in the second and third columns in Table 5.

The results indicate that female donors pay more attention to, and distinguish more between, the recipient groups than male donors. They give almost NOK 62 more to children than to men, and differentiate by both gender and age, but place more importance on gender than on age. The order for female donors shows that children receive the most, then girls, women, boys, and men. They give almost NOK 19 more to girls than to boys, a significant difference ($W = 8.11$; $p < 0.01$). Furthermore, the difference between amounts of donations for women and boys is also significant ($W = 3.69$; $p = 0.05$), but not women and girls. Finally, children receive significantly more from female donors than all other groups (children vs. girls, $W = 7.44$; $p < 0.01$; children vs. women, $W = 12.36$; $p < 0.01$; children vs. boys, $W = 28.64$; $p < 0.01$).

Male donors, on the other hand, seem to differentiate more by age than by gender. They give NOK 42 more to children than to men, but there is no significant difference between amounts donated for children, boys, and girls, or between those donated for men and women. The only significant difference is between amounts donated for children and for women ($W = 7.45$; $p < 0.01$). Thus, they discriminate much less between recipient gender than do female donors. Both male and female donors give significantly less to projects in Eastern Europe than to those in the other regions. Female donors give the most to projects in Sub-Saharan Africa, followed by the Middle East, Asia, Latin America, and finally Eastern Europe. Sub-Saharan Africa receives significantly more than Latin America ($W = 6.14$; $p = 0.01$) and Asia ($W = 3.16$; $p < 0.08$), but none of the other differences are significant. For male donors there are no significant differences between the four regions other than Eastern Europe. This might indicate that male donors are indifferent between the first four regions and more uniformly negative toward Eastern Europe than female donors.

Regarding project type, female donors seem to value health and educational projects significantly higher than peace and reconciliation projects and business development projects (health vs. business development, $W = 4.02$; $p = 0.05$; education vs. business development, $W = 4.32$; $p = 0.04$). Payments to agricultural projects and business development projects were not significantly different from those to peace and reconciliation projects. Male donors have a different pattern. They show no significant difference between the four project types other than peace and reconciliation projects, but all four receive significantly more money than the peace and reconciliation projects. Thus, it seems that a major difference between men and women is that female donors value peace and reconciliation projects higher

than do male donors. Female donors also have a special liking for health and educational projects.

Finally, we find that the constant in the male donor equation is only NOK 45, while it is NOK 96 for female donors, indicating that female donors value the combination of Eastern Europe, peace and reconciliation, and male recipients higher than do male donors. Also, for the most preferred projects, the difference between the female and male donors is approximately NOK 50. The model predicts that women would give NOK 201 to a health project for children in Africa, while men would give NOK 148 toward a similar project in Asia.

We also tested whether there are statistically significant differences between the regressors for male and female donors. The results are presented in the last column of Table 5. With our relatively small sample, 63 women and 27 men, only three coefficients are found to be significantly different. Female donors on average give more than male donors, differentiating between projects for men and women to a greater extent, and less than men with respect to the peace or health projects.

Conclusions

Combining well-tested methods from marketing and experimental economics, we designed an incentive-aligned method with real donations to elicit donors' preferences for attributes of charity projects. We designed a conjoint analysis experiment with three five-level project attributes, and asked each participant to rate 15 of the project profiles by donating money in a dictator game. One of the profiles was randomly drawn as binding, and the money the participants had stated they would donate to the binding project was sent to a charity with such a project.

We study charity donors preferences for *recipient group* (children, girls, boys, women, and men), *recipient region* (Sub-Saharan Africa, South and Southeast Asia, Middle East, Latin America, and Eastern Europe), and *project type* (education, health, peace and reconciliation, agriculture, and business development). The method can easily be transferred to other types of projects to which people donate money, such as culture or environment projects.

We find that the participants on average donate most to projects benefitting groups and regions that they perceive as the most vulnerable and poor. Children are seen as most vulnerable and receive the largest donations, while men are seen as the least vulnerable and receive the smallest donations. Sub-Saharan Africa is seen as the poorest region and receives the largest donations, while Eastern Europe is seen as the least poor and receives the smallest donations. When it comes to recipient groups, female donors place more weight on gender than age, in contrast to male donors, and thus give more to women than to boys. Health and education is the most popular project types, but it seems like male donors focus on income-generating activities to a greater extent than female donors, and female donors are more inclined to believe in peace and reconciliation projects than male donors.

For all lab experiments, the external validity is always a question. In our experiments there are especially two factors that can reduce the possibilities of generalizing the results to donations by the general population. The first is the artificial context of the lab experiment and the second is the student sample. Previous studies have found positive correlation between lab and field donations, but there is a need for further research to understand what kind of results can be transferable across domains and to what degree students' donation preferences differ from those of the general population. With respect to the external validity, we would like to note that our results are consistent with observations in the field. For example, our results indicates that people want to donate most to children, and this is consistent with the fact that Norwegian development aid charities focusing on children obtain the largest proportion of private donations. At the top of the list, with 90 % of their contributions from private donations, we find SOS Children's Villages, an NGO focusing on orphans and children without parental care. If we consider donations from private sources in Norway, we find three charity organizations focusing on children at the top: SOS Children's Villages, Save the Children, and Plan (Bolle 2010). Organizations that do not focus on children have a harder time attracting private donors.

Important for the charity industry, we discovered differences with respect to what triggers donations from men and women in our sample. Men in our sample have a larger spread between the most and least preferred project type than women, indicating that thematic information may be more important for men than women in triggering donations. Women favor girls and women over boys and men, while men only discriminate between the genders for adults. Here it is worth noting that we did not specify the age of the boys. The fact that there are clear segments among the donors means that efficient marketing campaigns should utilize these differences in attracting donations from various groups.

For governments donating money to charity organizations, it is important to realize that for many good causes, it can be very difficult to raise money from private donors. Hence, if a government wants to increase the amount of money going to projects focusing on to such things as peace and reconciliation, agriculture, and business development they cannot rely on private donors. They would need to provide more funds for such projects than to projects aimed at children.

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Appendix

See Figs. 2, 3, and 4.

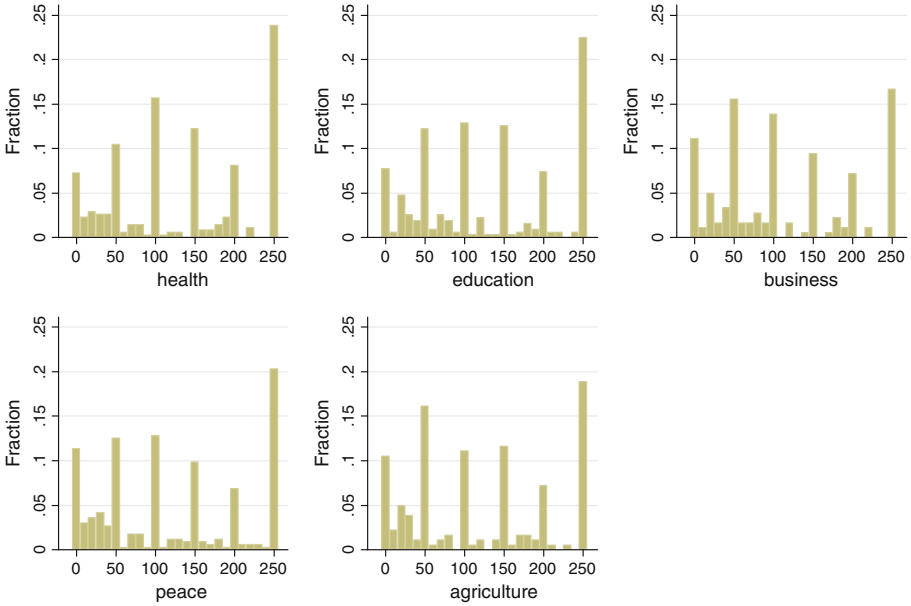

Fig. 2 Donation histogram themes

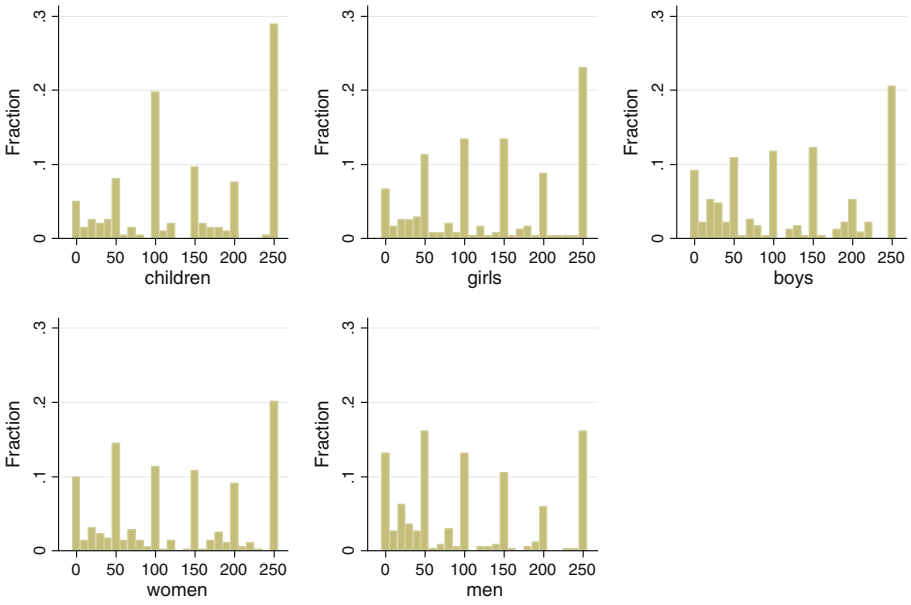

Fig. 3 Donation histograms recipients

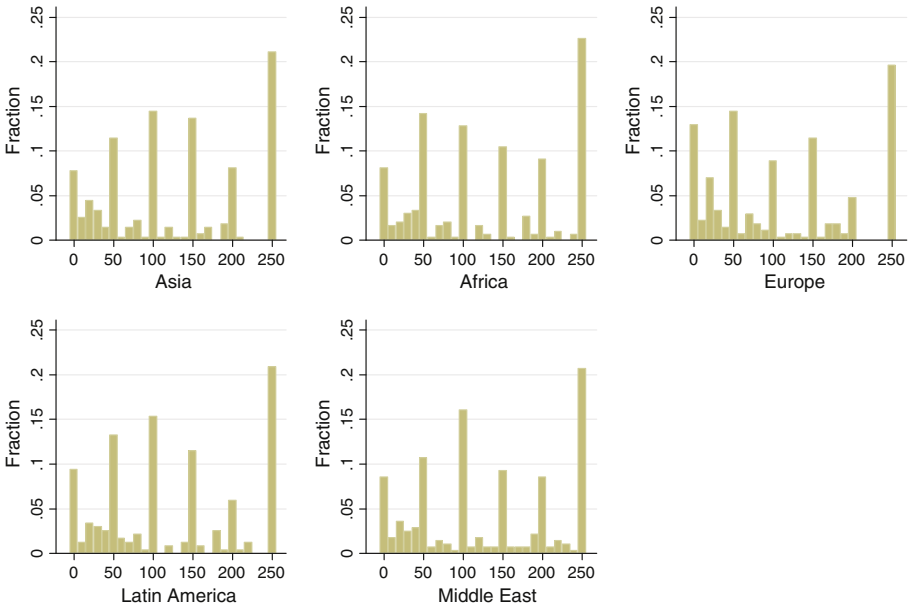

Fig. 4 Donation histogram regions

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Paper 2

Information and Donations to Development Aid Projects

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Abstract : *We develop a model for charitable donations with uncertainty and test some of the implications using a dictator game. The model predicts that donations depend positively on the utility derived from projects and negatively on the uncertainty involved in projects. In the dictator game, the participants donate money to development aid projects. We increase the uncertainty of projects by omitting information about some of their characteristics and vary the presented project information to induce differences in the utility derived from the donations. As predicted by the theory, we find that omitting information about the project reduces the level of donations.*

Keywords: charity giving, development aid project, experiments, dictator game, information, uncertainty

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1. Introduction

Information is crucial when collecting money for charities, particularly for international development aid charities working on issues far from home. However, little research exists on how information affects the level of donations. We develop a model to analyze how information affects donations, and test experimentally how the amount and type of information impact upon donations in the case of development aid projects. Overall, we find that omitting information reduces donations, and that information regarding recipients and the project theme has the greatest effect on donations.

When donating money to development aid projects, donors have different utility depending upon the project receiving the money. For example, Bachke, Alfnes, and Wik (2014) found that most people prefer to donate money to children's rather than men's education. This suggests that donor satisfaction depends on how their donation is spent. We name this satisfaction the *donor's yield from donations* (DYD). When the donors lack information about how the money they donate is spent, they experience uncertainty about the donation. More information will reduce the uncertainty as it provides donors with a better basis for evaluating the project. This is analogous to the way information works in stock markets, and consequently we model donations to development aid projects using a utility adoption of portfolio theory. See Null (2011) for another example of this approach.

Our model is based on rational agents and predicts that people will donate a share of their endowment to development aid projects, even under uncertainty, as long as the expected utility of donating the money is greater than keeping the money. Furthermore, the model predicts that the higher the DYD, the higher the level of donations, and the larger the spread in the DYD, the lower the level of donations. Finally, the model predicts that in most cases more information will

increase donations. This approach relates to earlier research on information and charitable giving focused on who receives the money (Schelling, 1968), what type of organization that receives the money (Benz and Meier, 2008; Carpenter, Connolly, and Myers, 2008; DellaVigna, List, and Malmendier, 2012), how the money is spent (Carlsson and Martinsson, 2001; Johansson-Stenman and Svedsäter, 2008) and social distance and giving (Eckel, De Oliveira and Grossman, 2007). All of these studies found that information indeed affects donations. However, to our best knowledge, this is the first study to look at how varying both the amount and the type of information about project characteristics affect donations.

In this paper, we use a dictator game to test how information affects overall donation levels. We investigate how private donors in a Norwegian sample change their donations when we vary the amount and type of information given regarding the project attributes, including the recipients, region, and theme. Will they donate less if they receive less information about the project, and if so, what information is the most important for enhancing donations? We have four treatments; a full-profile treatment where the participants get information about the project theme, recipient, and region, and three other treatments, each of which omits the information about one of these three attributes.

2. Previous research on charitable giving and information

According to classic economic theory, participants in dictator games should keep all of their money instead of giving it away. However, the general finding in dictator games is that most people give some money away when asked to split an amount of money between themselves and another party. The most common explanations for this behavior are either internal motivations, such as altruism, fairness, and inequality aversion (Fehr and Schmidt, 1999), warm glow

(Andreoni, 1990), identification (Schelling, 1968), and impact philanthropy (Duncan, 2004), or external factors such as social pressure or status (Akerlof and Kranton, 2000; Kumru and Vesterlund, 2010).

All of the internal motivations can also help explain donations to overseas development aid projects. For instance, altruism, i.e. caring about the welfare of others, can easily explain donations to development aid projects, as the overall objective is to reduce poverty. The donor may also desire a fairer distribution of the money they have (or the money they received in an experimental setting) to rectify the unequal distribution of wealth (Fehr and Schmidt, 1999). They might also be motivated by warm glow, i.e. getting a good feeling by giving away some money (Andreoni, 1990). For example, Bekkers and Wiepking (2011) argue that people are more motivated to donate to certain development aid projects if they believe the project can move the world in some preferred direction. Introducing internal motivations in the models improved the predictive power compared with simple altruistic behavior models, and in this way provided improved explanations of the observed behavior in different experiments (Andreoni, 1990; Bolton and Ockenfels, 2000; Charness and Haruvy, 2002; Fehr and Schmidt, 1999). In what follows, we present a few relevant findings from this literature.

Schelling (1968) was the first to report on the *identifiable victim* effect on private contributions, indicating that information about the recipient matters for donations. Several subsequent studies have found support for the identifiable victim effect (Bohnet and Frey, 1999; Charness and Gneezy, 2008), although Breman and Granström's (2006) did not when studying cross-country altruism. For a complete literature review on empirical studies of philanthropy, see Bekkers and Wiepking (2011).

In his impact philanthropy model, Duncan (2004) claims that the donor not only care about who the recipient is, but also about the *impact* the donation will have on the recipient's life. The impact depends upon the neediness of the recipient. Borgloh, Dannenberg, and Aretz (2013) find support for this as they see that people prefer to donate to smaller charities where their contributions have a higher impact.

Krasteva and Yildirim (2013) develop a model of private cost of information and charitable donations where the objective of the fundraising is the provision of a discrete public good, indicating that the donors get direct utility from the public good in addition to any altruistic motivations. They find that facilitating access to information is a good fundraising strategy and predicted, among other things, that people knowing their own private valuation of the public good donate more than others do.

Null (2011) models donations to charities as portfolio investments in public goods and finds that warm glow motivation can lead to too many charities producing the same public good, and that risk aversion can lead to socially inefficient donations due to difference in the private and social valuation of information. Lastly, Crumpler and Grossman (2008) experimentally test the warm glow hypothesis and find support for it. The participants donated about 20% of their endowment to a charity, even though their own donation would not affect the final and overall donations to that charity.

3. Model of information and charitable giving

Charitable donations are risky, as the money does not usually go directly to the recipient. This creates uncertainty about whether the intended recipients actually receive the donation, who will

receive the money otherwise, and the actual impact of the project. Donors therefore depend upon information from charities to reduce this uncertainty. We define the *donor's yield from donations (DYD)* as the subjective satisfaction the donor gets from donating money to a development aid project. The DYD is donor and project specific, and depends on factors such as the donor's view of how needy the recipients are, and the impact their donations will have on the recipients' lives. Thus, the concept of DYD encompasses both altruism and warm glow (Andreoni, 1990) as well as impact philanthropy (Duncan, 2004).

3.1 The formal model

Each donor has an endowment (e), which she can use on private goods (x) or development aid projects (g). This is in line with most dictator game experiments where the participants receive an endowment that they can either take home or give away in the experiment.[2]

The donor is risk averse. If she donates g to an aid project she will get a money metric return of $g(1+\alpha)$, where α is the uncertain *DYD*. The uncertainty stems from the fact that at the time of the donation, the donor does not have full information about the characteristics of the aid project, and hence α is stochastic. Assuming that the return on the donation is money metric means it can be directly compared to money spent on private goods.[3]

The donors maximize their expected utility as described by the utility function (U):

[2] An alternative to using the endowment could be to use the donor's entire wealth combined with a decreasing return on donations.

[3] We assume a perfect constant substitution rate between donations and private consumption since the amount the donor can donated is relatively small compared to her overall wealth. In other words, we assume that this segment of the indifference curve can be approximated by a straight line.

$$Max_{x,g}\, E\big[U\big(x + g\,(1+\alpha)\big)\big] \quad st\;\; x + g \le e; x \ge 0; g \ge 0 \tag{1}$$

Assuming the budget condition holds with equality, the maximization problem simplifies to:

$$Max_g E[U(e + \alpha g)] \quad st\;\; 0 \le g \le e \tag{2}$$

3.2 A simplified model with log utility function and only two possible outcomes

To simplify the investigation of how information affects donations, we assume that a development aid organization has two projects it wishes to fund. The first project is popular among donors. We refer to this as the good project (identified using the subscript *a*). An example of such a project can be an educational project aimed at poor children in Africa. The second project is less popular among donors. We refer to this as the bad project (identified using the subscript *b*). An example of such a project can be an educational project aimed at rich children in Africa. Donating to the good project will give the donor a higher utility than using the money on other things, i.e., a positive DYD. Donating to the bad product will give the donor a lower utility than using the money on other things, i.e., a negative DYD. To evaluate the features of the model, we specify a log utility function, which entails a constant relative risk aversion, equal to one[4].

To compare how various levels of information affect donations, we define an informed and an uninformed donor. The informed donor knows to which of the two projects, or in this case, which of the two recipients, they are donating their money to, while the uninformed donor does

[4] This means that the risk taking behavior is unaffected by initial wealth levels. This is a reasonable assumption in our model as the risky investment is limited to an endowment that is relatively small compared to overall wealth levels.

not know which project will receive the money. The uninformed donor therefore bases the donation on the distribution of the DYD of the two different projects. In this case, the probability of the good outcome (*a*) is *p* and the probability of the bad outcome (*b*) is *1-p*.

3.2.1 Informed donors

An informed donor is facing only one of the two possible projects and therefore knows who receives the money. Thus, for this donor the DYD is known, and it is either α_a, for the good project with certainty, or α_b, for the bad project with certainty. The donor maximization problem is:

$$Max_g \ ln(e + \alpha_i g) \quad st \ 0 \leq g \leq e \ \ i \in \{a, b\} \tag{3}$$

There are only corner solutions to this problem. The donor will donate her entire endowment if she can give to the good project ($g = e$), while she will not donate anything ($g = 0$) if the bad project is the only option. This is because there is no uncertainty, and donations and private consumption are perfect substitutes.

The distribution of good and bad projects then determines the expected donations from the informed donors:

$$E(g)=p*e+(1-p)*0=pe \tag{4}$$

3.2.2 Uninformed donors

An uninformed donor does not know if her donation goes to the good or the bad project, i.e. she does not know whether her donation will end up with the rich or the poor children. She knows

that the probability that she will give to the poor children is *p* and the rich children is (*1 – p*). This gives the following maximization problem:

$$Max_g\ pln(e + \alpha_a g) + (1 - p)ln(e + \alpha_b g) \quad st\ \ 0 \leq g \leq e \tag{5}$$

To find the optimal donation for the uninformed donor, we take the derivative of eq. 5 with respect to *g* and solve the first-order condition. We get the following interior solution[5]:

$$g = \frac{p\alpha_a + (1 - p)\alpha_b}{-\alpha_a \alpha_b} e \qquad \alpha_b < 0 \tag{6}$$

The implication of eq. 6 is that as long as the expected DYD is positive, $E(\alpha_a, \alpha_b) = \mathrm{p}\alpha_\mathrm{a} + (1 - p)\alpha_b > 0$, the donor will donate money. There are two corner solutions limiting the range of donations. If there is a negative expected DYD, $p\alpha_a + (1 - p)\alpha_b) \leq 0$, the donor gives nothing ($g = 0$). If $\frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a \alpha_b} \geq 1$, i.e. the optimal donation is larger than the donor's endowment, the endowment is therefore binding and the donor will donate the entire endowment *(g = e)*.[6]

This result is our first proposition[7]:

Proposition 1

As long as the donor has a positive expected donor's yield from donations, she will donate to the project (eq. 6).

[5] See Appendix A for a complete mathematical solution of the model.
[6] See eq. A.6 in Appendix A for the proof.
[7] The proof of this proposition is presented in appendix A in equations A.7.

3.2.2.1 Increase in the DYD

The DYD depends on project characteristics[8], and therefore, it will vary from project to project. To investigate how the level of the DYD affects the donations of uninformed donors, we take the derivative of g from eq. 6 with respect to the DYD of the good project (for the analogous result for the DYD of the bad project, see eq. A.10):

$$\frac{\partial g}{\partial \alpha_a} = \frac{\partial}{\partial \alpha_a} \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a \alpha_b} e = \frac{(1-p)e}{\alpha_a^2} > 0 \tag{7}$$

The derivative is positive, and donations increase with increasing DYD. This is our second proposition:

Proposition 2

Donations from the uninformed donor increase with increasing DYDs (e.q.7).

3.2.2.2 Effect of increasing risk on donations

We define increased risk as increased distance between the DYDs for the good and bad project. In our example, this could be a change from "poor children in Africa" to "poor, homeless children in Africa", and from "rich children in Africa" to "rich children in Africa attending private schools". To study the effect of increased risk, we look at the mean-preserving spread. This is an increase in the distance between the DYDs of the good and the bad project in such a way that the expected DYD remains the same, i.e. $\alpha_a' = \alpha_a + \Delta_a$, $\alpha_b' = \alpha_b - \Delta_b$, and $p\alpha_a + (1-p)\alpha_b = p\alpha_a' + (1-p)\alpha_b'$. Comparing g from eq. 6 with g', which we get by inserting α_a' and α_b' in eq. 6, we find:

[8] It also depend upon the donor which is not taken into account in our simple model.

$$g = \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a\alpha_b}e > g' = \frac{p\alpha'_a + (1-p)\alpha'_b}{-\alpha'_a\alpha'_b}e \quad (8)$$

Since $p\alpha_a + (1-p)\alpha_b = p\alpha'_a + (1-p)\alpha'_b$, $\alpha'_a > \alpha_a$, and $|\alpha'_b| > |\alpha_b|$. The mean-preserving spread increases the denominator, while the value of the nominator is unchanged. Thus, if the risk increases without changing the expected DYD, the donors will donate less. This is our third proposition:

Proposition 3

Increased risk reduces donations for the uninformed donor (eq. 8).

3.3 Comparing the donations from informed and uninformed donors

To examine how information affects donations, we compare the expected donations by the informed and uninformed donors. Table 1 presents the expected donations and the conditions for the donations from the informed and uninformed donors.

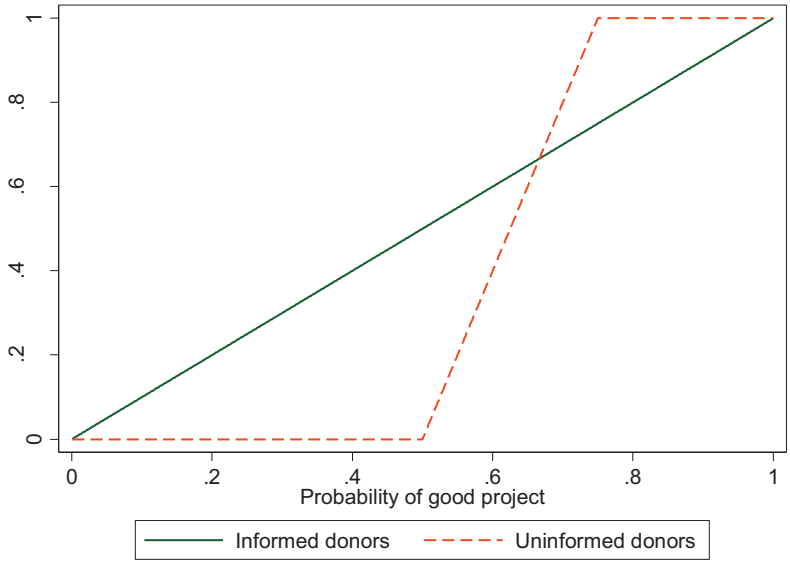
Table 1. *Expected donations from informed and uninformed donors*

Case	Informed donor: Donations	Who gives the most	Uninformed donor: Donations	Uninformed donor: Criteria for corner solutions
1	$g = pe$	$>$	$g = 0$	$p\alpha_a + (1-p)\alpha_b \leq 0$
2	$g = pe$	?	$g = \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a\alpha_b}e$	
3	$g = pe$	$<$	$g = e$	$\frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a\alpha_b} \geq 1$

In Table 1, we see that expected donations from informed donors only depend upon the probability of the good project and are unaffected by any change in the DYD[9] (see eq. 4). The expected donations from uninformed donors depend both on the probability of the good project (*p*) and on the DYDs of the good and bad projects (see eq. 6). From Table 1, we see that informed donors donate more than uninformed donors as long as uninformed donors have a negative expected DYD (Case 1), and that they donate less than uninformed donors when the uninformed donate their entire endowment (Case 3). Figure 1 depicts the expected donations by informed and uninformed donors when the DYD is 0.5 for the good project and –0.5 for the bad project.

[9] As long as one is negative and one is positive.

Figure 1. *Comparing uninformed and informed donors*



Notes: The figure shows the donations by informed and uninformed donors. The simulation is based on the following DYD parameters; α_a*=0.5 and* α_b*=-0.5.*

As we see from Figure 1, the higher the probability of the good project the higher is the expected donation from informed donors. In other words, as we move from left to right in Figure 1, the probability of the good project increases, and the probability of the bad project decreases. The expected donations of uninformed donors consist of three straight lines. First, uninformed donors will not donate anything as long as the expected DYD is below zero (Case 1 in Table 1), then they start donating a share of their endowment (Case 2 in Table 1), until they reach the point where they donate their entire endowment (Case 3 in Table 1). In Figure 1, we see that the two lines cross each other at around P*=67%, and that uninformed donors donate their entire endowment after about p = 75% (Case 3 in Table 1). We define P^* as the threshold for where

information matters. The conclusion is that informed donors donate more than the uninformed donors as long as the probability of the bad project is large. To find the threshold, we compare the average informed donation (eq. 4) with the average uninformed donation (eq. 6). Thus:

$$\frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a\alpha_b} e = pe \qquad (9)$$

The threshold P^* is identified when we solve equation 9[10] with respect to p:

$$P^* = \frac{-\alpha_b}{\alpha_a - \alpha_b + \alpha_a\alpha_b} \text{ if } (\alpha_a - \alpha_b + \alpha_a\alpha_b) \neq 0 \qquad (10)$$

This threshold value (P^*) depends upon the DYD parameters α_a and α_b, and is exactly defined for any pair of DYDs. The implication of this solution is that the average donation from the informed donor will be higher than that from the uninformed donor as long as the probability of the good project is below the threshold level P^* (eq. 10 holds) for any given DYD. This is our fourth and main result:

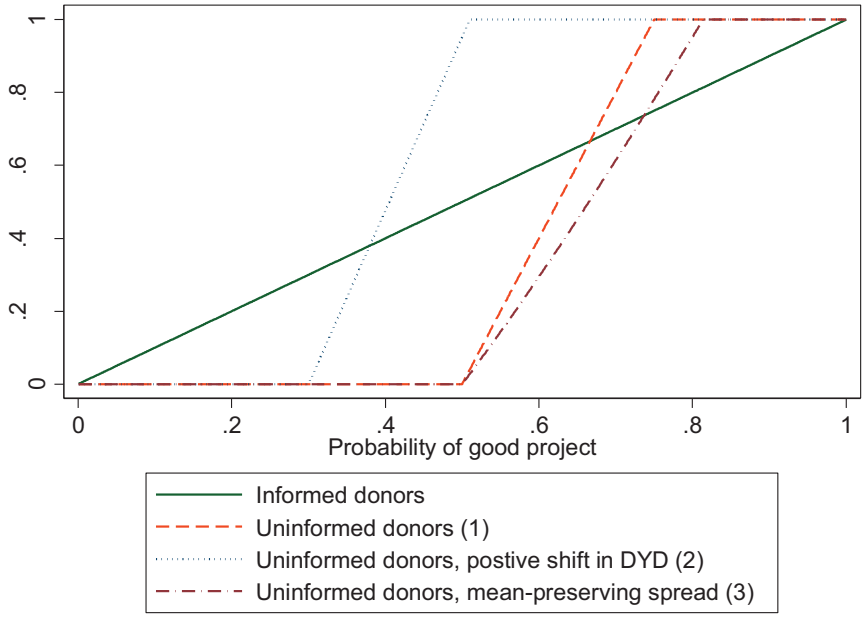
Proposition 4

Information will increase donations as long as the probability of the good project is below the threshold level P (eq. 10) for any given DYDs. If the probability of the good project is higher than P*, information will not increase donations as the risk is low.*

[10] Alternative solutions to equation 9 with respect to both α_a and α_b are presented in equations A.14 and A.15.

We plot Figure 2 to obtain a better understanding of how the changes in the expected DYD affect this probability.

Figure 2. *Comparing informed and different parameterizations of uninformed giving*



Notes: The figure shows the effect of a positive shift in the DYD changes in and a mean-preserving spread in the DYD for the uninformed donor, and comparing it with the informed donors' donations. The first simulation (1) is based on α_a*=0.5 and* α_b *=-0.5. The positive shift (2) is induced by simultaneously increasing* α_a *and reducing* α_b *with 0.2 giving the parameters:* α_a *=0.7 and* α_b *=-0.7. The mean-preserving spread (3) is simulated by increasing the distance between* α_a *and* α_b *with 0.1.*

Figure 2 shows how a positive shift in the expected DYD and increased risk affect the area where information is important. As we can see in Figure 2, a positive shift in the DYD reduces

the segment where information matters, and by symmetry, a negative shift in the DYD would increase the segment where information matters. We also see that information matters more when risk increases.

4. The experiment

We conducted the experiments at a Norwegian university in October and November 2009. Two hundred forty students participated in one of eleven sessions lasting approximately one hour. In this paper we utilize a sample of 189 students.

4.1 The recruitment process and the experimental sessions

The experimental sessions included a survey, a dictator game and a stated choice experiment. In this paper, we will only utilize the dictator game and the survey. See Bachke *et al*. (2014) for a detailed description of the experimental sessions.

Participants received an envelope containing NOK 250 upon arrival.[11] After filling out a questionnaire about their attitudes toward development aid, they participated in a dictator game, where each participant had to decide how to split the NOK 250 between himself and a development aid project.

[11] According to www.oanda.com, NOK 1 = USD 0.17 and NOK 250 = USD 43.02 on October 1, 2009.

4.2 The dictator game

We constructed the dictator game as a conjoint analysis experiment with real economic consequences (Bachke *et al*., 2014).[12] The experiment included the profiles of 60 development aid projects, and each participant evaluated 15 of these profiles. A full project profile would include the following three groups of project characteristics: *recipient* (children, girls, boys, women, or men), *region* (Sub-Saharan Africa, South and South-East Asia, Middle East, Latin America, or Eastern Europe), and *project theme* (education, health, peace and reconciliation, agriculture, or business development). These characteristics represent major regional, thematic and recipients both within the field of development aid and among Norwegian non-governmental organizations (NGOs) working on international development.

4.3 The four treatments

We had four different treatments in the dictator game, where we varied the amount of information the participants received. The treatments were the "full-profile treatment", the "no-recipient treatment", the "no-theme treatment", and the "no-region treatment". In the full-profile treatment, the participants received a complete project profile description, including information on the recipient, theme, and region, as presented in the first panel of Table 2. In the no-recipient treatment, we did not include information about the age or gender of the recipients (second panel of Table 2). In the no-region treatment, we did not mention the region of the projects (third panel of Table 2). And in the final no-theme treatment we did not say anything about the theme of project (fourth panel of Table 2).

[12] See Bachke *et al*. (2014) for further information on conjoint analysis and factorial design.

Table 2. *Example of the project profiles for the four treatments*

Treatment	Project	Project description (profile)
Full profile	1	Peace and reconciliation project aimed at men in a country in Latin America
	2	Health project aimed at girls in a country in Sub-Saharan Africa
	3	Education project aimed at children in a country in Eastern Europe
No recipient	1	Peace and reconciliation project in a country in Latin America
	2	Health project in a country in Sub-Saharan Africa
	3	Education project in a country in Eastern Europe
No region	1	Peace and reconciliation project aimed at men
	2	Health project aimed at girls
	3	Education project aimed at children
No theme	1	Project aimed at men in a country in Latin America
	2	Project aimed at girls in a country in Sub-Saharan Africa
	3	Project aimed at children in a country in Eastern Europe

4.4 The sample

All participants were students, with an average age of 22 years. Table 3 below describes the treatments and number of participants in each treatment. Despite the randomization of people in treatments, there were significantly (t=2.20) more men in the no-theme treatment than in the other treatments.

Table 3. *Number of participants and share of females in the treatments*

Treatment	Recipient	Theme	Region	No. of participants	Share of females
Full profile	X	X	X	53	72 %
No recipient	X	X		48	73 %
No region		X	X	41	66 %
No theme	X		X	47	51 %

5. Research questions and empirical approach

5.1 Research questions

The following three research questions guided our work:

1. Is there consistency between our model's assumptions and predictions, and the experimental behavior?
2. Does more information about the development aid project lead to higher donations (Proposition 4)? If so, does the effect differ when we omit different categories of information?
3. Do the different categories of information induce different DYDs, and hence different donation levels (Proposition 2)?

To discuss the first question, we look at consistency between model predictions and assumptions and the behavior observed in the experiment. In particular, we study whether the donors value different project profiles differently, i.e. whether they have different DYDs for different project profiles and whether they varied their donations according to this.

To examine the second question, we define the participants in the full-profile treatment as informed donors and the participants in the three other treatments as uninformed donors. We define the latter collectively as the "reduced-information treatment", consisting of the no-recipient, the no-region, and the no-theme treatments. We then test whether there is a difference between the average donation levels in the full-profile treatment and the reduced-information treatment. Then we test whether the different specific treatments, i.e. the no-recipient, the no-region and the no-theme treatments differ significantly from the full-profile treatment.

To address the third question, we see if there is a difference in donations between the three treatments with reduced-information. We test if the combined information participants receive, i.e. thematic and regional information (in the no-recipient treatment), thematic and recipient information (in the no-region treatment) and recipient and regional information (in the no-theme treatment), induce different levels of donations[13]. As we can see from Table 2, the participants who received information on, for example, a region, were given the name of a specific region, such as Sub-Saharan Africa or Eastern Europe. The uninformed participants did not receive information about potential regions nor the probability that each occurred. The same procedure was followed for the two other treatments.

5.2 Empirical approach

The 189 participants (i = 1 to 189) each participated in one of the four different treatments ($T \in \{1,2,3,4\}$). Additionally, we define a fifth treatment ($T = 5$), the reduced-information

[13] If you are interested in the donations effect of each project characteristics, please consult Bachke et al. 2014.

treatment. We employ two different empirical approaches; t-tests of means of each treatment and a panel Tobit estimator to better exploit the panel structure of our data.

5.2.1 t-test

We use t-tests to test the differences between the average donations in each treatment. The means in each treatment (T) was calculated as presented in equation 11:

$$\bar{Y}_T = \frac{\sum_{T=1}^{P_T}\left(\frac{\sum_1^{15} Y_{ij}}{15}\right)}{P_T} \tag{11}$$

where $\bar{Y}_T$ is the mean donation made for each treatment (T), P_T is the number of participants in each treatment (T), and Y_{ij} is the donation made by each participant (i) for each project profile (j).

5.2.2 Panel Tobit estimator

We define the vector T_i as an indicator for which treatment individual i participated in. To test the effect of each treatment, we transformed the treatment variables into dummy variables, yielding the following model:

$$Y_{ij} = \beta T_i' + v_i + \varepsilon_{ij} \tag{12}$$

where Y_{ij} is the donation made by participant (i), β is the treatment effect of each treatment, v_i, is the individual-specific random term, and ε_{ij} is the residual. In this latter specification, our dependent variable is censored because some participants may have wanted to give less than NOK 0 or more than NOK 250. Thus, the dependent variable was censored with a lower limit of

0 and an upper limit of 250. We therefore estimated the model using a panel Tobit estimator with random effects, assuming a normal distribution of the residual. Finally, we used the panel structure in the estimations with 15 observations per participant.

6. Results

6.1 Survey results

In the survey, we asked the participants about their attitudes toward Norwegian official development aid (ODA), and in particular, whether the level of aid should increase and whether they believe Norwegian ODA produces good results. These attitudes can represent factors in the DYD that project specific attitudes do not capture. Table 4 presents the results.

Table 4. *Attitudes to Norwegian official development aid (ODA)*

	Mean	Std. dev.	Min.	Max.	Don't know
Should Norwegian ODA increase?[a]	2.68	1.00	1	5	18
Are the results of Norwegian ODA good?[b]	2.84	0.78	1	5	13

Notes: [a] Question: "Do you think Norwegian development aid should decrease, remain the same, or be reduced?" Five-point scale from 1 = "Increase development aid considerably" to 5 = "Reduce development aid considerably". [b] Question: "Norway provides development aid in the form of emergency aid and long-term development aid. How good or bad are the results of the following components of Norwegian development aid according to your impression?" Valuation provided to the component: Overall development aid on a five-point scale from 1 = "Very good results" to 5 = "Very bad results".

We see that the respondents on average are close to indifferent in their responses to both questions, but slightly on the positive side. Furthermore, Table 4 shows a large variation in the attitudes toward development aid and beliefs in the effectiveness of development aid. Thus, we would expect to see variations in the level of donation among participants in the experiment.

Table 5 presents the attitudes to development aid project characteristics[14] by category of information used in the experiment. We used a seven-point scale, from 1 indicating "very positive" attitudes to 7 indicating "very negative" attitudes.

Table 5. *Attitudes to aid project characteristics by type of information*

Characteristics	Mean	Std. dev.	Min.	Max.
Attitude to all 15 characteristics	2.31	1.37	1	4.6
Recipients	2.22	1.30	1	7
Regions	2.80	1.54	1	7
Themes	1.89	1.09	1	4.0*

Notes: Scale: 1, very positive; 7, very negative.

The participants' attitudes towards the project characteristics are positive. The minimum and the maximum for each factor are the lowest and the highest mean score for any one person for each information category and total. The respondents used the full scale for both regions and recipients, but not for the themes. We see that the participants were most positive toward the themes (1.89), followed by recipients (2.22) and then regions (2.80). This indicates that omitting thematic information should on average reduce the donations the most, followed by omitting recipient information and finally regional information.

[14] In our survey, we asked the participants to evaluate all the project specific characteristics and the results are presented in Table B.1 in appendix B.

Another way of viewing the results is according to the information that is *included*, rather than the information that is omitted. Each treatment contains two categories of information. The no recipient treatment provided information about the region and theme, with an average positive score of 2.35. For the no-region treatment, the average score is 2.10, and for the no-theme treatment, it is 2.51. This gives a smaller variation in positive scores than looking at the scores of the omitted information. Viewed in this way, we would not expect to observe large differences in the level of donation between the different reduced-information treatments.

6.2 Experimental results

In Table 6, we present the mean donations to the different treatments[15]. We divided the results into a full-profile treatment and a reduced-information treatment. The reduced-information treatment consists of three treatments: no-recipients, no-regions and no-themes.

Table 6. *Descriptive statistics*

Treatment	Participants	Mean donation	Std. dev.	Min.	Max.
Full profile	53	130.16	78.07	0	250
Reduced information	136	103.29	65.18	0	250
No recipient	48	102.58	55.85	8	208
No region	41	111.92	65.90	13	250
No theme	47	96.50	73.42	0	250
Total	189	110.83	69.88	0	250

[15] Figure B.1 in Appendix B provides a graphical presentation of the descriptive statistics.

From Table 6 we see that the average donations by the participants are 111 NOK, 44% of the 250 NOK they received at the beginning of the experiment. Furthermore, five participants did not donate to any of the projects, and 14 donated the entire endowment to all the 15 projects, securing that they would give away the total endowment in the experiment. The remaining participants donated some of their endowment, and all except one varied their donations across the project profiles. This indicates that different project profiles induce different DYDs, and thus that the observed behavior is in line with the predicted behavior by our model.

Table 7. *t-test of difference in the mean between treatments*

		Difference from:	
Treatment	Full profile	No recipient	No region
Reduced information	–26.87***		
	(2.40)		
No recipient	–27.58**		
	(2.02)		
No region	–18.24	–9.34	
	(1.20)	(0.72)	
No theme	–33.67**	–6.09	–15.42
	(2.21)	(0.45)	(1.03)

Notes: t-statistics in the parenthesis.
p<0.10,p<0.05,***p<0.01.*

Table 7 shows that the participants in the full-profile treatment gave on average 26% more than the participants in the reduced information treatments (130 NOK versus 103 NOK). Thus, we find support for our answer to the second research question, namely that more information leads to higher donations. Looking at the second column in Table 7, we see that this effect varied with the omission of different categories of information. That is, the participants that did not receive any information regarding the project theme or recipient gave significantly less than in the full-profile treatment, respectively 26% (NOK 34 of NOK 130) and 21% (NOK 27 of NOK 130). In the no-region treatment, the participants gave 14% less (NOK 18 of NOK 130), but the difference was not significant. The order of these effects are in line with the survey results on the attitudes toward the different categories of information.

However, the coefficients for the three treatments with reduced-information are not significantly different from each other, see column 3 and 4 in Table 7. This is as expected from our survey results, as the attitudes toward the different combinations of categories of information did not vary much.

6.2.1 Random effects Tobit estimation

To see whether our results were robust and to control for gender differences in the four treatments we estimated a random effect Tobit model including gender as a control variable. Our student sample has little variation when it comes to other possible socioeconomic control variables such as age, education, and income. In addition to controlling for the gender of the donors, the Tobit model takes into account that the dependent variable is censored at the limits of 0 and 250. The Tobit results are presented in Table 8.

Table 8. *Censored Tobit regression*

	Specification 1	Specification 2
Reduced information	–35.16**	
	(2.14)	
No recipient		–41.69**
		(2.09)
No region		–22.6
		(1.08)
No theme		–39.47*
		(1.93)
Female dummy	31.52**	31.31**
	(2.04)	(2.01)
Constant	119.90***	120.0***
	(6.73)	(6.72)
Sigma u	98.53***	98.26***
	(17.00)	(17.00)
Sigma e	52.06***	52.06***
	(61.92)	(61.92)
N	2835	2835

*Notes: t-statistics in the parenthesis. *p<0.10,**p<0.05,***p<0.01. Sigma u and sigma e are the standard deviations of the random effect and error term, respectively.*

As seen in Table 8, females donate about 30 NOK more than men. Controlling for the positive effect of female donors does not change the significance of the results presented in Table 7, indicating that the experimental results are robust. The coefficients are slightly lower in Table 8 compared to in Table 7. This difference is due to differences in estimation methods.

6.2.2 Relationship between attitudes and donations

To study consistency between the stated attitudes in the survey and donations in the experiment, we regressed the attitudes on the donations. Table 9 presents the results.

Table 9. *Censored Tobit regression of donations and attitudes*

	Model 1	Model 2
Level of Norwegian ODA	–44.48***	
	(6.59)	
Attitude to the 15 characteristics		–70.97***
		(7.69)
Constant	230.3***	278.8***
	(11.99)	(12.49)
Sigma u	84.74***	87.16***
	(16.28)	(16.92)
Sigma e	51.49***	52.06***
	(59.53)	(61.93)
N	2565	2835

*Notes: t-statistics in the parenthesis. *p<0.10,**p<0.05,***p<0.01. Sigma u and sigma e are the standard deviations of the random effect and error term, respectively. The reason there are fewer observations in Model 1 is that 18 people reported "don't know" to the question: Should Norwegian ODA increase?*

We see that the more the participants would like to reduce the level of Norwegian ODA, the less they donate in the experiment. We observe a similar result for the attitudes on the 15 project characteristics: the more positive the participants are to the project characteristics, the more they donate. This shows consistency between attitudes and donations.

7. Discussion

7.1 Model

Our model differs from existing models of information effects on donations in that it includes altruistic utility maximizing rational donors that view donations as an altruistic private good. When donating to development aid projects, donor utility depends not on how much others are donating but only on how the donated money can help needy and vulnerable recipients. This is in contrast to other models where the donor can have direct utility from the discrete public good resulting from the donation (one example of such a model is Krasteva and Yildrim (2013)). When donating to development aid projects, the donors do not derive utility from other donors' donations. Therefore, we believe our model is more appropriate for such donations.

For the purpose of this paper, it is not necessary to pinpoint the specific motivation for donations. We assume that internal motivations such as altruism, fairness, and warm glow exist and are important for the utility the donors receive when donating money to development aid projects. What is important for our model is that the utility derived from donating varies with how the money is used, and we introduce the concept of *donor's yield from donations* (DYD) to capture this effect on utility and donation. Furthermore, donations to development aid projects are risky, as the money is not given directly to the recipients. This creates uncertainty about the impact of the donation on the recipients and their wellbeing, and hence uncertainty about the DYD. Therefore, information about the use can affect both utility and the donation level. The relevant information is not restricted to the recipient, as is the case in Schelling's model; to the neediness of the recipient, as in the case of Duncan's impact model; or to thematic issues. The objective of the information is mainly to reduce uncertainty by revealing project characteristics. The project characteristics induce different utilities for the donors, which in turn induce different donations.

7.2 Experimental results

The model assumes that the utility derived from donating money depends on how the money is used. Given this assumption, utility maximizing donors will donate more to projects that give them a higher utility return on their donations. Alternatively, in the terminology of our model, donors' utility maximizing donations depend positively on the DYD to the project. In our experiment, we find that participants differentiate the donations based on the project characteristics. This indicates that they get a higher utility from donating to some types of projects than others. We also find that those who state that they support increasing levels of Norwegian ODA, donate significantly more than those that are less supportive of ODA. A similar result holds for participants who have positive attitudes to the project characteristics included in our experiment. The behavior of participants in the experiment was therefore consistent with the model.

The model predicts that if donors are positive to development aid projects, i.e. have a positive expected DYD, they should donate a share of their endowment. In the survey, we find that the participants on average have positive attitudes toward development aid, and in the experiment, we see that most of the participants donated a share of their endowment. Furthermore, the average level of donation is in line with the literature on donations to charities. People donate more when the recipient is a charity organization than another student (Eckel and Grossman, 1996), and less than when they can choose their own charity (Benz and Meier, 2008).

Our model assumes that information about a project reduces uncertainty about how well the money is spent. Assuming risk averse donors, the model predicts that in most circumstances more information will result in higher average donations to development aid projects. In the experiment, we find that the participants donated less on average in the reduced-information

treatments than in the full-profile treatment. Once again, the behavior in the experiment was consistent with the model. However, we find no support for the third research question, i.e. that the DYDs induced by the three categories information differed from one another, or resulted in different donation levels. We believe this is because the DYDs in our experiment are induced by two categories of information simultaneously, and the participants did not value these combined categories differently. Thus, we would not expect to find a difference in donations. The variations in donations according to project profiles indicate that there is a larger variation in attitudes toward each project characteristic individually (Bachke *et al*., 2014).

Even though, we do not find significant differences between the three treatments with reduced-information, we find that omitting regional information does not significantly reduce donations compared with the full-profile treatment. One explanation can be that that the participants' prior beliefs regarding the distribution of the aid were significantly different from the distribution used in the experiment. Using the actual geographical distribution of Norwegian ODA as a proxy for the participants' prior beliefs, we see that the overwhelming share of Norwegian ODA goes to Africa (55%) or Asia (27%), and only a small share to Latin America (11%) and Eastern Europe (7%), and close to nothing to the Middle East (Norad, 2013). In our experiment, these regions occurred with 20% probability each. If the DYD for Africa is higher than the DYD for Eastern Europe, the assumed DYD for the donor who is uninformed about the region can be higher than the DYD for the informed donor. Hence, it is possible that the differences in probability weights lead informed donors to donate less, despite the reduced uncertainty.

8. Conclusion

We presented a model of donations to development aid projects with uncertain project specific returns to the donors. The model borrows key elements from models in portfolio theory. The model supplements the existing theoretical literature on charitable giving, the identifiable victim (Schelling, 1968), altruism and warm glow (Andreoni, 1990), and the impact philanthropist (Duncan, 2004). These factors are all captured by the concept of the *donors' yield from donations* (DYD), which we define as the subjective satisfaction the donor gets from donating money to development aid projects. The advantage of this model is that it explains charitable giving using rational donors acting in an environment of uncertainty. Uncertainty is a key characteristic of donations to development aid projects. The final objective of a development aid project is to reduce poverty, a public good that is unlikely to have a direct impact on the utility of the donor.

The model explains how information reduces uncertainty regarding the DYD, and therefore why more information in most cases enhances donations to development aid projects. The experimental behavior appears to be in line with the assumptions and predictions of our theoretical model. We find that most donors donated a share of their endowment to a development aid project, as predicted by our model and in line with the usual findings in experimental economics. Donors also varied their donations between the different project profiles, indicating that they get different levels of satisfaction or DYD from different project characteristics.

We tested experimentally two of the model's testable predictions: i) that more information will enhance donations, and ii) that the category of information matters. We found support for the first prediction; in that participants that received more information donated about 26% more than

did those with less information. We also found that omitting recipient and thematic information reduced the level of donations significantly, but that omitting regional information did not. However, we do not find support for the second prediction that the category of information matters for donations. This is probably due to too little variation in the participants' attitudes to the combined categories we used in the experiment.

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Appendix A Model

A.1 The simplified model with two possible outcomes

To simplify the model, we assume that there are only two different development aid projects, a good project *(a)* with a positive *DYD* (α_a), and a bad project *(b)* with a negative *DYD* (α_b), i.e. $\alpha \in \{a,b\}$. The probability of the good outcome (*a)* is *p* and the bad outcome *(b)* is *1-p*. This is an expected utility problem where we substitute the budget constraint into the utility function. For simplicity, we have assumed a log utility function (a special case of CRRA where the relative risk aversion is unity):

$$Max_g\ pln(e + \alpha_a g) + (1-p)ln(e + \alpha_b g) \quad st\ \ 0 \leq g \leq e \tag{A.1}$$

A. 2 Informed donor

For the informed donor the *DYD* is known, i.e. she knows whether she is donating to the good project (a) or the bad project (b). Her maximization problem is:

$$Max_g\ \ ln(e + g\alpha_i) \quad st\ \ e \geq g \geq 0 \quad i \in \{a,b\} \tag{A.2}$$

There are only corner solutions to this problem. If the donor get a possibility to donate to project *b*, she chooses to keep all their money; g=0. If they can donate to project *a*, then they donate their entire endowment (g=e). As the good project occurs with probability *(p)* and the bad project with probability *(1-p)*, then the average expected donation from informed donors are:

$$E(g)=p*e+(1-p)*0=pe \tag{A.3}$$

A.3 Uninformed donor

The uninformed donor's maximization problem is described by equation A.1, and she does not know which project she is donating to. To solve the problem we take the derivate of equation A.1 with respect to g. An interior solution is described by:

$$\frac{\partial EU}{\partial g} = \frac{p\alpha_a}{(e + \alpha_a g)} + \frac{(1-p)\alpha_b}{(e + \alpha_b g)} = 0 \tag{A.4}$$

$$\frac{\partial \partial EU}{\partial g \partial g} = -\frac{p\alpha_a^2}{(e + \alpha_a g)^2} - \frac{(1-p)\alpha_b^2}{(e + \alpha_b g)^2} < 0 \tag{A.5}$$

Solving eq. A.4 for g, gives

$$g = \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a \alpha_b} e \qquad \alpha_b < 0 \tag{A.6}$$

The implication of eq.A.6 is that as long as the DYD is positive ($E(\alpha) = p\alpha_a - (1-p)\alpha_b > 0$) the donor will donate a share of her endowment to the development aid project. Which gives us proposition 1. The proof is:

This is shown by evaluating equation A.4 for g=0:

$$\left.\frac{\partial EU}{\partial g}\right|_{g=0} = \frac{p\alpha_a - (1-p)\alpha_b}{e} > 0 \tag{A.7}$$

E(α) is by definition positive, so the optimal g>0.

There are two corner solutions limiting the range of donations. If the optimal donation is larger than the endowment *(g>e)* the donor will give away her entire endowment. This is shown in equation A.8:

$$\frac{\partial EU}{\partial g}\Big|_{g=e} = \frac{p\alpha_a}{e(1+\alpha_a)} + \frac{(1-p)\alpha_b}{e(1+\alpha_b)} > 0 \tag{A.8}$$

If A.8 is true, we have a corner solution where the entire endowment is spent on development aid, i.e. g=e. The other corner solution, i.e. g=0 will only occur if the warm glow is negative, i.e. E(α)<0.

A.3.1 Increase in the DYD

Furthermore, using A.9 we show that donations are increasing in increasing expected DYD by taking the derivative of g (eq. A.4) with respect to α_a:

$$\frac{\partial g}{\partial \alpha_a} = \frac{\partial}{\partial \alpha_a}\frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a\alpha_b}e = \frac{(1-p)e}{\alpha_a^2} > 0 \tag{A.9}$$

Since the derivative is positive, contributions to development aid projects increase as α_a increases at the rate of the probability of the good project. An increase in as α_a is the same as an increase in the expected DYD $E(\alpha_a,\alpha_b)$. Thus, an increase in the expected DYD increases donations. In equation A.10 we take the derivate of the donation (eq. A.4) with respect to α_b to verify the finding above. We see that as the bad project (project b) gets better (i.e. α_b gets smaller), the donations increases at a rate of the probability of the bad project. This confirms that if the expected DYD increases, donations increase. The rates are determined by the probability of

the occurrence of each factor in the expected DYD. The opposite is also true, as the expected DYD is reduced, donations fall.

$$\frac{\partial g}{\partial \alpha_b} = \frac{\partial}{\partial \alpha_b} \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a \alpha_b} e = \frac{pe}{\alpha_b^2} > 0 \tag{A.10}$$

A.3.2 Increased risk

To study the effect of increased risk, we look at mean preserving spread. This is an increase in the distance between the DYD of the good and the bad project in such a way that the expected DYD remains the same, i.e.$\alpha_a' = \alpha_a + \Delta_a$, $\alpha_b' = \alpha_b - \Delta_b$ while $p\alpha_a + (1-p)\alpha_b = p\alpha_a' + (1-p)\alpha_b'$. Comparing g from equation A.6 with g', which we get by inserting α_a' and α_b' in equation A.6, we find:

$$g = \frac{p\alpha_a + (1-p)\alpha_b}{-\alpha_a \alpha_b} e > g' = \frac{p\alpha_a' + (1-p)\alpha_b'}{-\alpha_a' \alpha_b'} e \tag{A.11}$$

By definition, the nominator is unchanged for both g and g', i.e. $p\alpha_a + (1-p)\alpha_b = p\alpha_a' + (1-p)\alpha_b'$. However, the denominator is larger for g' than g since$|(\alpha_a + \Delta_a)| > |\alpha_a|$ and$|(\alpha_b - \Delta_b)| > |\alpha_b|$. This means that g' is smaller than g, i.e. donors facing increased risk which does not change the expected DYD will donate less than other donors facing the same expected DYD. Thus, risk reduces donations.

A.4 Comparing informed and uninformed donations

In equation A.12-15 we set the average donations of the informed donors (A.4) equal to the average donations of the uninformed donors (A.6), and solve for p, α_a and α_b:

$$\frac{p\alpha_a + (1-p)\alpha_b}{\alpha_a \alpha_b} e = pe \tag{A.12}$$

This holds when (solving equation A.13 with respect to p):

$$p = \frac{-\alpha_b}{\alpha_a - \alpha_b + \alpha_a \alpha_b} \text{ if } (\alpha_a - \alpha_b + \alpha_a \alpha_b) \neq 0 \tag{A.13}$$

This holds when (solving eq. A.13 with respect to α_a):

$$\alpha_a = -\frac{(p-1)\alpha_b}{(1-\alpha_b)p} \text{ if } (1-\alpha_b) > 0 \; and \; |\alpha_b| \neq 1 \tag{A.14}$$

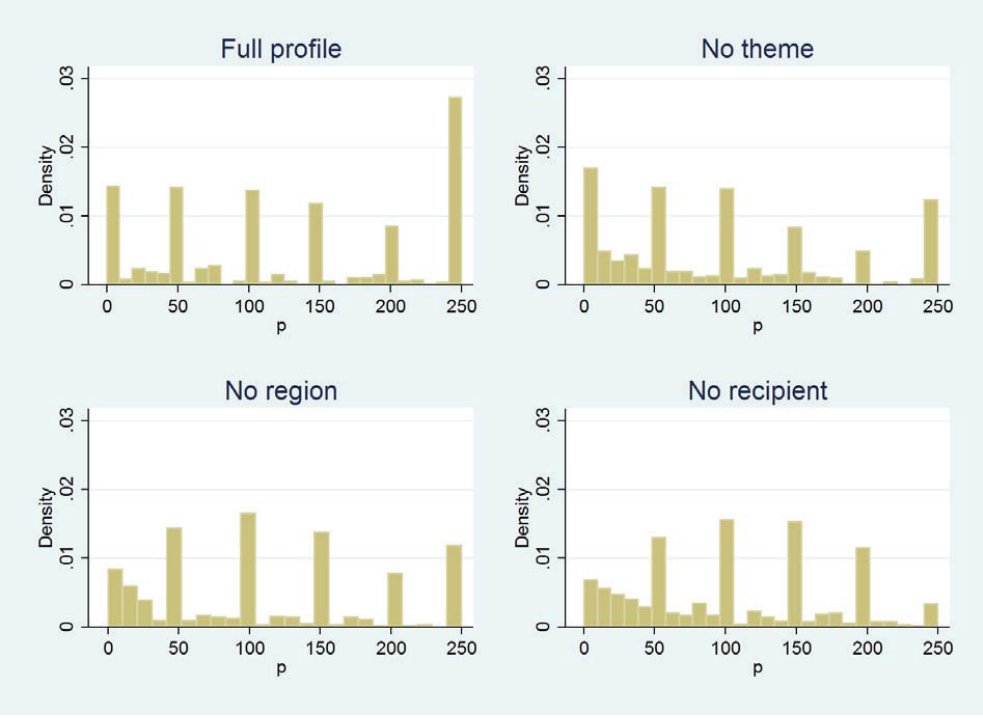
This holds when (solving eq. A.13 with respect to α_b):

$$\alpha_b = \frac{p\alpha_a}{p\alpha_a - 1 + p} \text{ if } (1-\alpha_b) > 0 \; and \; |\alpha_b| \neq 1 \tag{A.15}$$

Appendix B Results

Figure B.1 presents how the donations varied in the different treatments.

Figure B.1. *Histograms of average donation by participant in each treatment.*



Notes: The figure shows the average donation over the 15 different project profiles by each participant in each treatment.

Table B.1. *Attitudes towards the different development aid characteristics*

Characteristics	*Mean*	*Std. dev*	*Min*	*Max*	*Participants*		
					Positive	*Neutral*	*negative*
Africa South of Sahara	2.32	1.45	1	7	156	15	18
Latin America	2.69	1.43	1	7	137	35	17
Southeast Asia	2.75	1.39	1	7	135	33	21
Eastern Europe	3.01	1.51	1	7	124	39	26
Middle East	3.22	1.77	1	7	116	32	41
Mean regions	2.80	1.54	1	7	151	12	25
Children	1.39	0.81	1	7	183	4	2
Girls	1.79	1.04	1	7	179	4	6
Women	1.99	1.07	1	7	179	8	5
Boys	2.5	1.17	1	7	160	18	11
Men	3.44	1.32	1	7	100	55	34
*Mean recipients**	2.22	1.30	1	7	181	3	4
Education	1.45	0.77	1	4	184	4	1
Health	1.68	0.97	1	7	176	8	5
Peace and reconciliation	2.03	1.28	1	7	157	26	6
Agriculture	2.11	1.09	1	6	168	14	7
Business development	2.19	1.11	1	5	165	17	7
*Mean Themes**	1.89	1.09	1	4	187	0	1

Notes: Scale: 1 very positive, 7 very negative
**One person did not evaluate themes or recipients, therefore we only have 188 observations here.*

Paper 3

Do Farmers' Organizations Enhance the Welfare of Smallholders[1]?

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Abstract: *Farmers' organizations have been used as a tool to improve the living conditions of farmers in poor countries by improving their market access, their access to information and their capacity to increase production. I employ panel data from Mozambique to investigate how membership in farmers' organizations impacts small farmers' welfare. Using difference-in-difference estimators that control for unobservable selection bias, I find a positive impact of membership on the marketed surplus (25%), the value of agricultural production (18%) and on total income (15%, and more than 20% for those whose main source of cash income is the agricultural sector).*

Keywords: collective action, economic welfare, propensity score matching estimator, Mozambique.

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1. INTRODUCTION

The majority of the poor are rural inhabitants who depend on agriculture for their livelihoods. Raising the income of the smallholders is therefore crucial to reducing poverty. It is widely recognized that increased commercialization among smallholders leads to higher production, specialization and higher incomes (Barrett, 2008). One policy to this end has been to create and support farmers' organizations in developing countries (Bernard & Spielman, 2009; Lele, 1981). This paper examines whether this is true. Specifically, I investigate the impact of membership on the income, the value of agricultural production and the marketed surplus of the members of farmers' organizations in Mozambique.

Farmers' organizations can play an important role in making agricultural development both broad based and pro-poor (World Bank, 2008). In particular, farmers organizations' can improve smallholders livelihood by: (1) reducing transaction costs in output and input markets (Barrett *et al*., 2012; Kelly, Adesina, & Gordon, 2003; Markelova, Meinzzen-Dick, Hellin, & Dohrn, 2009; Nilsson, 2001; Poulton, Dorward, & Kydd, 2010), (2) strengthening the bargaining power of the farmers in relation to buyers (Glover, 1978; Sivramkrishna & Jyotishi, 2008), (3) providing information about and access to technology (Caviglia & Kahn, 2001; Devaux *et al*., 2009), and (4) being their voice in the political landscape (Jayne, Mather, & Mghenyi, 2010; Poulton *et al*., 2010). Furthermore, they are a good way for government and non-governmental organizations (NGOs) to reach the rural poor (Bernard & Spielman, 2009; Nyyssölä, Pirttilä, & Sandström, 2012).

Most empirical studies focus on the economic impact of a particular activity organized by a farmers' organization, and not on the impact of membership in farmers' organizations. Typical activities studied are organic farming, fair trade, export products and products sold in supermarkets (Bacon, 2005; Becchetti & Costantino, 2008; Carletto, Kilic, & Kirk, 2011; Moustier, Tam, Anh, Binh, & Loc, 2010). The main finding is that participation in these activities is related to enhanced economic welfare (Bacon, 2005; Becchetti & Costantino, 2008; Carletto *et al*., 2011; Moustier *et al*., 2010). There are few, if any, empirical studies that evaluate the impact of membership in farmers' organizations in developing countries at the national level. One contribution of this paper is that it evaluates the welfare impact of membership in farmers' organizations without focusing on a particular product, activity or organization.

I investigate the impact of farmers' organization membership on a household's marketed surplus, agricultural production and total income. An obvious challenge is the selection of farmers with certain valuable characteristics into farmers' organizations. To solve this issue, I use the panel structure of the Mozambican agricultural household survey (Ministry of Agriculture, 2002a and 2005). First, following farmers in and out of membership using a difference-in-differences estimator eliminates the effect of all unobserved farmer characteristics. To further eliminate potential selection biases, I also employ a matching difference-in-differences estimator where initially comparable farmers are followed along different membership paths.

I find a significant and positive impact of membership in farmers' organizations on the marketed surplus of 25% and the value of production of 18% in the full sample. The effect on total income seems to be around 15%, which is a significant increase in income

for a smallholder in Mozambique. For those who mainly depend upon agriculture for their livelihoods, the effect is even larger and the coefficients are respectively 40%, 28% and 20%. Thus, farmers' organizations seem to reduce transaction costs and increase market integration and agricultural production for smallholders in Mozambique. Despite this positive welfare impact, I find a surprisingly erratic membership pattern among the smallholders.

This paper is organized as follows. Section 2 gives a short overview of the literature on farmers' organizations. An overview of Mozambique and its farmers' organizations is presented in Section 3, and Section 4 presents the data. Section 5 outlines the theoretical framework and the empirical strategy. The results are presented in Section 6. Possible mechanisms behind the results and the erratic membership pattern in farmers' organizations are discussed in Section 7, and Section 8 concludes the paper.

2. FARMERS' ORGANIZATIONS

Farmers' organizations are by definition a member owned business (Nilsson, 2001) and they usually focus on issues such as marketing, production or credit (Lele, 1981). Historically, they have a good track record of strengthening the position of the farmer in the developed world, and recently they have received renewed interest as a tool to increase market participation and welfare among smallholders in developing countries (Bernard & Spielman, 2009).

A standard theoretical justification for cooperatives is that they reduce high transactions costs for the economic agent (Nilsson, 2001). Generally, transaction costs are high in agricultural markets in developing countries, and smallholders face even higher

transaction costs than large farmers in relation to access to skilled labor, markets and technical knowledge, and input, capital and output markets (Poulton *et al*., 2010). Farmers' organizations can reduce farm-level transaction costs in output, input and credit markets (Kelly *et al*., 2003; Markelova *et al*., 2009) and costs related to access to technical, marketing and management knowledge (Jayne *et al*., 2010).

Another justification is that farmers' organizations can rectify the unequal balance of power between the contractor and the smallholder, and be a tool to avoid monopsonistic exploitation of smallholders in contract schemes (Glover, 1987; Sivramkrishna & Jyotishi, 2008). This issue is becoming increasingly pertinent as there is an increasing spread of vertical integration in agribusiness (Reardon & Weatherspoon, 2003; Sykuta & Cook, 2001), and contract farming is seen as a good way to integrate the smallholders into international markets (Kirsten & Sartorius, 2002). This development requires product traceability, quality and adhesion to standards, all of which create higher transaction costs for smallholders than for other farmers (Poulton *et al*., 2010).

Most of the empirical literature focuses on evaluating specific contract farming situations, and not the effect of membership in the farmers' organizations. An exception is the study by Ngugi and Kariuki (2009) who find a strong correlation between membership in organizations and higher welfare; however, they do not try to establish causality. Bacon (2005), studying the coffee market, find that selling coffee through a cooperative increases the prices received by the farmer compared with the price offered by a local middleman, and that the premium is higher when the product is organic or sold under fair trade. Carletto *et al*. (2011), using a difference-in-difference estimator, find positive causal welfare gains from participating in nontraditional agricultural export

adoption facilitated by a particular farmers' organization in Guatemala. However, they do not try to estimate the advantage of membership in the organization. In their study of contract farming in Senegal, Warning and Key (2002) establish a positive causal relationship between participation in the scheme and economic benefits by using an instrumental variable estimator with a measure of honesty as the instrument for participation. They find that the poor are allowed to participate in the contracting scheme, and argue that this is due to the social capital created by intermediaries that organize village groups. Another study by Becchetti and Costantino (2008) analyze the effects of fair trade on Kenyan farmers that are also members of a farmers' organization. Their findings indicate that fair trade seems to be associated with farmers with superior capabilities, and economic and social wellbeing, but they do not infer causality. In a study of market participation in Mozambique, Boughton *et al*. (2007) do not find a correlation between membership in an association and market participation.

Research focused on the ability of farmers' organizations to link smallholders to markets in the long run show mixed results (Jayne *et al*., 2010; Kelly *et al*., 2003; Kirsten & Sartorius, 2002; Markelova *et al*., 2009; Poulton *et al*., 2010). There is evidence that the functionality of the farmers' organization depends upon the product choice, group size, and heterogeneity among the farmers (Markelova *et al*., 2009). Furthermore, there seems to be a tradeoff between the between inclusiveness of the organization and the economic performance of the farmers' organizations (Bernard & Spielman, 2009). Financial and technical support to initiate farmers' organizations, though necessary, can create organizational long-term sustainability problems and dependency on the external actors (Bingen, Serrano, & Howard, 2003; Markelova *et al*., 2009). Farmers'

organizations can therefore play an important role for smallholders in reaching the market by improving coordination, but public investment such as roads, contract enforcement facilities and literacy programs need to be in place for them to be successful (Kelly *et al*., 2003; Markelova *et al*., 2009).

3. POVERTY, AGRICULTURE AND FARMERS' ORGANIZATIONS IN MOZAMBIQUE

Agriculture is the main economic activity for the majority of the Mozambican population and poverty rates are higher in rural areas (Arndt *et al*., 2012). Increased agricultural production was one of the contributing factors for the 15 percentage points reduction in poverty rates in the six-year period prior to 2002/2003 (Arndt, James, & Simler, 2006). In the subsequent six-year period, poverty rates did not fall further. Low growth in agricultural productivity, weather shocks and high international food prices were among the factors hampering poverty reductions in this period (Arndt *et al*., 2012). The agricultural sector in Mozambique is still characterized by low production, low productivity, low use of inputs, slow adaption of new technology and a high marketing wedge that excludes many subsistence farmers from the market (Arndt *et al*., 2012; Heltberg & Tarp, 2002; Uaiene, Arndt, & Masters, 2009). Development in the agricultural sector is therefore important for poverty reduction in Mozambique.

Promoting farmers' organizations is a priority in Mozambique's poverty reduction strategies and agricultural sector programs in the new millennium (Republic of Mozambique, 2001 and 2006). Policies and activities promoting farmers' organizations also preceded the poverty reduction strategy and have been ongoing since the mid-1990s

with the support of international NGOs and donors (Dorsey & Muchanga, 1999). These efforts[3] continued during the early 2000s, both through national NGOs such as UNAC[4], international NGOs such as CARE, World Vision, Oxfam and CLUSA and through government policies. Consequently, there were around 4600 formally registered[5] local organizations in Mozambique focusing on improving rural livelihoods in 2006 (Francisco & Matter, 2007). In addition to the formally registered farmers' organizations, many organizations in northern and central Mozambique are not formally registered, but associated with UNAC, indicating that farmers' organizations are even more numerous in Mozambique. Almost all farmers' organizations seem to be connected to funding entities such as international NGOs (Kaarhus & Woodhouse, 2012).

The NGOs working with the farmers' organizations often provide capacity building activities such as literacy programs and institutional training, technical assistance, and assistance with credits and marketing issues. Examples of technical agricultural assistance are: promote high value commercial products, provide improved seeds and animals for reproduction, and teach different agricultural practices such as conservation agriculture and seed multiplication (Kaarhus & Woodhouse, 2012; Kelly *et al*., 2003). Uaiene *et al*. (2009) show that membership in a farmers' organization increases the probability of using new technology. Farmers' organizations are also often a vehicle for distributing different types of support, both from NGOs and the local government implementing the national policies (Nyyssölä *et al*., 2012). Bingen *et al*. (2003) and Kelly

3. This session is based on interviews conducted in Maputo, Mozambique, in May 2009.
4. UNAC – União Nacional de Camponeses. It is also a member of the international movement Via Campensina.
5. Most of these farmers' organizations were registered as NGOs under the Association Law (Lei 8/1991) and not under the Cooperative Law (Lei7/79) (Kaarhus & Woodhouse, 2012).

et al. (2003) emphasize the importance of the human capacity building element of farmers' organizations aid programs operated by CLUSA in Mozambique during this period.

4. DATA AND DESCRIPTIVE STATISTICS

(a) Data source

The data come from the official agricultural household survey produced by the Ministry of Agriculture in Mozambique with the assistance of Michigan State University. I use panel data collected in 2002 (Ministry of Agriculture, 2002a) and 2005 (Ministry of Agriculture, 2005), which represents the only panel in the data. The sampling is based on the Agricultural and Livestock Census from 2000 and use the National Statistics Institute's standards to make the sample representative at the provincial and national level. The household survey collected detailed information on household characteristics, welfare indicators, landholdings, employment types and remittances, as well as detailed information regarding farming practices, crops produced, harvested and sold, and livestock. Additional information on prices, marketing and certain infrastructure measures was collected in a community level survey.

The original sample consists of both small-scale, medium and large farmers, however, I have chosen to only work on the small-scale farmers. I use the balanced panel consisting of 3480 households included in both years. These households are later referred to as the full sample. I also use a subsample, later referred to as the restricted sample, consisting of the 1998 households that have agriculture as their main cash income source.

(b) The outcome variables

I study the following three outcome variables: the marketed surplus (MS), the value of agricultural production (VA) and total income (TI) per household.

The marketed surplus (MS) measures the overall value of the produce sold by the household and is defined as follows:

$$Y_i^{MS} = p_d \cdot q_i^s, \tag{1}$$

where the vector q_i^s represents the amount sold by the household of each agricultural product and p_d is the vector of median district prices[6] for all agricultural products of the household *(i)*.

The value of agricultural production (VA) is defined as follows:

$$Y_i^{VA} = p_d \cdot q_i, \tag{2}$$

where the vector q_i represents the overall agricultural production of the household and p_d is defined as above. The estimated value of the agricultural production of the household is a lower bound because we have only sales values and not the overall value of the goods produced for horticulture, fruits and animal products. The share consumed at home is therefore not included.

The total income (TI) of the household is defined as follows:

$$Y_i^{TI} = Y^{VA} - c_i + \ other\ incomes, \tag{3}$$

6. If district prices are not available, then provincial prices are used, and national prices are used if provincial prices are not available.

where Y_i^{VA} is the value of the agricultural production (as defined above), c_i is the cost of inputs and other incomes consists of salary work, own-business[7], remittances and pensions. The inclusion of these other income items is in line with other studies using the same data (Cunguara & Darnhofer, 2011). The inputs[8] (c_i) included are seeds, fertilizers and pesticides and costs of buying animals. Family labor and cost of land are not included, which is consistent with the literature.

The median price at the district level is chosen because we have farm gate prices for only a few products, and because the district, not the national, price is the best proxy price because of the strong market segmentation in Mozambique (Heltberg & Tarp, 2002). Thus, the data do not permit us to study an important potential benefit of being a member in a farmers' organization, namely, price differences on produce between members and nonmembers. Using median district prices to calculate the impact variables for all farmers can therefore potentially underestimate the economic benefit of being a member.

(c) Descriptive statistics

The main independent variable in this analysis is a dummy variable indicating membership in a farmers' organization. The survey asks: "*Is the person responsible for this farm or any other household member a member of an agricultural association?"* [9] (Ministry of Agriculture, 2002a, p. 4). The answer is either yes or no with no indication of what type of organization. In the questionnaire guide presented to the enumerator, the

7. Both related and not related to the agricultural sector.
8. The cost of casual labor is not included because of data limitations in 2005.
9. In Mozambique, for historical reasons, farmers' organizations have been called associations; however, I will use the word organizations throughout the paper as this is more widely used in the literature.

following definition of a farmers' organization is given "*an agricultural association is an association of farmers or agricultural producers or livestock producers oriented towards fulfilling common interests, with regards to production, processing or marketing of agricultural products. The organization might or might not be formally registered.*"[10] (Ministry of Agriculture, 2002b, p. 18). Thus, there is no information in the database regarding the specific name, form or functions of the farmers' organizations, and therefore this study measures the impact of membership in any type of farmers' organization.

Despite the efforts to organize smallholders in Mozambique, only about 7.6% of the farmers in the full sample from 2005 belonged to a farmers' organization, up from 4.4% in 2002 (Ministry of Agriculture, 2002a and 2005). There are certain regional differences with regard to membership rates; the highest is in the most southern and northern provinces. Moreover, these provinces also had the highest membership increase, while other provinces did not have any increase in membership. Finally, only 47 farmers in the full sample stayed members in both years, 218 became members from 2002 to 2005 and 105 left the farmers' organizations. The comparable numbers for the restricted sample are; 21 members in both years, 125 new members between 2002 and 2005, and 68 members left the organizations over the same period. Thus, the overwhelming majority of the households in both samples were members in neither year.

10. Registration would be under either the Association Law (Lei 8/1991 – Lei das Associacões) or the Cooperative Law (Lei 7/79).

Table 1. *Comparison of mean values between members and nonmembers in the full sample*

	2002				2005			
	Full sample	Members	Non-members	Difference	Full sample	Members	Non-members	Difference
Head of Household Characteristics								
Age (years)	43.02	43.18	43.01	0.16	45.4	44.6	45.4	–0.83
Share, male head household	0.75	0.75	0.75	0.00	0.71	0.75	0.71	0.04
Schooling (year)	2.55	3.09	2.53	0.57***	2.90	3.72	2.84	0.88***
Self-employment (du.)	0.32	0.36	0.32	0.04	0.42	0.49	0.41	0.08***
Salary work (du.)	0.15	0.16	0.15	0.01	0.25	0.28	0.25	0.03
Ag. main activity (du.)	0.83	0.85	0.83	0.02	0.82	0.81	0.82	–0.02
Household Characteristics								
Household size (nu.)	5.23	5.96	5.20	0.76***	6.55	7.53	6.46	1.07***
Pensioner (du.)	0.03	0.04	0.03	0.01	0.03	0.05	0.02	0.03***
Ag. main cash income (du.)	0.57	0.59	0.57	0.01	0.57	0.55	0.58	–0.03
Serious disease (du.)	0.07	0.08	0.07	0.01	0.21	0.19	0.22	–0.03
Assets								
Ag. land (hectares)	1.71	1.91	1.70	0.21	2.01	2.46	1.98	0.48***
Ownership of land (du.)	0.99	0.99	0.99	0.00	0.98	0.99	0.98	0.01
Good roof (du.)	0.16	0.29	0.15	0.14***	0.19	0.28	0.18	0.10***
Good walls (du.)	0.34	0.43	0.34	0.10**	0.41	0.45	0.41	0.04
Agricultural practices								
Family labor (nu.)	2.82	3.22	2.80	0.42***	3.78	4.34	3.74	0.60***
Animals (nu.)	3.40	5.37	3.13	2.24***	3.10	4.72	2.96	1.76***
Animal traction (du.)	0.14	0.21	0.13	0.08***	0.11	0.15	0.11	0.05**
Irrigation (du.)	0.14	0.27	0.13	0.14***	0.06	0.17	0.05	0.11***
Fertilizers (du.)	0.04	0.16	0.03	0.13***	0.04	0.12	0.03	0.09***
Pesticides (du.)	0.06	0.17	0.06	0.11***	0.06	0.11	0.05	0.06***
Manure (du.)	0.07	0.15	0.07	0.08***	0.04	0.07	0.03	0.03***
Number	3480	152	3328		3480	265	3125	

*Notes: Significance level of t-test: * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$.*
du. indicates a dummy variable.
nu. indicates a number.
[a] *Number of people in the household above 15 years of age.*

Table 1 shows the differences in the mean values of the salient characteristics of the households of members and nonmembers in the full sample for 2002 and 2005. As seen in Table 1, members in farmers' organizations have better houses and own more land (only significant in 2005) than nonmembers and apply better agricultural technologies than nonmembers. The head of member households have more years of schooling, are to a greater degree self-employed (only significant in 2005) and their households have more members and a higher share of pensioners.

Table 2 shows the means of the three outcome variable measures for both samples, divided into members and nonmembers. We see that members have significantly more marketed surplus, value of production and income than nonmembers in both samples and both years. The Kolmorogov–Smirnov test of equality of distributions confirms that the income distributions of members are different from the income distributions of nonmembers at the 1% level in both samples.

Table 2. *Comparison of mean values between members and nonmembers in farmers' organizations in both samples*

	Full sample							
	2002				2005			
Outcome variables	Full sample	Members	Non-members	Difference	Full sample	Members	Non-members	Difference
Marketed surplus (MTN [a])	1011	2563	940	1623***	1399	3440	1231	2210***
Value of ag. prod. (MTN[a])	4145	6852	4021	2831***	4915	7796	4677	3118***
Total income (MTN[a])	8187	11973	8015	3959***	10248	16702	9716	6986***
Number	3480	152	3328		3480	265	3125	

	Restricted sample							
	2002				2005			
Outcome variables	Restricted sample	Members	Non-members	Difference	Restricted sample	Members	Non-members	Difference
Marketed surplus (MTN[a])	1408	3257	1322	1935***	2028	5424	1760	3664***
Value of ag. prod.(MTN[a])	4657	7048	4545	2503***	5739	10535	5360	5175***
Total income (MTN[a])	6162	9328	6015	3314***	8386	16304	7761	8542***
Number	1998	89	1909		1998	146	1852	

Notes: [a] Income is measured in MTN = 2005 Meticais. 1 US$ was about 24 Meticais. 2002 numbers are PPI adjusted.
*Significance level of t-test: * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$.*

5. ANALYTICAL FRAMEWORK AND EMPIRICAL METHOD

(a) Analytic framework

To clarify and discuss the impact of membership in farmers' organizations on the outcome variables consider the following simple framework. A farmer with a vector of characteristics z and membership status $m \in \{0,1\}$ obtains income:

$$Y(m) = p(m)Q(n; z, m) - n'r(m) - Fee. \quad (4)$$

Here, production Q depends on agricultural inputs used (n), as well as characteristics (z) and membership status (m). The latter affects the production through improved production technologies and farmer ability and knowledge. The product price $p(m)$ and the input prices $r(m)$ also depend on membership status as membership can affect the prices the farmers pay and receive. *Fee* is the cost of being a member. This cost is normalized to zero as most members pay little or nothing for membership because most farmers' organizations in Mozambique are supported by different types of NGOs (Boughton *et al*., 2007).

I hypothesize that membership (m) in a famers' organization might influence the farmers income through the following channels. First, by securing the farmer a better price for her produce than the farmer otherwise would get, i.e., $p(m=1)>p(m=0)$. This results from an improved negotiation position for farmers' organizations relative to single farmers and reduced transaction costs as larger quantities are sold. Second, membership can provide lower input prices, i.e., $r(m=1)<r(m=0)$ as the farmers' organization buys relatively larger quantities compared with the individual smallholders. Third, the farmers' organization might also provide technical assistance and technology, so that the

production function satisfies $Q(n;z,m=1) > Q(n;z,m=0)$ for all n, z. Thus, one could also expect to see higher yield among farmers that are members of farmers' organizations. Higher overall production might also lead to more produce being sold, i.e., $Q^s(n;z,m=1) > Q^s(n;z,m=0)$.

My hypothesis is that a member household of a farmer's organization have higher total income, value of agricultural production and marketed surplus than a nonmember household.

(b) Empirical method

The objective of this paper is to analyze the impact of membership in a farmers' organization on the three outcome variables. The main challenge with impact assessments is that it is impossible to observe a household that is both a member and a nonmember at the same time, and therefore there is a need to construct a counterfactual. There is a large literature on impact assessments, how to construct counterfactuals and estimating the treatment effect. It is not the objective of this paper to review this literature; for more information see, for example, Heckman, Ichimura, and Todd (1997), Heckman, Smith, and Clements (1997), Heckman, Ichimura, and Todd (1998), Blundell and Costa Dias (2000), Heckman and Navarro-Lozano (2004), Smith and Todd (2005) and Ravallion (2007).

Formally, let m indicate membership in farmers' organizations, and Y_{it}^{km} be household i's income of type k in period t conditioned on the membership status. If the household is a member $(m=1)$ of a farmers' organization, the outcome is Y_{it}^{k1}, and if not $(m=0)$ the income is Y_{it}^{k0}. As before, k consists of three types of outcome variables (MS, VA and

TI). To enhance readability, the subscript *k* will be dropped in the equations. The impact of being a member of a farmers' organization is then described by $Y_{it}^{1} - Y_{it}^{0}$. The panel structure of the data allows for difference-in-difference estimators that eliminate biases due to temporally invariant omitted variables such as farmers' ability. Such unobservable variables are difficult, if not impossible, to measure, and are important in determining the outcome variables in this case.

I apply both a conventional difference-in-difference estimator, and a propensity score matching difference-in-difference estimator to show that the results are stable across different estimators[11].

(i) The difference-in-difference estimator

The main assumptions for this estimator are: i) a common trend between the members and nonmembers, and ii) no changes in group composition within each group (Blundell & Costa Dias, 2000). The common trend assumption implies that macro shocks affect both members and nonmembers in the same manner and therefore do not increase or decrease the impact of the treatment. If the two groups change in composition this might also affect the outcome. The estimated equation is:

$$Y_{it} = \alpha_i + \delta m_{it} + \beta' X_{it} + \eta_t year + \mu_{it}, \quad (5)$$

where Y_{it} is the outcome variable of household (i) at time *t*, $t \in \{2002,2005\}$, δ is the impact of membership (m_{it}), α_i are unobservable time-invariant factors such as farmers'

11. Other methods such as instrument variables could have been used. However, good instruments for membership in farmers' organizations are rare, and I have not been able to identify such a variable in this case.

ability, which will be differenced away, and β are the parameters for the control variables (X_{it}), where of the time invariant variables, gender of head of household, ownership of land and the provinces will also be canceled out. The set of control variables (X_{it}) consists of all the other household characteristics[12] presented in Table 1 and the 10 provinces in Mozambique. Finally, η_t is the trend effect for the period between 2002 and 2005 and u_{it} is the disturbance term.

(ii) Difference-in-difference propensity score matching estimator

The assumption of a common trend, crucial for the validity of standard difference-in-difference estimators, might not be a realistic description of the situation in Mozambique. There are differences in rainfall, productivity and economic growth patterns across the country, as well as differences in governmental and NGO activities related to farmers' organizations. In this case, the difference-in-difference propensity score matching estimator will be more robust, as it matches similar households and thereby controls for both observed heterogeneity and indirectly unobserved heterogeneity (Heckman, Ichimura, & Todd, 1997).

This estimator is particularly well suited in my case as the data fulfills the three common criteria for the estimator to perform well (Blundell & Costa Dias, 2000; Heckman, Ichimura, & Todd, 1997; Heckman *et al*., 1998). First, only one data source is used. Second, the data contain relevant information for both the outcome variables and the membership decisions for the farmers. Finally, all subjects interact in the same agricultural market segment because I only use the small-scale farmers' strata.

12. Except for "Agriculture as the main cash income" because the sample is divided into subsamples using that variable.

The estimation method used is based on Heckman, Ichimura, and Todd (1997), Heckman *et al*. (1998) and Smith and Todd (2005)'s two step estimator. The first step is to construct a control group by matching member of farmers' organizations households to similar households that are not members of a farmers' organization. The propensity score for membership in farmers' organizations is obtained using the following probit estimator:

$$Pr(\Delta m_i = 1|X_i) = \Phi(\beta' X_i), \tag{6}$$

where Pr is the probit estimator, Δm_i is the change in membership of farmers' organizations between 2002 and 2005, and β are the estimated parameters for the corresponding vector of covariates (X_i) explaining whether or not the household is a member of a farmers' organization in 2002. Φ is the cdf of the standard normal. In this analysis, I first study the impact of becoming a member $(\Delta m_i = 1)$ between 2002 and 2005, and I compare the farmers that becomes members with farmers who were neither members in 2002 nor in 2005. Then, I look at the impact of leaving a farmers' organization $(\Delta m_i = -1)$ between 2002 and 2005, and I compare the farmers that leave farmers' organization with farmers who were a member in both years.

The second step is to estimate the average treatment effect on the treated *(ATT)*. The average treatment effect on the treated, estimated with the difference-in-difference matching estimator, based on Smith and Todd (2005) is:

$$ATT_{DDM} = \frac{1}{n_1}\sum_{i\epsilon I_1}\{(Y_{ti}^1 - Y_{t'i}^0) - \sum \; v(i,j)\left(Y_{tj}^0 - Y_{t'j}^0\right)\}, \tag{7}$$

where t=2005 and t'=2002. I_1 is the set of those who become members in the area of common support, which is where propensity scores estimated in equation (6) are overlapping between member households and nonmember households, and I_0 are the set of nonmembers that are in the area of common support. $v(i,j)$ represents the weighting regime in my matching estimator. I use a kernel estimator to match the members to nonmembers on observables[13] as it has been shown that imposing kernel matching and common support improves the estimates compared with other matching algorithms (Heckman *et al*., 1998).

This estimator rests on two assumptions. The first is that $E[Y_{it} - Y_{it'}|X_i, \Delta m = 1] = E[Y_{it} - Y_{it'}|X_i, \Delta m = 0]$, in words conditional mean independence (Smith and Todd, 2005). This means that based on the matching, you will find nonmember households $(m_{2002}=0)$ that stay nonmembers $(\Delta m=0,\ m_{2005}=0)$ with outcome variables equal to households that become members $(\Delta m=1;\ m_{2002}=0,\ m_{2005}=1)$ based on the observables and independent of membership status. This assumes that selection into the program occurs on the observables and not the unobservables (Blundell & Costa Dias, 2000). The second assumption requires that one cannot use individuals with characteristics for which the variables perfectly predict the change in membership status; $0<Pr((\Delta m = 1|X_i)<1$. As I am only interested in homogenous treatment effects, the latter criteria can be relaxed to hold only in the area of common support. Rosenbaum and Rubin (1983) show that one could use propensity score matching instead of matching on each specific covariate, and thereby solve the dimensional problem of matching.

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13. Which is described as $v(i,j) = \frac{\sum_{j \epsilon I_0} G\left(\frac{pscore_j - pscore_i}{a}\right)}{\sum_{\epsilon \epsilon I_0} G\left(\frac{pscore_\epsilon - pscore_i}{a}\right)}$ here and a is the bandwidth of the kernel and κ represents the number in the kernel group. The kernel used is Gaussian with a bandwidth of 0.06.

6. RESULTS

(a) Difference-in-difference estimator

Table 3 presents the results of the difference-in-difference estimators presented in equation[14] (5) for the full and the restricted sample. I have estimated five different specifications of the model (A–E) based on inclusion of different controls.

From Table 3, we see that membership has a strong and significant impact on almost all of the outcome variables. The only exception is for total income in the two specifications, which includes agricultural practices, in the full sample. As expected the coefficients are higher in the restricted sample where agriculture represents the main cash income source. The impact is highest for the marketed surplus (25–34% in the full sample and 40–49% in the restricted sample) compared to the other outcome variables. The impact on the value of agricultural production and the total income is just below 20% in the full sample and just above 20% in the restricted sample. The impact coefficients are higher in the specifications where fewer controls are included, and including agricultural controls reduces the estimated impact the most. This is in line with theory, where lower coefficients are expected with more controls, particularly controls that are arguably important for the outcome such as agricultural practices in this case.

14. The regressions have also been clustered at the household level, the district level and the provincial level, and the results are similar. These resultst are available from the author upon request.

Table 3. *Diff-in-diff estimator results both samples*

	Full sample					Restricted sample				
	Model specification					Model specification				
	A	B	C	D	E	A	B	C	D	E
Marketed surplus	0.335***	0.336***	0.260**	0.323***	0.254**	0.499***	0.496***	0.401***	0.483***	0.401***
	(2.92)	(2.95)	(2.41)	(2.87)	(2.38)	(4.12)	(4.15)	(3.56)	(4.10)	(3.64)
Value of agricultural production	0.195**	0.183**	0.152**	0.188**	0.164**	0.260***	0.248***	0.197**	0.252***	0.210**
	(2.58)	(2.41)	(2.09)	(2.44)	(2.23)	(3.03)	(2.89)	(2.36)	(2.93)	(2.54)
Total income	0.190**	0.166*	0.133	0.145*	0.137	0.254**	0.217**	0.167*	0.198**	0.175*
	(2.12)	(1.93)	(1.55)	(1.68)	(1.59)	(2.47)	(2.29)	(1.76)	(2.10)	(1.85)
Control variables										
Head of household characteristics		x	x	x	x		x	x	x	x
Household characteristics		x	x	x	x		x	x	x	x
Assets				x	x				x	x
Agricultural practices			x		x			x		x

Notes: t-statistics in parentheses.
** p < 0.10, ** p < 0.05, *** p < 0.01.*
The outcome variable is in natural logarithms.
These estimations are clustered at village level sites.
Details about head of household characteristics, household characteristics assets and agricultural practices controls are specified in Table 1.

(b) The difference-in-difference propensity score matching estimator

The membership regression is overparameterized in line with the literature, and I have included covariates that are both related to the membership decision as well as to the agricultural output variables (Heckman, Ichimura, & Todd, 1997; Heckman & Navarro-Lozano, 2004). In particular, I included agricultural practices and land in the membership equation as it explains membership in farmers' organizations quite well. However, agricultural practices might be endogenous to the membership decision; thus, I use two specifications where one includes agricultural practices in the participation regression, and one do not. Table 4 presents the propensity scores estimated by equation (6) for whether the household became a member in a farmers' organization between 2002 and 2005 for both specifications. Table 4 also includes the propensity score estimates for leaving an organization, which I will discuss later.

The younger the head of household is, the more likely it is that the household will join a farmers' organization. Furthermore, it appears that households with the more members, with a member that receives a pension or that have more land are more likely to join organizations than households without these characteristics. This indicates that richer households tend to join. There is a slight contradiction as the variable quality of roof indicates the opposite. The use of more modern agricultural practices such as fertilizers suggests a greater likelihood of joining. Finally, geography matters for the membership decision. Compared with Maputo Province, living in all other provinces means a household is less likely to be a member except for Gaza and Niassa Provinces in both samples and also Nampula and Sofala in the restricted sample.

Table 4. *Propensity score in diff-in-diff matching estimator*

	Becoming a member				Leaving	
	Full sample		Restricted sample		Full sample	
	Model D	Model E	Model D	Model E	Model D	Model E
Head of household characteristics						
Age (years)	–0.00574**	–0.00577**	–0.00982***	–0.00998***	–0.00317	–0.00713
	(–2.16)	(–2.14)	(–2.76)	(–2.75)	(–0.32)	(–0.65)
Gender (du.)	0.0285	0.00581		–0.0577	0.196	0.378
	(0.31)	(0.06)		(–0.48)	(0.61)	(1.10)
Schooling (years)	0.0108	0.00942	0.0101	0.00977	–0.00307	–0.0209
	(1.11)	(0.96)	(0.72)	(0.68)	(–0.09)	(–0.54)
Self-employed (du.)	0.00556	0.0108	0.0606	0.0671	–0.0434	–0.220
	(0.07)	(0.13)	(0.56)	(0.61)	(–0.17)	(–0.79)
Salary work (du.)	0.0445	0.0561	0.141	0.131	–0.397	–0.402
	(0.39)	(0.48)	(0.83)	(0.75)	(–0.97)	(–0.94)
Agriculture primary activity (du)	–0.0344	–0.0405	–0.0976	–0.116	0.136	0.248
	(–0.29)	(–0.34)	(–0.52)	(–0.60)	(0.33)	(0.57)
Household characteristics						
Household size (nu.)	0.0264**	0.00425	0.0193	0.00209	–0.0701	–0.132*
	(2.02)	(0.22)	(1.03)	(0.08)	(–1.48)	(–1.78)
Pensioner (du.)	0.347*	0.377*	–0.325	–0.251	0.755	0.455
	(1.79)	(1.93)	(–0.65)	(–0.50)	(1.00)	(0.53)
Serious disease (du.)	0.0924	0.0773	–0.188	–0.245	–0.994**	–1.212**
	(0.68)	(0.56)	(–0.91)	(–1.15)	(–2.01)	(–2.24)
Assets						
Agricultural land (hectares)	0.0810***	0.0669***	0.0628***	0.0587**	–0.215*	–0.264**
	(3.88)	(3.26)	(2.67)	(2.48)	(–1.96)	(–2.08)
Ownership of land (du.)	0.326	0.272				
	(0.69)	(0.59)				
Good roof (du.)	–0.252**	–0.289**	0.165	0.113	0.0621	0.0925
	(–2.05)	(–2.32)	(0.91)	(0.62)	(0.17)	(0.23)
Good walls (du.)	0.0445	0.0352	0.152	0.145	–0.385	–0.391
	(0.57)	(0.44)	(1.49)	(1.41)	(–1.40)	(–1.29)
Ag. Practices						
Family labor (nu.)		0.0455		0.0449	0.0740	
		(1.27)		(0.88)	(0.60)	
Animals (nu.)		0.00962*		0.00154	0.0363*	
		(1.83)		(0.20)	(1.66)	
Animal traction (du.)		–0.00243		0.0522	–0.940**	
		(–0.02)		(0.31)	(–2.37)	
Fertilizers (du.)		0.509***		0.434**	–0.993**	
		(3.13)		(2.25)	(–2.34)	
Pesticides (du.)		0.0167		–0.0371	–0.00540	
		(0.12)		(–0.23)	(–0.01)	
Manure (du.)		0.262**		0.278	0.0875	
		(2.03)		(1.59)	(0.20)	
Provinces						
Niassa	–0.238	–0.206	–0.182	–0.0467		
	(–1.27)	(–1.07)	(–0.58)	(–0.20)		
Cabo Delgado	–0.712***	–0.673***	–0.577*	–0.392*	0.969*	0.619
	(–3.78)	(–3.49)	(–1.85)	(–1.70)	(1.70)	(0.98)
Nampula	–0.492***	–0.418**	–0.412	–0.205	0.923*	0.682
	(–2.76)	(–2.29)	(–1.37)	(–0.94)	(1.66)	(1.11)

Zambezia	–0.819***	–0.727***	–0.892***	–0.684***	0.920*	0.649
	(–4.57)	(–3.98)	(–2.90)	(–3.02)	(1.73)	(1.10)
Tete	–0.644***	–0.715***	–0.638**	–0.644***	1.699***	3.033***
	(–3.47)	(–3.62)	(–2.06)	(–2.79)	(2.58)	(3.51)
Manica	–0.916***	–0.928***	–0.711**	–0.578**	1.489***	1.668***
	(–4.55)	(–4.52)	(–2.24)	(–2.50)	(2.70)	(2.65)
Sofala	–0.987***	–0.937***	–0.602*	–0.404	1.532**	1.203
	(–4.61)	(–4.35)	(–1.83)	(–1.63)	(2.01)	(1.39)
Inhambane	–0.757***	–0.787***	–0.979***	–0.922***	0.0664	0.220
	(–4.05)	(–3.99)	(–2.76)	(–3.20)	(0.13)	(0.36)
Gaza	–0.118	–0.103	–0.145		1.483**	1.950***
	(–0.75)	(–0.61)	(–0.49)		(2.50)	(2.95)
Constant	–1.353***	–1.369***	–0.816**	–0.977***	0.674	1.181
	(–2.68)	(–2.73)	(–2.15)	(–3.08)	(0.78)	(1.27)
Pseudo R2	0.0666	0.0802	0.0759	0.0866	0.164	0.246
Nu. of obs.	3319	3319	1902	1902	145	145

Notes: t statistics in parentheses.
** p < 0.10 ** p < 0.05, *** p < 0.01.*
Model D excludes agricultural practices variables whereas model E does not.
The blank spaces indicate covariates that have been taken out in order to satisfy the balancing property.
The provinces are compared with Maputo province.
du. indicates dummy variable.
nu. indicates a number.

Gaza Province is the neighboring province to Maputo province, and probably has the same capital effect as Maputo Province. Niassa Province is the most northern province, and far from the ocean. These are also the provinces with the largest increase in membership. The results for Niassa Province are probably due to the considerable amount of NGO activity in this province.

In Table 4, ownership of land was dropped in both specifications in the restricted sample as well as gender in the first specification and Gaza province in the second specification. This is to satisfy the balancing property[15] (Gilligan & Hoddinott, 2007; Morgan & Winship, 2007; Ravailion, 2007). This ensures that there are no conditional differences between the member and nonmember households. Furthermore, these specifications predict the difference between the members and the nonmembers, and thus have explanatory power.

In Table 5, the results from the difference-in-difference propensity score matching estimator (equation 7) are presented. We see that all outcome variables except the total income are significant in both specifications.

The difference-in-difference propensity score estimator is very robust, but less efficient than the conventional difference-in-difference estimator. Therefore, it is not surprising that the degree of significance for the coefficients would be lower with the difference-in-difference propensity score estimator than with the conventional estimator. Looking at the coefficients from both estimations, we see that they are roughly the same

15. The Stata algorithm is developed by Becker and Ichino (2002). The balancing property is the test that ensures that each parameter is balanced between members and nonmembers in the groups that the sample is divided into on the basis of the propensity score. The test used is a t-test.

for the marketed surplus, the value of agricultural production and the total income, indicating that the results are quite robust.

Table 5. *Diff-in-diff propensity score matching results for becoming a member for both samples*

	Full sample		Restricted sample	
	Model D	Model E	Model D	Model E
Marketed surplus	0.258*	0.274*	0.401**	0.425**
	(1.772)	(1.867)	(2.390)	(2.556)
Value of agricultural production	0.181*	0.213*	0.282**	0.323***
	(1.929)	(2.228)	(2.441)	(2.738)
Total income	0.155	0.175	0.230*	0.243*
	(1.374)	(1.549)	(1.739)	(1.848)
Treated/controls	217/2922	217/3044	124/1710	124/1650
Covariates included in membership estimations				
Head of household and household characteristics, assets and provinces	X	X	X	X
Agricultural practices		X		X

*Notes: * p < 0.1, ** p < 0.05, *** p < 0.01.*
The numbers in parentheses are t-values.
Models D and E are defined by the covariates included in the propensity score matching estimation. Model D excludes agricultural practices whereas model E includes these variables.
The matching estimator used is a kernel estimator.
The outcome variables are in natural logarithms.
Details about head of household characteristics, household characteristics assets and agricultural practices controls are specified in Table 1.

7. POSSIBLE MECHANISMS AND ERRATIC MEMBERSHIP PATTERN IN FARMERS' ORGANIZATIONS

(a) Possible mechanisms

From the analytic framework we know that membership of a farmers' organization can directly impact the marketed surplus and the value of agricultural production, and through these outcomes the overall income of the household.

(i) The marketed surplus

My results show that marketed surplus is higher among members than nonmembers. As the outcome variables in this study are based mainly on median district prices[16] and not farm-gate prices, this result is driven by higher total sales volumes by members compared with nonmembers. The result in this analysis is therefore a lower bound of the impact of membership in farmers' organizations on the marketed surplus.

(ii) The value of production and production technology

I find that the value of agricultural production is higher among members than nonmembers. Following the argumentation above, the difference must be driven by higher production volume among members than nonmembers. This is probably because of higher yields among members than nonmembers; however, the data do not permit me to test yields specifically. Higher production volume can be an indicator of the use of better technologies among members compared with nonmembers. This can for example be better seeds or access to fertilizers.

16. Some are also overall sales values.

From the descriptive statistics, we see that a higher share of members use inputs compared with nonmembers. Using a dummy variable consisting of the use of irrigation, fertilizer, pesticides, manure and animal traction, and applying the propensity score matching difference-in-difference estimator, this finding is confirmed[17]. The latter estimation establishes a causal link between membership and the use of more inputs, indicating that members have better access to and use more inputs than nonmembers.

Thus, it seems my results partly come from a higher use of inputs, probably combined with better market access among members than nonmembers. The higher use of inputs most probably leads to higher production volumes, via higher yields, allowing the farmers to sell more in the market. Thus, the organization of farmers in Mozambique seems to reduce market failure in the input market and probably facilitates market access for smallholders.

(b) The income effect and the erratic membership pattern in farmers' organizations

The results show that membership in farmers' organizations increase the overall income of members, particularly for the smallholders whose main cash income is from agriculture. Given the positive impact on all the outcome variables of being a member in a farmers' organization, it is surprising to see that as many as 64% of the members in 2002 in the full sample left their farmers' organization before 2005, and as many as 76% in the restricted sample. Two possible explanations are that the farmers leave the organization as they do not see that there is any benefit from continuing as members or

17. The result is significant in the full sample, whereas it is not significant in the restricted sample; however, the coefficients are similar. These results are available from the author upon request.

alternatively the farmers' organization ceases to function in the area where the farmers live.

Assuming that the farmers are rational, I expect them to leave a functioning farmers' organization voluntarily only if the enhanced income stream would continue after terminating their membership. To investigate this, I use the difference-in-difference propensity score matching estimator to study the impact of leaving a farmers' organization on the outcome variables. The propensity score matching for these estimations were presented in Table 4, and the impact results are presented in Table 6.

Table 6. *Diff-in-diff propensity score matching results for leaving a farmers' organization*

	Full sample	
	Model D	Model E
Marketed surplus	–0.555*	–0.416
	(–1.881)	(–1.283)
Value of agricultural production	–0.376*	–0.111
	(–1.771)	(–0.511)
Total income	–0.469*	–0.282
	(–1.792)	(–0.821)
Treated/controls	98/45	98/45
Covariates included in membership estimations		
Head of household and household characteristics, assets and provinces	X	X
Agricultural practices		X

*Notes: * p < 0.1, ** p < 0.05, *** p < 0.01.*
The numbers in parentheses are t-values.
Models D and E are defined by the covariates included in the propensity score matching estimation. Model D excludes agricultural practices whereas model E does not.
The matching estimator used is a kernel estimator.
The outcome variables are in natural logarithms.
General controls, assets and agricultural practices are as defined in the descriptive statistics in Table 1.

As we can see from Table 6, all three outcome variables are significant and negative in the first specification, but only the value of agricultural production is significant and negative in the second specification. Thus, when a household leaves an organization they also lose the impact of being a member, indicating that it does not leave the organization voluntarily and that it might be the organization that stops functioning.

I cannot use my data to test the hypothesis that it is the farmers' organizations that stop functioning; however, recent research from Mozambique indicates that the formation of farmers' groups or organizations and their success in implementing, for example new technologies, requires the presence of either national or international NGOs (Boughton *et al*., 2007; Kaarhus & Woodhouse, 2012; Nyyssölä *et al*., 2012). The lack of sustainability of farmers' organizations can be explained by their dependency on international NGOs (Bingen *et al*., 2003; Markelova *et al*., 2009) and organizational issues regarding member-owned organizations (Bernard & Spielman, 2009; Cook & Ilipoulos, 2000; Poulton *et al*., 2010). These explanations fit quite well in the Mozambican case, and with my framework and results. First, most of the farmers' organizations in Mozambique have been created as a result of support by NGOs, which might have led to technical and financial dependency on these NGOs. In fact, in the analysis I assume that the financial cost of membership is zero.

Furthermore, the organizations might have been initiated more to serve as recipients of a project rather than to create a farmers' organization as such. The latter effect is strengthened by the government's policy of providing free inputs to farmers groups (Nyyssölä *et al*., 2012). Thus, if the farmers' motivation is to reap the benefits, such as cheap inputs, and not to stay part of an organization in the long-term, the organization

would not be sustainable. Furthermore, there are strong indications that, with farmers' organizations in Mozambique, leadership tends to be rather sticky, illiteracy of members is common, open membership is quite common and their financial viability is weak because of low membership fees, which leads to organizational challenges. These factors might explain why farmers' organizations stop functioning and the low membership rates in farmers' organizations, despite the increase in income I find in this study. Similar results are reported by Kelly *et al*. (2003) from the work done in Mozambique by CLUSA.

8. CONCLUSION

My results show that there is a positive causal impact of membership in a farmers' organization on the marketed surplus and the value of agricultural production. The results also hold for the total income of the household, though the significance of this result varies. The impact on the value of agricultural production and total income is around 18% and 15%, respectively, which is a significant increase in production and income for poor smallholders in Mozambique. The impact on marketed surplus (25%) is even higher, indicating that the members commercialize more. For the smallholders, whose agricultural income is their main source of cash, the impact is even higher.

The main driver of these results is more use of inputs, which increases production allowing the farmer to market more, and maybe through a better marketing channel with reduced transaction costs. Thus, it seems that farmers' organizations help reduce market failures at least in the input market and probably also in the output market. As market failures are prominent in Africa in general, and in Mozambique in particular, correcting

market failures is important in reducing poverty in rural areas, and farmers' organizations seem to achieve this goal.

However, my data indicate that farmers' organizations face serious challenges as more than 60% of the farmers that were members in 2002 left their organization before 2005. One possible explanation might involve the way the farmers' organizations are initiated and organized. The organizations are not a result of a bottom-up approach from the farmers, but rather a result of donor and governmental policies and NGO support. Because of this, the organizations depend on continued support, rendering them less sustainable. These challenges have to be solved for the farmers' organizations to become sustainable in the long run, a precondition for them to continue to contribute positively toward poverty reduction after external funding has ended.

To conclude, I found that farmers' organizations contribute significantly toward higher value of agricultural production, marketed surplus and total income among smallholders. Thus, farmers' organizations do enhance smallholders' welfare. This is mainly because of more use of inputs among members, higher production and larger volumes sold. However, more research is needed to identify the importance of each of these mechanisms, and also to study the output price channel. With the answers to these questions, we can give more detailed advice on how to best support farmers' organizations in a cost efficient way, and to strengthen agricultural development in developing countries.

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Paper 4

English legal origin: Good for Wall Street, but what about Main Street?[1]

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Abstract: *Is there any relationship between legal origin and the poverty, income inequality, and miserliness of countries? Previous research has shown that countries with English legal origin do better in terms of financial development than countries with other legal origins. Furthermore, it is claimed that the effect of legal origin goes beyond financial development, and affects overall economic and social development. I do not find support for this latter claim. In particular, I find no consistent difference in levels of poverty, income inequality and miserliness between countries with French and English legal origin. Moreover, countries with French legal origin do better with respect to income equality and miserliness in Sub-Saharan Africa.*

Keywords – legal origin, poverty, inequality, miserliness, Sub-Saharan Africa

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1. Introduction

The legal origin theory builds on the fact that England and France historically developed different styles of legal systems, which later were spread to the rest of the world through colonization, conquest, and imitation (Djankov et al. 2003a, Glaeser and Shleifer 2002, La Porta et al. 2008). The theory advocates that these legal systems maintain some key features after the transplant that matter for economic and social outcomes today (La Porta et al. 2008). La Porta et al. (1997, 1998) show that English legal origin is beneficial for financial development– the claim that legal origin matters for Wall Street. However, there is little research on the effect of legal origin on economic and social development that directly affects ordinary people.[3] I address this gap by studying the association between legal origin and poverty reduction, income inequality, and miserliness among countries – whether legal origin matters for Main Street.

Research to date shows that legal origin matter for financial development. In particular, legal origins systematic influence on commercial laws in relation to investor protection, and its implications for financial development have been documented (Beck et al. 2003b, La Porta et al. 1997, 1998, 2008, Mahoney 2001). Equity and debt markets are weaker and thinner in French legal origin countries (La Porta et al. 1997). Furthermore, shareholder protection and law enforcement have been found to be stronger in English legal origin than French legal origin countries (La Porta et al. 1998). Beck et al. (2003b) also find support for stronger individual property rights, and better financial intermediate and stock market development in English legal origin compared to French legal origin countries.

[3] An exception is a small literature on legal origin, government quality, and social rights (La Porta et al. 1999, Ben-Bassat and Dahan 2008).

There is evidence showing that the influence of legal origin goes beyond the financial sector and includes governmental ownership and regulations. A general finding is that English legal origin countries have fewer regulations and less governmental ownership than French legal origin countries (La Porta et al. 2008, Mahoney 2001). The protection of property rights vis-à-vis the government intervention is an important difference[4] between civil law (where French legal origin is the largest sub-category followed by German and Scandinavian legal origins) and common law (essentially another name for English legal origin). Beck et al. (2003b) call this difference in poverty rights the political channel of legal origin influence.

Another main difference between civil and common law is the degree the system depends upon comprehensive codes and statues developed by legal scholars or precedence of former settlements of disputes (case law). In civil law, written codes are more important legal sources while common law draws more on case law (La Porta et al. 1998, 2008). This difference in use of legal sources has been denoted the adaptive channel of legal origin influence. Some argue that the larger flexibility inherent in English legal origin is the reason these countries have better financial development (Beck et al. 2003b, Gennaioli 2013).

Implicit in the legal origin theory is that better financial development leads to growth, and thus to economic and social development. Therefore, legal origin should be good for the overall population, and hence for Main Street. So far, however, the evidence for growth is mixed. Beck et al. (2000) find that better financial intermediary development leads to higher growth. Mahoney (2001) finds that common law countries grew faster than civil law countries, while Berkowitz et al. (2003) argue that it is the transplant process and not the legal origin per se, that

[4] For more information on the differences between the legal origins and their classifications, see e.g. La Porta et al. (1998, 2008)

matters for growth. There are few studies on the economic and social development as a result of financial development. A notable exception is the study by Beck et al. (2007) which find that financial development is disproportionally advantageous to the poor. To the best of my knowledge, there have been no studies focusing on the relationship between legal origin and poverty reduction, income inequality[5], and miserliness – in my words the association between legal origin and Main Street.

La Porta et al. (2008) also argue that legal origin not only influences society through financial development, but also directly affects how governments can respond to the need of their societies. One important difference is to what degree the state can, and is willing to intervene (La Porta et al. 2008). Ben-Bassat and Dahan (2007) find one such difference, namely that social rights such as the right to social security, education, health, housing, and workers' rights, are more prevalent in French than English legal origin countries. This could have an important economic impact on societies. La Porta et al. (1999), however, find among other issues, that French legal origin countries exhibit inferior government performance than English legal origin countries.

Thus, one would expect there to be a difference between the two systems concerning their ability to reduce poverty and create income equality and maybe even their willingness to redistribute wealth and hence reduce miserliness within their societies. I study the correlation between legal origins and these outcomes. These measures capture some possible effect of legal origin on the population as such. The income quintiles are particularly interesting as one possible effect of better financial development might be that the top income quintiles receive a higher share of total

[5] Easterly (2007), in identifying his agricultural endowment instrument for inequality, find that only socialist legal origin seem to have an effect on the Gini coefficient and share of top quintiles in the period 1960-1998, while French and English legal origin does not affect the Gini coefficient.

income. The Miser index[6] indicates the countries' ability to redistribute wealth to reduce poverty. It measures to what degree it is economically possible for a country to redistribute wealth by imposing a tax on the rich that allows for lifting the entire population out of poverty.

I find no consistent difference in levels of poverty income inequality and miserliness between countries with French and English legal origin. Hence, it seems that English legal origin have few beneficial effects on the lower part of the income distribution. Furthermore, I find that German legal origin is correlated with less income inequality and miserliness, i.e. these societies do not have major poverty and wealth at the same time. Unsurprisingly, I also find that Scandinavian legal origin countries are by far the most egalitarian societies. In a sub-sample with only the Sub-Saharan African countries, French legal origin seems to be robustly correlated with income equality, and the Miser index. Poverty still seems to be unrelated to legal origin. Thus, there is little evidence that English legal origin matter for Main Street despite the good effect it has on Wall Street.

The paper is organized as follows: Section 2 gives a short overview of the legal origin literature, while Section 3 presents the data and the empirical strategy. The results are presented in Section 4 while Section 5 concludes.

2. Literature review

The legal origin theory builds on the fact that certain parts of the legal structure have remained similar to the legal origin at the same time as they have adjusted to different national developments. Particularly, the ideology and the structure of the legal system tend to stay

[6] See Appendix B or Lind and Moene (2011) for a mathematical definition.

similar. Civil law actually originates from Roman law, and can be divided into four sub-categories; French, German, Scandinavian, and Socialist legal origin. Civil law countries generally have less protection of property rights and depend more upon legal codes and statues compared to common law countries (La Porta et al. 1998, 2008). Other differences are that civil law countries to a larger degree address social problems through state control, government ownership and legislations while common law countries solve social problems through dispute settlement and private contracts. Thus, these two legal systems – civil law and common law – can be seen as different types of capitalism, where civil law is said to represent a coordinated market economy while common law is the liberal economy (La Porta et al. 2008).

The research, partly summarized in La Porta et al. (2008), has mainly focused on financial rules and regulations and differences in these between the two main legal traditions. Some of the areas that have been scrutinized are: time to evict nonpaying tenant (Djankov et al. 2003b), time to collect a bounced check (Djankov et al. 2003b), property rights (La Porta et al. 1997, 1998, 2004), corruption (Djankov et al. 2003b), the unofficial economy (Djankov et al. 2002), labor participation rates and unemployment (Botero et al. 2004), stock market development (Rajan and Zingales 2003), ownership structure (Djankov et al. 2003c), control premium (Djankov et al. 2007) and private credit (Djankov et al. 2007). The main findings are that common law countries generally perform better on these outcomes than civil law countries. Recent research focusing on Africa find that legal origin matters for financial size and investment. However, it seems like French legal origin countries in Africa do better than common law countries with regards to private investment (Asongu 2014).

Another central question is whether legal origin affects economic growth? To this question, the literature is undecided. Beck et al. (2000) show that financial intermediate development,

measured as private credit, liquid liabilities and commercial central banks, particularly matters for factor productivity growth as well as overall economic growth. A similar result is found by Mahoney (2001), who shows that in the period 1960-1992, common law countries had a higher economic growth rate than countries with French legal origin. Berkowitz et al. (2003) argues that it is the transplant process and the effect this has on legality, and not the legal origin per se that matters for growth. Legality is shown to be better in countries where the population had some basic understanding of the law before the transplant or that developed the law internally. Djankov et al. (2003a) theoretically argues that the transplant process has led to inefficiencies in institutions. All in all, this feeds into the large literature on institutions and their effect on growth, see among others Acemoglu and Johnson (2005), Acemoglu et al. (2001), Acemoglu and Robinson (2012), Albouy (2012), Easterly (2007) and Glaeser et al. (2004).

Few, however, have focused on whether social outcomes, poverty reduction and inequality differ across different legal origin countries. Exceptions include La Porta et. al. (1999), who study the quality of government by assessing the effect of legal origin on government intervention, public sector efficiency, public good provision, size of government and political freedom. They find, among other, that French and socialist legal origin countries exhibit inferior government performance. Ben-Bassat and Dahan (2007) address to what extent social rights are covered by the laws and find that social rights such as the right to social security, education, health, housing, and workers' rights are less prevalent in English legal origin countries than in French civil law countries. Beck et al. (2007) find that financial development increases the income among the poor more than among the rich, and a reduction in poverty head count.

3. Data and methodology

3.1 Data

The legal origin data[7] are from La Porta et al. (1999) and La Porta et al. (2008). In this analysis, I use 87 French legal origin countries, 44 English legal origin countries, 19 German[8] legal origin countries and 4 Scandinavian legal origin countries. The main difference between the legal origin data in 1999 and 2008 is that most of the socialist countries are recoded back to either French or English legal origin depending upon the main influence of their commercial laws in the 2008 data. The three remaining socialist legal origin countries (Cuba, Myanmar and North Korea) are not included due to little available data on both relevant outcomes and control variables. The full list of countries and their legal origin is presented in Appendix A.

The outcome variables

My outcome variables are: poverty head count ratio[9] at 1.25PPP$[10], the Gini coefficient, the income share quintiles, and the Miser index. The Miser index, measured at 2PPP$ a day, is from Lind and Moene (2011), and the other outcome variables are from the World Development indicators (World Bank 2014a). See Appendix B for a more detailed overview of the outcome and control variables.

The Gini coefficient is a relative measure of inequality. The Miser index, on the other hand, is an absolute measure and measures to what extent a society has both people living in poverty and in affluence at the same time. One main difference between the Gini coefficient and the Miser

[7] The current version of the data was downloaded from http://scholar.harvard.edu/shleifer/publications/quality-government and http://scholar.harvard.edu/shleifer/publications/economic-consequences-legal-origins on May 14th 2014.
[8] China is one of these 19 countries.
[9] Results are very similar for the poverty gap at 1.25PPP$.
[10] The World Bank have adjusted the dollar a day from 1PPP$ to 1.25PPP$ as basis for the extreme poverty line (World Bank 2014b) http://data.worldbank.org/about/world-development-indicators-data .

index is that the Miser index takes into account the level of wealth in the society. Thus, a country is seen as miserly if it has the possibility to tax citizens above the poverty line at a low level and use this tax to lift the poor people out of poverty. Thus, South Africa is a miserly country while Tanzania is not (Lind and Moene 2011).

Samples

I use two samples: (1) the entire sample consisting of 154 countries, and (2) the countries in Sub-Saharan Africa consisting of 43 countries. In addition to controlling for geographical areas, I study Sub-Saharan Africa in depth as it is a region which has fallen behind in economic development, and because of the renewed interest for Africa in the legal origin literature. As a robustness test, I ran the regressions on a sample without the OECD countries[11], and this did not significantly alter the results.

Descriptive statistics

The six first rows in Table 1 shows descriptive statistics of the outcome variables plus the GDP per Capita for the full sample while Table 2 shows the same statistics for the Sub-Saharan sample.

[11] These results are available upon request.

Table 1. *Summary statistics outcome variables and GDP per capita data full sample*

	Full sample		English legal origin		French Legal origin		German legal origin		Scandinavian Legal origin	
Variables	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd
Poverty head count[a]	17.69	21.96	34.04	25.85	15.99	19.78	7.44	16.80	.	.
Gini coefficient	42.31	10.34	43.85	9.60	44.50	9.69	31.21	5.46	25.59	0.97
Miser index	1.78	1.43	2.14	1.92	1.90	1.24	0.77	1.18	.	.
Income share 1st quintile	5.83	2.38	5.72	2.12	5.31	2.27	8.12	1.63	9.17	0.60
Income share 2nd quintile	10.05	2.54	9.51	2.45	9.55	2.36	12.72	1.48	14.19	0.37
Income share 3rd quintile	14.47	2.34	13.80	2.39	14.05	2.18	16.91	1.03	17.62	0.41
Income share 4th quintile	21.06	1.60	20.50	1.83	20.87	1.53	22.42	0.46	22.44	0.45
Income share 5th quintile	48.60	8.46	50.47	8.31	50.21	7.94	39.83	4.18	36.59	0.59
GDP per capita cur. USD	5002	10528	4331	8997	3497	8729	10128	13090	22380	20299
Min. number of obs.[b]	802		128		556		114		4	

Notes: a) This is the poverty head count at 1.25PPP$.
b) This number represents the lowest number of observations for the variables in the list.
Dots denote missing data

Table 2. *Summary statistics outcome variables and GDP per capita for Sub-Saharan Africa*

	Sub-Saharan Africa sample		English legal origin		French Legal origin	
Variables	Mean	sd	Mean	sd	Mean	sd
Poverty head count[a]	50.56	22.32	52.21	18.30	49.39	24.84
Gini coefficient	45.35	8.66	48.46	9.36	43.14	7.43
Miser index	1.70	1.88	2.48	2.58	1.15	0.83
Income share 1st quintile	5.44	1.67	4.77	1.63	5.91	1.55
Income share 2nd quintile	9.24	2.09	8.44	2.30	9.80	1.73
Income share 3rd quintile	13.61	2.20	12.86	2.55	14.13	1.75
Income share 4th quintile	20.33	1.96	19.97	2.19	20.58	1.74
Income share 5th quintile	51.38	7.45	53.96	8.33	49.58	6.21
GDP per capita cur. USD	785	1427	766	1141	798	1601
Min. number of obs.[b]	130		54		76	

Notes: a) This is the poverty head count at 1.25PPP$.
b)This number represents the lowest number of observations for the variables in the list.

From Table (1) we see that English legal origin countries have higher poverty head count than the other legal origin countries. The Scandinavian and German legal origin countries are the societies with the lowest Gini coefficient, while there is no real difference in Gini coefficients between French and English legal origin countries in the full sample. From Table (2) which shows the descriptive statistics for the Sub-Saharan Africa sample, we see that French legal origin countries have less income inequality and a lower degree of miserly, while there is no difference with regards to poverty.

3.2 Methodology

I use the legal origin variables as independent variables in cross-country regressions following the tradition within the literature (e.g. La Porta et al. 1999). I do not use the panel structure of the data as there are hardly any changes in the legal origin variable, but I cluster standard errors at the country level. The main problem with the assumption that the legal origin variables are

independent is that they may be correlated with omitted variables such as institutions, climate, culture, and colonizers, and thus not be truly exogenous to the outcomes. Therefore, I also run several different specifications where I include a variety of control variables to see if the correlations are robust. This is also why I do not interpret the results as causal effects from legal origin onto the outcomes. However, I believe that the descriptive statistics in itself are valuable. Furthermore, as legal origin is predetermined (La Porta et al. 2008), it is unlikely that there are any problems related to reversed causation.

My regression equation is as follows:

$$Y_i = \alpha + \beta' LO_i + \gamma' X_i + \mu_i \quad (1)$$

The outcome Y_i is the poverty, inequality, and miserliness outcomes of country-year i described in the data section, β is a vector of parameter capturing the correlation between the outcome variables and the legal origin, LO_i denotes French, German or Scandinavian legal origin. This is a vector of dummy variables, and the reference category is English legal origin. Thus, the results present the legal origin categories compared to English legal origin also denominated common law. X_i is a vector of controls and γ are the corresponding parameters. Standard errors μ_i are clustered at the country level, thus taking into account the fact that I have up to about twenty observations for some countries and outcomes.

4. Empirical findings

4.1 Results

In this section, I present the results of two specifications for each of the HC poverty, the Gini coefficient, and the Miser index. The first specification found in result column 1, 3, and 5 use a

model where only the legal origin variables are included as independent variables. The second specification found in result column 2, 4, and 6 includes the natural logarithm of income per capita as a control variable. I report these two specifications because there currently is no agreement in the literature on the relationship between economic growth and institutions, and the direction of a potential impact (see e.g., Acemoglu et al. 2001), nor on the relationship between inequality and growth (Lundberg and Squire 2003).

Table 3. *Legal origin, poverty, income inequality and miserliness*

Panel A: The full sample

	HC poverty[a]	HC poverty[a]	Gini coef.	Gini coef.	Miser index	Miser index
	(1)	(2)	(3)	(4)	(5)	(6)
French LO	-18.040***	-8.318**	0.648	0.286	-0.241	-0.421
	(3.16)	(2.43)	(0.30)	(0.14)	(0.69)	(1.20)
German LO	-26.594***	-8.589*	-12.639***	-13.562***	-1.367***	-1.696***
	(3.58)	(1.89)	(6.14)	(6.15)	(3.07)	(3.00)
Scandinavian LO			-18.255***	-22.329***		
			(10.54)	(9.66)		
GDP per capita		-15.100***		1.249**		0.266**
		(12.69)		(2.34)		(2.36)
Constant	34.035***	137.465***	43.847***	35.054***	2.140***	0.334
	(6.38)	(16.35)	(26.12)	(8.38)	(6.83)	(0.47)
R^2	0.13	0.62	0.22	0.23	0.09	0.12
N	851	841	836	825	798	798

Panel B: Sub-Saharan Africa

	(1)	(2)	(3)	(4)	(5)	(6)
French LO	-2.818	-5.838	-5.323**	-4.280**	-1.330*	-0.938**
	(0.40)	(1.09)	(2.17)	(2.16)	(1.95)	(2.51)
GDP per capita		-15.876***		4.243***		1.571***
		(7.58)		(4.71)		(5.05)
Constant	52.206***	152.985***	48.459***	21.411***	2.483***	-7.484***
	(12.04)	(11.39)	(21.81)	(3.58)	(3.70)	(4.11)
R^2	0.00	0.41	0.09	0.28	0.12	0.64
N	139	139	130	130	134	134

*Notes: * p<0.1; ** p<0.05; *** p<0.01*

a) Head count poverty at 1.25PPP$.

Poverty

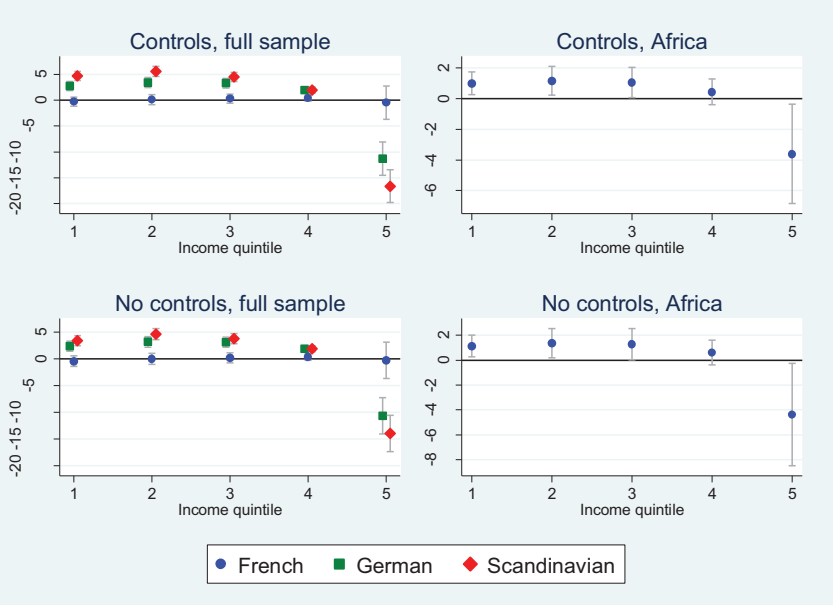
From the first two columns in Panel A in Table 3, we see that both German and French legal origin countries are associated with lower poverty head count ratios than English legal origin countries in both specifications. However, studying panel B, which represents Sub-Saharan Africa, we see that there is no difference in association between French and English legal origin on poverty head count ratios. Thus, the difference in association between French and English legal origin countries and poverty head count is driven largely by non-African countries.

Income inequality

From Table 3 columns (3) and (4) in panel A, we see that German and, and not surprisingly, Scandinavian legal origin countries are associated with higher income equality than English legal origin countries, while there is no significant difference in Gini coefficient between French and English legal origin countries in the full sample. However, studying Sub-Saharan Africa in Panel B, French legal origin countries seem to have higher income equality. Thus, the lack of difference between French and English legal origin in the full sample seem to be driven by the non-African countries.

Figure 1 presents the results for individual income quintiles for French, German and Scandinavian legal origin compared to the corresponding quintiles for English legal origin. In the full sample, represented by the two figures in the first column in Figure 1, there is no difference between French and English legal origin countries for any of the five population quintiles. Compared to English legal origin both German and Scandinavian legal origin countries have a more equal income distribution as each of the first four quintiles have a larger share of income and the top quintile have significantly lower share of the total income.

Figure 1: Association between legal origin and the income share for the five quintiles



Notes to Figure 1: The figure shows the association between legal origin and the income share for each of the five population quintiles. French, German and Scandinavian legal origin is compared to English legal origin that is represented by the 0 line in all the panels. Each legal origin coefficient is marked and the lines represent 95 % confidence intervals.

In the second column in Figure 1, we see the results for Sub-Saharan Africa sample where we only have French and English legal origin countries. We see that in French legal origin countries the two lowest income quintiles have a higher share of the income compared to the English legal origin countries, while the top income quintile have significantly less. Thus, English legal origin seems to be associated with a higher income share among the top 20% of the population in Sub-Saharan Africa, as I expected.

The Miser index

From the 5th and 6th column in Table 3, we see that German legal origin countries are less miserly than those with English or French legal origin for both specifications. From Panel B and examining only Sub-Saharan Africa, we find that French legal origin countries are less miserly than common law countries in both specifications.

4.2 Robustness and omitted variables

An important methodological limitation of using legal origins as an independent variable is that it might be correlated with other omitted variables such as geography, culture or historical events. At the same time, an important critique of the legal origin theory is that legal origin is a proxy for something else such as institutions, culture, colonizers or geography /climate. To address these issues, I run the following six additional specifications:

i. Ethno-linguistic fractionalization and latitude of the country (La Porta et al. 1999).

ii. Ethno-linguistic fractionalization and latitude of the country and percentage of population belonging to the three main religions in 1980, a measure of culture (La Porta et al. 1999).

iii. Quality of institutions as measured by "*Average Protection against Expropriation Risk in 1985-1995*" (Acemoglu et al. 2001).

iv. Colonized by a certain country or never colonized as defined by Klerman et al. (2011).

v. Geographical dummies: Sub-Saharan Africa, Europe and Central Asia, North America, Latin America, East Asia, South Asia, Middle East and North Africa.

vi. All the above control variables.

The two first specifications (i and ii) are a replication of the analysis of "*The quality of government*" by La Porta et al. (1999) which has been the main inspiration for this analysis. In this study, their interpretation of legal origin is mainly based on the legal systems influence on the role of the government to secure property rights. They included ethno-linguistic fractionalization in all their regressions. Furthermore, they included the absolute latitude of the country as an economic development indicator together with GDP per capita in their second specification.

The third specification is an inclusion of the variable "*Average protection against expropriation risk in 1985-1995*" from Acemoglu et al. (2001). They find that institutions, instrumented for by settler mortality, significantly contributes to growth. However, in their first stage regressions, they find that legal origin has little effect on growth when controlling for settler mortality. A similar finding is reported by Easterly (2007) when using land endowment as an instrument variable for institutions. I have, however, chosen not to include this instrumental variable in my analysis.

The fourth specification includes a dummy identifying which country colonized the particular country. Klerman et al. (2011) argue that the colonizers transferred more than the legal system, and that colonial history is a better predictor of post-colonial growth than legal origin.

The fifth specification adds geographical dummies to see if there are any systematic geographical effects. This is also partly taken into account by specifications (i and ii) where I control for latitude of the country. The sixth and final specification includes all of the above regressors.

Correlations between the independent variables

Table C.1 in Appendix C shows how the independent variables in this analysis are correlated with each other. Not surprisingly, we see a strong positive correlation between French legal origin and French colony and the same between English legal origin and colony, and a negative between French legal origin and having been an English colony. French legal origin also correlates negatively with a high share of Protestants, and the "*Average protection against expropriation risk in 1985-1995*" institution measurement. Scandinavian legal origin obviously correlates strongly with a high share of Protestants and the country's latitude. German legal origin is highly correlated with being non-tropical and never been colonized. Not being a tropical country is positively correlated with never colonized, good institutions, while it is negatively correlated with ethno-linguistic fractionalization.

Table 4. *Robustness analysis full sample*.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Poverty head county							
French LO	-8.318**	-2.786	0.281	-4.847	-10.099**	2.460	9.237**
	(2.43)	(0.80)	(0.08)	(1.30)	(2.02)	(0.69)	(2.21)
German LO	-8.589*	1.660	4.417	-1.332	-4.567	7.924*	18.764***
	(1.89)	(0.29)	(0.69)	(0.24)	(0.78)	(1.91)	(4.35)
Panel B: Gini coefficient							
French LO	0.286	1.947	-0.991	4.470*	-8.338**	-3.191*	-1.289
	(0.14)	(0.96)	(0.56)	(1.92)	(2.55)	(1.74)	(0.53)
German LO	-13.562***	-5.286	-9.166**	-10.859***	-15.033***	-7.016***	-8.422***
	(6.15)	(1.64)	(2.59)	(4.57)	(5.02)	(3.38)	(3.47)
Scand. LO	-22.329***	-10.599***	-20.312***	-18.392***	-20.662***	-13.169***	-9.316
	(9.66)	(2.82)	(3.34)	(6.80)	(6.43)	(6.19)	(1.37)
Panel C: Miser index							
French LO	-0.421	-0.341	-0.118	-0.045	-0.992	-0.255	1.354**
	(1.20)	(0.85)	(0.33)	(0.11)	(1.63)	(0.62)	(2.56)
German LO	-1.696***	-0.463	-0.308	-1.286	-1.770**	-0.890	2.009**
	(3.00)	(0.52)	(0.33)	(1.52)	(2.50)	(1.65)	(2.47)
Panel D: Inc. share quintile 1							
French LO	-0.286	-0.614	0.100	-1.110**	1.536**	0.761**	-0.095
	(0.63)	(1.28)	(0.23)	(2.12)	(2.35)	(2.04)	(0.17)
German LO	2.691***	0.841	1.741*	2.119***	2.884***	1.478***	1.292*
	(4.63)	(1.01)	(1.71)	(3.18)	(4.26)	(2.89)	(1.93)
Scand. LO	4.635***	2.024**	4.168***	3.859***	4.020***	2.739***	1.412
	(8.47)	(2.40)	(3.68)	(6.45)	(6.09)	(5.23)	(0.95)
Panel E: Inc. share quintile 2							
French LO	0.106	-0.318	0.283	-0.848	2.089***	0.907**	0.117
	(0.22)	(0.65)	(0.63)	(1.47)	(3.04)	(2.30)	(0.19)
German LO	3.401***	1.314	2.121**	2.697***	3.676***	1.825***	1.733**
	(6.03)	(1.54)	(2.16)	(4.03)	(5.60)	(3.64)	(2.62)
Scand. LO	5.553***	2.649***	5.310***	4.685***	5.103***	3.371***	2.482
	(9.79)	(2.70)	(3.72)	(6.93)	(7.33)	(6.33)	(1.58)

Table 4. -continued

Panel F: Inc. share quintile 3							
French LO	0.304	-0.105	0.391	-0.681	2.219***	0.881**	0.293
	(0.66)	(0.23)	(1.01)	(1.26)	(3.04)	(2.16)	(0.49)
German LO	3.262***	1.351*	2.046***	2.588***	3.662***	1.701***	1.881***
	(6.97)	(1.92)	(2.66)	(4.85)	(5.67)	(3.78)	(2.99)
Scand. LO	4.472***	1.753*	4.321***	3.627***	4.305***	2.437***	2.094
	(7.90)	(1.90)	(2.88)	(5.39)	(5.83)	(4.61)	(1.40)
Panel G: Inc. share quintile 4							
French LO	0.355	0.086	0.281	-0.354	1.417**	0.468	0.229
	(1.16)	(0.30)	(1.26)	(0.98)	(2.32)	(1.43)	(0.57)
German LO	1.910***	0.872**	1.168***	1.568***	2.223***	0.890**	1.333***
	(6.91)	(2.10)	(3.21)	(5.09)	(4.26)	(2.57)	(2.79)
Scand. LO	1.953***	0.287	2.015	1.402***	2.095***	0.812*	0.913
	(4.36)	(0.45)	(1.63)	(2.71)	(3.32)	(1.89)	(0.85)
Panel H: Inc. share quintile 5							
French LO	-0.480	0.951	-1.055	2.999	-7.244***	-3.006**	-0.544
	(0.29)	(0.58)	(0.75)	(1.56)	(2.77)	(2.15)	(0.27)
German LO	-11.258***	-4.378*	-7.077**	-8.962***	-12.460***	-5.890***	-6.239***
	(6.42)	(1.69)	(2.42)	(4.58)	(5.25)	(3.63)	(3.00)
Scand. LO	-16.597***	-6.713**	-15.815***	-13.525***	-15.573***	-9.391***	-6.901
	(8.87)	(2.14)	(3.19)	(6.04)	(6.12)	(5.47)	(1.31)
Controls used							
GDP per capita	X	X	X	X	X	X	X
Latitude and ELF[a]		X	X				X
Religion			X				X
Institution[b]				X			X
Colonization					X		X
Geography						X	X

*Notes: * p<0.1; ** p<0.05; *** p<0.01.*

This table shows the effect of French, German and Scandinavian legal origin compared to English legal origin for each of the outcome variables.

a) ELF is the ethno- linguistic fractionalization.

b) This is the average protection against expropriation 1985-1995.

Table 5. *Robustness Sub-Saharan Africa sample. Effect of French versus English legal origin.*

	(1)	(2)	(3)	(4)	(5)	(6)
Poverty head count	-5.838	-6.802	-2.298	-7.539	-9.878	-9.675
	(1.09)	(1.29)	(0.44)	(1.20)	(1.30)	(1.06)
Gini coefficient	-4.280**	-4.033**	-1.349	-3.595*	-5.969**	-1.218
	(2.16)	(2.36)	(0.87)	(1.86)	(2.27)	(0.35)
Miser index	-0.938**	-0.942***	-0.704**	-0.681*	-2.386**	-0.002
	(2.51)	(2.84)	(2.07)	(1.93)	(2.24)	(0.00)
Inc. share quintile 1	0.991**	0.868**	0.436	0.838**	1.355**	0.480
	(2.61)	(2.70)	(1.43)	(2.22)	(2.54)	(0.86)
Inc. share quintile 2	1.146**	1.012**	0.352	0.933*	1.591**	0.264
	(2.39)	(2.54)	(0.94)	(1.99)	(2.51)	(0.39)
Inc. share quintile 3	1.039**	0.950**	0.204	0.866*	1.429**	0.062
	(2.09)	(2.26)	(0.52)	(1.75)	(2.18)	(0.09)
Inc. share quintile 4	0.432	0.505	-0.084	0.438	0.540	-0.263
	(1.03)	(1.29)	(0.22)	(1.02)	(0.69)	(0.46)
Inc. share quintile 5	-3.608**	-3.334**	-0.908	-3.075*	-4.914**	-0.543
	(2.18)	(2.35)	(0.69)	(1.86)	(2.20)	(0.24)
Controls used						
GDP per capita	X	X	X	X	X	X
Latitude and ELF[a]		X	X			X
Religion			X			X
Institution[b]				X		X
Colonization					X	X

*Notes: * p<0.1; ** p<0.05; *** p<0.01.*
The specification with geographical dummies is not included in this analysis.
a) ELF is the ethno- linguistic fractionalization.
b) This is the average protection against expropriation 1985-1995.

Robustness analysis on poverty

From Panel A in Table 4, we see that the correlation between poverty reduction and legal origin varies with the different specifications[12]. Furthermore, the correlations are both estimated as positive and negative, indicating no robust correlation between legal origin and poverty. Studying Sub-Saharan Africa in Table 5, the correlations are still not significant, but they are consistently negative and around the same magnitude for all specifications. This might indicate that French legal origin has a robust positive correlation with poverty levels in Sub-Saharan Africa compared to English legal origin.

Robustness analysis on income inequality and distribution

From Panel B and D to H in Table 4, we see, as expected, robust correlations between German and Scandinavian legal origin and more equal income distributions, but the magnitude of the coefficient in the Gini coefficient (Panel B) estimations fluctuates somewhat. Looking at the income share for each of the quintiles, these results follow the same pattern for all the specifications for both German and Scandinavian legal origin. Furthermore, there does not seem to be a systematic difference between French and English legal origin with regards to income inequality.

The results for Sub-Saharan Africa in Table 5 show robust correlations between French legal origin and more equal income distributions as measured by the Gini coefficient. However, the correlations seem to be affected by the inclusion of religion. Looking at the income share for each quintile, we see that the bottom three quintiles in countries with French legal origin are correlated with higher income than English legal origin, while the top quintile in English legal

[12] The first specification reported here is the second specification of the first results presented in columns 2, 4, 6 in Table 3.

origin countries have a higher share of the country's income than in French legal origin countries.

Miser index

The results on the Miser index in the full sample are not very robust to the different specifications, see Table 4 Panel C. However, we see that the coefficient is negative for both German and French legal origin in all but the last specification. In Table 5, we see that all except the last specification indicate that French legal origin countries are less miserly than English legal origin countries in Sub-Saharan Africa.

5. Conclusion

The legal origin theory claims that the differences between the two different legal systems – civil and common law - still persist today, and influence social and economic developments. One of the main findings in the literature is that English legal origin is better for financial markets and financial development than civil law, and particularly French legal origin (La Porta et al. 1998, La Porta et al. 1997, La Porta et al. 1998, Beck et al. 2003a). Thus, English legal origin seems to be good for Wall Street. My results, however, indicate that this does not necessarily trickle down from Wall Street to Main Street.

The most important finding is that there is no systematic difference between French and English legal origin and the level of poverty, income inequality and miserliness in the world sample, noting that this is only correlation. These results seem to be driven by non-African countries as I find systematic differences between these legal origins with regards to income equality and miserliness in the Sub-Saharan Africa sample. Examining Sub-Saharan Africa in particular, I

actually find that French legal origin is better for the overall population - in my words Main Street - than English legal origin. Thus, one potential policy implication is that research from other parts of the world might not be as relevant to Sub-Saharan Africa. This is a factor to take into account when providing police advice on legal reforms to this region, e.g. in following up the Doing business report (Doing Business 2014) in Sub-Saharan Africa.

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Appendix A

Table A.1. *Table on countries, legal origin and other independent variables.*

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
Afghanistan	French	Never	0.00	0.00	99.30	0.70	0.367	0.45	
Angola[a]	French	Never	19.80	68.70	0.00	11.50	0.137	0.77	5.36
Albania	French	Never	0.00	0.00	20.50	79.50	0.456	0.00	
Argentina	French	Spain	2.70	91.60	0.20	5.50	0.378	0.18	6.39
Armenia	French	Never	0.00	0.00	0.00	100.00	0.444		
Australia[b]	English	England	23.50	29.60	0.20	46.70	0.300	0.11	9.32
Austria[b]	German	Never	6.50	88.80	0.60	4.10	0.524	0.03	9.73
Azerbaijan	French	Never	0.00	0.00	93.40	6.60	0.448		
Burundi[a]	French	Other	4.90	78.30	0.90	15.90	0.037	0.01	
Belgium[b]	French	France	0.40	90.00	1.10	8.50	0.561	0.36	9.68
Benin[a]	French	France	2.80	18.50	15.20	63.50	0.103	0.68	
Burkina Faso[a]	French	France	1.60	9.00	43.00	46.40	0.144	0.55	4.45
Bangladesh	English	England	0.20	0.20	85.90	13.70	0.267	0.00	5.14
Bulgaria	German	Never	0.40	0.50	10.60	88.50	0.478	0.12	8.91
Bosnia and Herzegovina	German	Never	4.00	15.00	40.00	41.00	0.489		
Belarus	German	Never	0.00	14.00	0.00	86.00	0.589		
Belize	English	Never	13.20	66.80	0.00	20.00	0.191	0.41	
Bolivia	French	Spain	2.30	92.50	0.00	5.20	0.189	0.60	5.64
Brazil	French	Portugal	4.00	87.80	0.10	8.10	0.111	0.06	7.91
Bhutan	English	Never	0.00	0.00	5.00	95.00	0.303	0.44	
Botswana[a]	English	England	26.80	9.40	0.00	63.80	0.244	0.38	7.73
Central African Republic[a]	French	France	50.00	33.10	3.20	13.70	0.078	0.79	
Canada[b]	English	England	29.60	46.60	0.60	23.20	0.667	0.38	9.73
Switzerland[b]	German	Never	43.20	52.80	0.30	3.70	0.522	0.31	10.00

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
Chile[b]	French	Spain	1.90	82.10	0.00	16.00	0.333	0.05	7.82
China	German	Never	0.00	0.00	2.40	97.60	0.389	0.23	7.77
Cote d'Ivoire[a]	French	France	4.70	18.50	24.00	52.80	0.089	0.86	7.00
Cameroon[a]	French	France	18.10	35.00	22.00	24.90	0.067	0.85	6.45
Congo, Dem. Rep.[a]	French	Other	29.00	48.40	1.40	21.20	0.000	0.87	
Congo, Rep.[a]	French	France	24.90	53.90	0.40	20.80	0.011	0.67	4.68
Colombia	French	Never	0.90	96.60	0.20	2.30	0.044	0.06	7.32
Comoros[a]	French	France	0.10	0.10	99.70	0.10	0.134	1.00	
Cape Verde[a]	French	Portugal	3.00	95.90	0.00	1.10	0.178	0.38	
Costa Rica	French	Spain	5.80	90.50	0.00	3.70	0.111	0.05	7.05
Czech Republic[b]	German	Never	4.60	39.20	0.00	56.20	0.549		8.86
Germany[b]	German	Never	46.40	35.00	0.02	18.58	0.567	0.04	
Djibouti	French	Never	0.20	6.70	90.60	2.50	0.126	0.71	
Denmark[b]	Scand.	Never	95.20	0.60	0.20	4.00	0.622	0.03	9.73
Dominican Republic	French	Spain	1.40	96.60	0.00	2.00	0.211	0.01	6.18
Algeria	French	France	0.00	0.50	99.10	0.40	0.311	0.29	6.50
Ecuador	French	Spain	1.90	96.40	0.00	1.70	0.022	0.33	6.55
Egypt, Arab Rep.	French	Other	0.20	0.20	81.80	17.80	0.300	0.02	6.77
Spain[b]	French	Never	0.10	96.90	0.00	3.00	0.444	0.27	9.68
Estonia[b]	German	Never	66.00	2.00	0.01	31.99	0.656		
Ethiopia[a]	French	Never	3.80	0.70	31.40	64.10	0.089	0.68	5.73
Finland[b]	Scand.	Other	93.10	0.10	0.00	6.80	0.711	0.11	9.73
Fiji	English	England	39.10	9.00	7.80	44.10	0.200	0.80	
France[b]	French	Never	2.40	76.40	3.00	18.20	0.511	0.15	9.73
Micronesia, Fed. Sts.	English	Never	49.20	45.60	0.00	5.20	0.073		
Gabon[a]	French	France	18.80	65.20	0.80	15.20	0.011	0.80	7.82
United Kingdom[b]	English	Never	16.10	13.10	1.40	69.40	0.600	0.11	9.77
Georgia	German	Never	0.00	1.00	11.00	88.00	0.467		
Ghana[a]	English	England	25.80	18.70	15.70	39.80	0.089	0.71	6.27

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
Guinea[a]	French	France	0.10	1.10	69.00	29.80	0.122	0.76	6.55
Gambia, The[a]	English	England	0.40	1.90	84.80	12.90	0.148	0.78	8.27
Guinea-Bissau[a]	French	Portugal	0.60	10.20	38.30	50.90	0.133	0.85	4.55
Greece[b]	French	Other	0.10	0.40	1.50	98.00	0.433	0.08	7.82
Guatemala	French	Spain	4.90	94.00	0.00	1.10	0.170	0.48	5.14
Guyana	English	Never	18.00	18.00	9.00	55.00	0.056	0.24	5.89
Hong Kong SAR, China	English	England	7.50	7.90	0.50	84.10	0.246	0.24	8.14
Honduras	French	Spain	2.60	95.80	0.10	1.50	0.167	0.10	5.32
Croatia	German	Never	0.40	76.50	1.20	21.90	0.501		
Haiti	French	Never	12.80	82.60	0.00	4.60	0.211	0.06	3.73
Hungary[b]	German	Never	21.60	53.90	0.00	24.50	0.522	0.07	9.00
Indonesia	French	Other	4.80	2.70	43.40	49.10	0.056	0.69	7.59
India	English	England	1.10	1.30	11.60	86.00	0.222	0.74	8.27
Ireland[b]	English	England	1.10	95.30	0.00	3.60	0.589	0.09	9.73
Iran, Islamic Rep.	French	Never	0.00	0.10	97.90	2.00	0.356		4.77
Iraq	French	Never	0.00	1.80	95.80	2.40	0.367		1.64
Israel[b]	English	Never	0.20	1.00	8.00	90.80	0.348	0.33	8.55
Italy[b]	French	France	0.40	83.20	0.10	16.30	0.472	0.04	9.45
Jamaica	English	England	55.50	9.60	0.10	34.80	0.202	0.01	7.09
Jordan	French	Never	0.30	1.70	93.00	5.00	0.344	0.03	6.77
Japan[b]	German	Never	0.90	0.60	0.00	98.50	0.400	0.01	9.73
Kazakhstan	French	Never	2.00	3.00	47.00	48.00	0.533		
Kenya[a]	English	England	19.30	26.40	6.00	48.30	0.011	0.83	6.05
Kyrgyz Republic	French	Never	0.00	0.00	70.00	30.00	0.456		
Cambodia	French	Never	0.10	0.10	2.40	97.40	0.144	0.13	
Korea, Rep.[b]	German	Other	12.20	3.90	0.00	83.90	0.411	0.00	8.64
Lao PDR	French	Never	0.20	0.80	1.00	98.00	0.200	0.25	
Liberia[a]	English	Never	18.60	1.90	21.20	58.30	0.070	0.80	3.64

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
St. Lucia	English	Never	6.30	88.30	0.00	5.40	0.150	0.58	
Sri Lanka	English	England	0.40	6.80	7.20	85.60	0.078	0.33	6.05
Lesotho[a]	English	England	29.80	43.50	0.00	26.70	0.326	0.21	
Lithuania	French	Never		80.00	0.00		0.622		
Luxembourg[b]	French	Other	1.20	93.00	0.00	5.80	0.549	0.22	10.00
Latvia	German	Never	14.10	18.20	0.01	67.69	0.633		
Morocco	French	France	0.00	0.20	99.40	0.40	0.356	0.35	7.09
Moldova	French	Never	0.00	0.00	0.00	100.00	0.522		
Madagascar[a]	French	France	22.00	26.00	1.70	50.30	0.222	0.06	4.45
Maldives	English	Never	0.00	0.10	99.90	0.00	0.035	0.03	
Mexico[b]	French	Spain	1.20	94.70	0.00	4.10	0.256	0.17	7.50
Marshall Islands	English	Never		0.00	0.00		0.100		
Macedonia, FYR	French	Never	1.00	0.50	30.10	68.40	0.461		
Mali[a]	French	Never	0.20	0.70	80.00	19.10	0.189	0.81	4.00
Mongolia	German	Never	0.00	0.00	1.40	98.60	0.511	0.07	7.36
Mozambique[a]	French	Portugal	6.80	31.40	13.00	48.80	0.202	0.79	6.50
Mauritania[a]	French	France	0.00	0.30	99.40	0.30	0.222	0.27	
Malawi[a]	English	England	31.50	27.60	16.20	24.70	0.148	0.62	6.82
Malaysia	English	England	1.40	2.80	49.40	46.40	0.026	0.61	7.95
Namibia[a]	English	Other	64.20	19.10	0.00	16.70	0.244	0.73	
Niger[a]	French	France	0.00	0.20	87.90	11.90	0.178	0.73	5.00
Nigeria[a]	English	England	15.80	12.10	45.00	27.10	0.111	0.86	5.55
Nicaragua	French	Spain	4.40	94.70	0.00	0.90	0.144	0.10	5.23
Netherlands[b]	French	France	42.40	42.60	1.00	14.00	0.581	0.06	10.00
Norway[b]	Scand.	Never	97.80	0.30	0.10	1.80	0.689	0.07	9.95
Nepal	English	Never	0.00	0.00	3.00	97.00	0.311	0.45	
New Zealand[b]	English	England	37.90	18.70	0.00	43.40	0.456	0.15	9.73
Pakistan	English	England	0.80	0.50	96.80	1.90	0.333	0.62	6.05
Panama	French	Spain	5.20	85.00	4.50	5.30	0.100	0.19	5.91

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
Peru	French	Spain	2.70	95.10	0.00	2.20	0.111	0.43	5.77
Philippines	French	Other	3.80	84.10	4.30	7.80	0.144	0.72	5.45
Papua New Guinea	English	Other	58.40	32.80	0.00	8.80	0.067	0.80	7.27
Poland[b]	German	Never	0.10	81.00	0.00	18.90	0.578	0.04	7.68
Portugal[b]	French	Never	1.10	94.10	0.00	4.80	0.437	0.00	9.18
Paraguay	French	Spain	1.90	96.00	0.00	2.10	0.256	0.41	6.95
Qatar	French	Never	0.90	1.20	92.40	5.50	0.281		7.73
Romania	French	Other	5.80	4.90	1.20	88.10	0.511	0.12	
Russian Federation	French	Never	0.00	1.40	11.30	87.30	0.667		8.45
Rwanda[a]	French	Other	11.60	55.60	8.60	24.20	0.022	0.06	
Sudan[a]	English	Never	0.10	4.40	73.00	22.50	0.167	0.51	4.00
Senegal[a]	French	France	0.10	5.60	91.00	3.30	0.156	0.78	6.00
Singapore	English	England	2.60	4.70	17.40	75.30	0.014	0.32	9.32
Sierra Leone[a]	English	Never	4.80	2.20	39.40	53.60	0.092	0.81	5.82
El Salvador	French	Spain	2.40	96.20	0.00	1.40	0.150	0.05	5.00
Serbia	French	Never	1.00	4.00	19.00	76.00	0.489	0.28	
Sao Tome and Principe[a]	French	Never	2.20	92.40	0.00	5.40	0.011	0.00	8.41
Suriname	French	Never	36.60	36.00	13.00	14.40	0.044	0.75	4.68
Slovak Republic[b]	German	Never	8.40	74.00	0.00	17.60	0.538		
Slovenia[b]	German	Never	0.00	71.40	1.50	27.10	0.511		
Sweden[b]	Scand.	Never	68.40	1.40	0.10	30.10	0.689	0.07	9.50
Swaziland[a]	English	Never	33.90	10.80	0.10	55.20	0.292	0.00	
Seychelles[a]	French	England	1.10	89.30	0.30	9.30	0.048	0.00	
Syrian Arab Republic	French	Other	0.20	1.30	89.60	8.90	0.389	0.09	5.82
Chad[a]	French	France	11.60	21.00	44.00	23.40	0.167	0.67	
Togo[a]	French	France	6.10	29.30	17.00	47.60	0.089	0.73	6.91
Thailand	English	Never	0.20	0.40	3.90	95.50	0.167	0.36	7.64
Tajikistan	French	Never	0.00	0.00	85.00	15.00	0.433		
Turkmenistan	French	Never	0.00	0.00	87.00	13.00	0.444		

Country name	Legal origin	Colonized by	Share with religious affiliation				Latitude	ELF[c]	Avexpr[d]
			Protestants	Catholics	Muslims	Other			
Trinidad and Tobago	English	England	13.20	35.80	6.50	44.50	0.122	0.23	7.45
Tunisia	French	Never	0.00	0.10	99.40	0.50	0.378	0.07	6.45
Turkey[b]	French	Never	0.00	0.10	99.20	0.70	0.433	0.16	7.45
Tanzania[a]	English	England	11.20	28.20	32.50	28.10	0.067	0.89	6.64
Uganda[a]	English	England	1.90	49.60	6.60	41.90	0.011	0.84	4.45
Ukraine	French	Never	0.00	0.00	0.00	100.00	0.544		
Uruguay	French	Spain	1.90	59.50	0.00	38.60	0.367	0.07	7.00
United States[b]	English	England	43.60	30.00	0.80	25.60	0.422	0.21	10.00
Uzbekistan	French	Never	0.00	0.00	88.00	12.00	0.456		
Venezuela, RB	French	Spain	1.00	94.80	0.00	4.20	0.089	0.05	7.14
Vietnam	French	Never	0.20	3.90	1.00	94.90	0.178	0.12	6.41
Yemen, Rep.	French	Never	0.10	0.00	99.50	0.40	0.167	0.01	6.36
South Africa[a]	English	England	39.00	10.40	1.30	49.30	0.322	0.83	6.86
Zambia[a]	English	England	31.90	26.20	0.30	41.60	0.167	0.83	6.64
Zimbabwe[a]	English	England	21.40	14.40	0.90	63.30	0.222	0.60	6.00

Notes: a) Africa south of Sahara country.
b) OECD country.
c) ELF is the measure of Ethno-linguistic fractionalization.
d)This is the average risk of Average Protection Against Expropriation Risk, 1985-1995.

Appendix B Definitions of variables

B. 1 Outcome variables

Poverty head count: Population below $1.25 a day is the percentage of the population living on less than $1.25 a day at 2005 international prices. As a result of revisions in PPP exchange rates, poverty rates for individual countries cannot be compared with poverty rates reported in earlier editions. Covers time period 1978-2012, but varying how many observations per country. Source: WDI, World Bank (2014a)[13].

Gini coeffient: The Gini coefficient measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Covers time period 1978-2012, but varying how many observations per country. Source: WDI, World Bank (2014a)

Income shares: Income share held by each quintile (20%). Percentage share of income or consumption is the share that accrues to subgroups of population indicated by deciles or quintiles. Percentage shares by quintile may not sum to 100 because of rounding. Covers time period 1978-2012, but the number of observations per country varies. Source: WDI, World Bank (2014a)

[13] I use the Stata program wbopendata which calls the World Bank's API service (http://api.worldbank.org/), and the current version of the data was downloaded from between 2nd to 6th June 2014. This applies to all the WDI data.

Miser index at 2 USD: The miser index measures to what extent there is poverty and affluence in the same country, and measures the disparities between those above and those below poverty line adjusted for the incidence of poverty. Mathematically, the Miser index (M) is defined as $M = h(\bar{Y} - \bar{Y}_P)$, where h is the poverty head count rate,$\bar{Y}$ is the average income of all inhabitants, and $\bar{Y}_P$ is the average income of the poor under the poverty line as defined by the World Bank. Thus, if the poverty rate is zero, there is no miserliness. If there is a large poverty rate and a large income gap, there is a lot of miserliness. The Miser index can be calculated for extreme poverty defined at 1.25PPP$ or for poverty defined at 2PPP$ a day. In this paper I use the 2PPP$ a day. Source: Lind and Moene (2011).

B.2 Independent and control variables

Legal origin: English legal origin, French legal origin, German Legal origin as defined in La Porta et al. (1999) with updates from socialist to French or German Legal origin as defined in La Porta (20008). Source: La Porta et al. (1999), La Porta et al. (2008). Data were downloaded from http://scholar.harvard.edu/shleifer/publications/quality-government and http://scholar.harvard.edu/shleifer/publications/economic-consequences-legal-origins on May 14th 2014.

Average Protection Against Expropriation 1985-1995 (avexpr): This is measured on a scale from 0 to 10, where a higher score indicates greater protection against risk of expropriation of investment by government. Source: Acemoglu et al. (2001). Current version of the data downloaded http://economics.mit.edu/faculty/acemoglu/data/ajr2001 on May 25th 2014.

Colonization: Klerman et al. (20111) define this as "*the dominant colonial power, if any, in the period 1750-2007*". I have reduced the number of colonizer to England, France, Spain, Portugal, other, and never colonized. Source: Klerman et al. (2011).

Ethnolinguistics fractionalization (ELF): Measures on a scale from 0 to 1 five difference indices of ethnolinguistic fragmentalization. One addresses ethnicity and four language. Source: La Porta et al. (1999). http://scholar.harvard.edu/shleifer/publications/quality-government current version of data downloaded on May 14th 2014.

GDP per capita in current USD: GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Time period 1960-2012. Source: WDI, World Bank (2014a)

Latitude of capital: A variable that measures the absolute value of the latitude of the country on a scale for 0 to 1. Source: La Porta et al. (1999). http://scholar.harvard.edu/shleifer/publications/quality-government current version of data downloaded on May 14th 2014.

Religious affiliations: Share of population affiliated with the following denominations in the country in 1980: Protestant, Catholic, Muslim and other. Source: La Porta et al. (1999) http://scholar.harvard.edu/shleifer/publications/quality-government current version of data downloaded on May 14th 2014.

Appendix C Correlation matrix

Table C.1. *Correlation matrix*

	French LO	German LO	Scand. LO	English LO	Protestant	Catholic	Muslims	Other den.
French LO	1							
German LO	-0.4275*	1						
Scand. LO	-0.1861*	-0.0613*	1					
English LO	-0.7207*	-0.2373*	-0.1033*	1				
Protestant	-0.4065*	0.0051	0.6432*	0.2150*	1			
Catholic	0.2331*	0.0111	-0.1423*	-0.2138*	-0.1008*	1		
Muslims	0.2594*	-0.2049*	-0.1057*	-0.0983*	-0.3276*	-0.5046*	1	
Other denom.	-0.2840*	0.2105*	-0.1165*	0.1994*	-0.1427*	-0.5048*	-0.3189*	1
Latitude	-0.1659*	0.4416*	0.3268*	-0.2545*	0.1820*	-0.1262*	-0.0730*	0.1337*
Eng. Col.	-0.5032*	-0.1768*	-0.0770*	0.7081*	0.1587*	-0.1117*	-0.0675*	0.1058*
French Col.	0.3390*	-0.1449*	-0.0631*	-0.2443*	-0.0312*	-0.0570*	0.2033*	-0.1363*
Spain Col.	0.2988*	-0.1277*	-0.0556*	-0.2154*	-0.1574*	0.5579*	-0.2185*	-0.2934*
Portugal Col.	0.1433*	-0.0613*	-0.0267	-0.1033*	-0.0684*	0.1104*	-0.0459*	-0.0317*
Other Col.	0.0953*	-0.0500*	0.0904*	-0.1000*	0.1443*	-0.0144	-0.0547*	-0.0105
Never Col.	-0.1375*	0.3556*	0.0903*	-0.1398*	-0.0606*	-0.2495*	0.0868*	0.2192*
ELF	-0.0380*	-0.2555*	-0.1724*	0.2500*	0.0229	-0.2169*	0.1949*	0.0322*
Avexpr	-0.3210*	0.2983*	0.2887*	0.0372*	0.3019*	0.0720*	-0.3724*	0.1292*

	latitude	English col	French col	Spain Col	Portugal Col.	Other Col.	Never Col	ELF	Avexpr
Latitude	1								
Eng. Col.	-0.1762*	1							
French Col.	-0.1694*	-0.1821*	1						
Spain Col.	-0.1719*	-0.1605*	-0.1315*	1					
Portugal Col.	-0.1117*	-0.0770*	-0.0631*	-0.0556*	1				
Other Col.	-0.0198	-0.1491*	-0.1222*	-0.1077*	-0.0516*	1			
Never Col.	0.3977*	-0.4138*	-0.3668*	-0.3233*	-0.1550*	-0.3002*	1		
ELF	-0.4974*	0.1894*	0.2848*	-0.1937*	0.0907*	-0.0433*	-0.2362*	1	
Avexpr	0.6182*	0.0936*	-0.0685*	-0.1925*	-0.0748*	0.0966*	0.0679*	-0.4304*	1

Appendix A

Norwegians and Development Aid

Maren Elise Bachke, Frode Alfnes og Mette Wik

Norwegians and devleopment aid projects

- Financing
  - The pilot project is supported by the Norwegian Research Council
- Participants in the project
  - Maren Elise Bachke, Frode Alfnes and Mette Wik
- Partners
  - Several of the medium sized Norwegian development aid organizations.
- Results
  - Part of Marens PhD and to be published in International Journals

FOUR PARTS

Partl 1	• Questionaire on knowledge and attitudes towards Norwegian development aid
Part 2	• The experiment (with money)
Part 3	• Choice experiment (without money)
Part 4	• Questionaire about you

PART 1
Questionaire on knowledge and attitudes towards Norwegian development aid

PART 2
The experiment

Partners

The experiment

- You have received 250 NOK which you shall divide between yourselves and development aid projects

Project	Project description	How much do you give?
1	Health project aimed at children in a country in Eastern Europe	NOK:_____
2	Education project aimed at girls in a country in Latin America	NOK:_____
3	Business development aimed at men in a country in Eastern Europe	NOK:_____

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Draw a project that will be supported

- We draw one project as a recipient project
- Only this project will be supported

Project	Project description	How much do you give?
1	Health project aimed at children in a country in Eastern Europe	NOK:_____
2	Education project aimed at girls in a country in Latin America	NOK:_____
3	Business development aimed at men in a country in Eastern Europe	NOK:_____

Example: Kari

- We draw project 2 as the recipient project
- Kari donates 110 to the project and keep 140

Project	Project description	How much do you give?
1	Health project aimed at children in a country in Eastern Europe	NOK: 250
2	Education project aimed at girls in a country in Latin America	NOK: 110
3	Business development aimed at men in a country in Eastern Europe	NOK: 70

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Example: Tore

- We draw project 2 as recipient project
- Tore donates 190 to the project and keeps 60

Project	Project description	How much do you give?
1	Health project aimed at children in a country in Eastern Europe	NOK: 100
2	Education project aimed at girls in a country in Latin America	NOK: 190
3	Business development aimed at men in a country in Eastern Europe	NOK: 150

Splitting of the money

Money to the project	Money to you	Total amount of money
0	250	250
50	200	250
100	150	250
150	100	250
200	50	250
250	0	250

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Splitting of the money

- You enter one afte rone into the next-door room.
- Put all the money in an envelop
- Thereafter put as much money as you have indicated that you want to donate to the recipient project in the envelopp and close the envelopp.

Anonymity

- It is important that you do not write your name or other information that can be used to identify you
- You will put the money in the envelopp when you are alone in the next-door room. Nobody will therefore see how much you donate of the 250 NOK and how much you kept yourself.

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The money is sent to the following organizations:

The money you donate will be sent to the development organization with the chosen development aid project as soon as possible.

care

KIRKENS NØDHJELP

SOS-barnebyer

Norsk Folkehjelp

UTVIKLINGSFONDET
SÅR HÅP

Project descriptions

- Project type
  - Agricultural, Business development, Education, Health, Peace and reconcilliation
- Recipients
  - Girls, Boys, Children, Women, Men
- Regions
  - Sub-Saharan Africa, Latin America, South and Southeast Asia, Midle-East, Eastern Europe

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Agricultural projects - Examples

- Provide the farmers with seeds
- Teach more efficient agricultural techniques
- Teach environmentally friendly growing methods
- Vacinate husbandry against disease

Business development – Examples

- Improve the infrastructure in an area
- Open market places
- Provide people with a possibility to get credit
- Micro credit

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Educational projects - Examples

- Build schools
- Provide new and improved teaching materiel
- Educate teachers

- At primary-, secondary-, terticiary- level as well as at the univeristy level

Health projects - Examples

- Improve health services in all districts so that more people can get qualified help when they are sick
- Provide vacines to the population
- Prevent spread of diseases such as HIV/AIDS

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Peace and reconciliation projects Examples.

- People from different sides in a conflict meet in different foras to get to know each other
- Remove mines and cluster bombs
- Strengthen the local society and democratic ideas

Recipents

- Many projects are aimed at particuluar groups in the society
  - Girls
  - Boys
  - Children
  - Women
  - Men

PART 3
Choice experiments without money

Choice experiments without money

Choice 1	Alternative 1	Alternative 2
Project type	Education	Agriculture
Recipient	Children	Women
Region	Midle-East	Eastern Europe
Money to the project	50	250
Money to you	150	50
I choose (mark ✓one)	☐	☐

Choice 2	Alternative 1	Alternative 2
Project type	Peace and reconcilliation	Education
Recipient	Men	Girls
Region	Latin America	Eastern-Europe
Money to the project	100	250
Money to you	150	100
I choose (mark ✓one)	☐	☐

PART 4
Fill inn the second part of the questionaire

Division of the money

- Enter one and one at the next door room
- Put all the papers in the envelopp
- Thereafte put as much money as you have stated that you wanted to donate to the recipient project in the envelopp and close the envelopp.
- The money will be sent to the development aid organization with the chosen project as soon as possible

Appendix B

Contribution to development aid projects 1-5 A

Project	Project description	How much do you give?
1	Health project aimed at children in a country in Eastern Europe	NOK:_____
2	Education project aimed at girls in a country in Latin America	NOK:_____
3	Business development aimed at men in a country in Eastern Europe	NOK:_____
4	Peace and reconciliation project aimed at men in a country in Sub-Saharan Africa	NOK:_____
5	Agricultural project aimed at women in a country in Sub-Saharan Africa	NOK:_____

Contribution to development aid projects 6-10 A

Project	Project description	How much do you give?
6	Health project aimed at girls in a country in South and Southeast Asia	NOK:_____
7	Education project aimed at children in a country in Middle East	NOK:_____
8	Peace and reconciliation project aimed at women in a country in South and Southeast Asia	NOK:_____
9	Health project aimed at women in a country in Latin- Amerika	NOK:_____
10	Business development aimed at women in a country in South and Southeast Asia	NOK:_____

Contribution to development aid projects 11-15 A

Project	Project description	How much do you give?
11	Health project aimed at children in a country in Sub-Saharan Africa	NOK:_____
12	Agricultural project aimed at men in a country in Middle East	NOK:_____
13	Education project aimed at men in a country in Latin America	NOK:_____
14	Peace and reconciliation project aimed at boys in a country in Eastern Europe	NOK:_____
15	Education project aimed at boys in a country in Middle East	NOK:_____

Appendix C

NORWEGIANS AND DEVELOPMENT AID
PART 1

Your answers will be treated anonymously and will not be used for anything else than this study. We hope you will provide honest answers to all questions. If you have any questions, please ask.

Knowledge about development aid organizations

1. How well do you know what each of these organizations do? ***Make one mark for each line***

		Very well		**Rather well**		**Rather poorly**		**Very poorly**
(1.1)	Save the children	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.2)	SOS-children's villages.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.3)	Red Cross	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.4)	Medicines sans frontiers	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.5)	The Development Fund.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.6)	Norwegian Church Aid	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.7)	Norwegian People's Aid	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.8)	Plan International	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.9)	CARE	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(1.10)	UNICEF	☐1	☐2	☐3	☐4	☐5	☐6	☐7

2. To what degree do you trust that each of these organizations use the money they receive in a sensible way? ***Make one mark for each line***

		Very much		**Rather much**		**Rather little**		**Very little**
(2.1)	Save the children	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.2)	SOS-children's villages.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.3)	Red Cross	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.4)	Medicines sans frontiers.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.5)	The Development Fund.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.6)	Norwegian Church Aid	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.7)	Norwegian People's Aid	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.8)	Plan International	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.9)	CARE	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(2.10)	UNICEF	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Attitudes towards emergency and development aid

3. Norway provides different types of development aid to developing countries in different parts of the world. How positive or negative are you towards Norway providing such support to the following areas? *Make one mark for each line*

		Very positive		**Rather positive**		**Rather negative**		**Very negative**
(3.1)	Africa South of Sahara	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(3.2)	Latin America.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(3.3)	Middle East	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(3.4)	South and Southeast Asia.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(3.5)	Eastern Europe	☐1	☐2	☐3	☐4	☐5	☐6	☐7

4. Norway provides development aid both in the form of emergency aid and long-term development aid projects. How do you perceive the results of the following types of development aid provided by Norway? *Make one mark for each line*

		Very good results		Neither good nor bad		Very bad results	Do not know
(4.1)	Emergency aid from Norway ...	☐1	☐2	☐3	☐4	☐5	☐9
(4.2)	Long-term development aid from Norway	☐1	☐2	☐3	☐4	☐5	☐9
(4.3)	Overall Norwegian development aid	☐1	☐2	☐3	☐4	☐5	☐9

5. Do you think that the current level of Norwegian development aid should increase, stay at today's level or be reduced? ***Make one mark***

Increase significantly	Increase a little	Stay at today's level	Reduce a little	Reduce significantly	In douht/ do not know
☐1	☐2	☐3	☐4	☐5	☐9

6. Norwegian development aid is provided through several channels. How efficient, as in how much development is produced from each NOK given, do you think the following development aid channels are? ***Make one mark for each line***

		Very efficient		Rather efficient		Not efficient	Do not know
(6.1)	State-to-state.....	☐1	☐2	☐3	☐4	☐5	☐9
(6.2)	UN	☐1	☐2	☐3	☐4	☐5	☐9
(6.3)	World Bank	☐1	☐2	☐3	☐4	☐5	☐9
(6.4)	Non-governmental organizations	☐1	☐2	☐3	☐4	☐5	☐9

7. Which of the following development aid channels do you think is the most efficient in transforming money into development aid? ***Make one mark***

State-to-State	☐1
UN	☐2
World Bank	☐3
Non-governmental organizations	☐4
Do not know	☐9

8. How much need and poverty do you believe there is in the following parts of the world? ***Make one mark for each line***

		Very much		Rather much		Rather little		Very little
(8.1)	Africa South of Sahara	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(8.2)	Latin America	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(8.3)	Middle East	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(8.4)	South and Southeast Asia.....	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(8.5)	Eastern Europe	☐1	☐2	☐3	☐4	☐5	☐6	☐7

9. How much need and poverty do you believe there is in the following areas in poor countries? ***Make one mark for each line***

		Very much		Rather much		Rather little		Very little
(9.1)	In urban areas	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(9.2)	In rural areas	☐1	☐2	☐3	☐4	☐5	☐6	☐7

10. How vulnerable do you believe the following groups are in developing countries? ***Make one mark for each line***

		Extremely vulnerable			Rather vulnerable		Not vulnerable		Do not know
(10.1)	Girls	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9
(10.2)	Boys	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9
(10.3)	Women	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9
(10.4)	Men	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9
(10.5)	Handicapped	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9
(10.6)	People with serious diseases	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9

11. Development aid can be directed towards particularly groups or larger areas. How positive or negative are you towards projects aimed at the following recipients? ***Make one mark for each line***

		Very positive		Rather positive		Rather negative		Very negative
(11.1)	The state in the recipient country	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(11.2)	The rural population	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(11.3)	The urban population	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(11.4)	Particularly vulnerable groups	☐1	☐2	☐3	☐4	☐5	☐6	☐7

12. Different projects are aimed at different recipients. How positive or negative are you towards projects aimed at the following recipients? ***Make one mark for each line***

		Very positive		Rather positive		Rather negative		Very negative
(12.1)	Girls	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(12.2)	Boys	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(12.3)	Children	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(12.4)	Women	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(12.5)	Men	☐1	☐2	☐3	☐4	☐5	☐6	☐7

13. Different projects have different objectives. How positive or negative are you towards projects with the following objectives? ***Make one mark for each line***

		Very positive		Rather positive		Rather negative		Very negative
(13.1)	Private sector development	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.2)	Environment and sustainable development	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.3)	Health	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.4)	Peace and reconciliation	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.5)	Agriculture	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.6)	Education	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.7)	Help to self-help	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.8)	Support the most vulnerable in the society	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.9)	Budget support in the recipient country	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(13.10)	Develop local resources	☐1	☐2	☐3	☐4	☐5	☐6	☐7

14. Which of the statements below are most in line with your view on how Norway should prioritize its development aid? ***Make one mark***

- The priority should be to help people to be independent in the long run ☐1
- The priority should be to help the most vulnerable ☐2

15. How important are the following factors when donating to development aid? ***Make one mark for each line***

		Very important		Rather important		Somewhat important		Not at all
(15.1)	That the aid is efficient (most aid for each NOK)	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(15.2)	That the donor can decide what the money should be used for	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(15.3)	That the receiving country can decide what the money should be used for	☐1	☐2	☐3	☐4	☐5	☐6	☐7
(15.4)	That you know who receives the the money in the recipient country	☐1	☐2	☐3	☐4	☐5	☐6	☐7

16. Do you think Norway should prioritize emergency help or long-term development aid? ***Make one mark***

- Prioritize emergency help ☐1
- Both are equally important ☐2
- Should prioritize long-term development aid ☐3
- Do not know ☐9

17. When did you last donate money to a development aid organization? ***Make one mark***

- Less than 3 months ago ☐1
- 3 to 12 months ago ☐2
- 1 to 3 years ago ☐3
- More than 3 years ago ☐4
- Have never donated ☐5

Statements about causes

18. In your opinion, how important are the following explanations for poor economic growth and development in developing countries? ***Make one mark for each line*****.**

		Very important		Rather important		Less important	Do not know
(18.1)	Developing countries suffer from a large burden of debt	☐1	☐2	☐3	☐4	☐5	☐9
(18.2)	International trade regulations prevent Exports from developing countries……	☐1	☐2	☐3	☐4	☐5	☐9
(18.3)	Developing countries pursue poor Economic policies	☐1	☐2	☐3	☐4	☐5	☐9
(18.4)	Developing countries receive too little international development aid	☐1	☐2	☐3	☐4	☐5	☐9
(18.5)	Poorly executed development aid	☐1	☐2	☐3	☐4	☐5	☐9
(18.6)	War and conflicts in developing countries	☐1	☐2	☐3	☐4	☐5	☐9
(18.7)	Corruption in developing countries.....	☐1	☐2	☐3	☐4	☐5	☐9
(18.8)	The developing countries have become dependent upon development aid from OECD countries	☐1	☐2	☐3	☐4	☐5	☐9
(18.9)	Development aid conditionality prevents economic growth	☐1	☐2	☐3	☐4	☐5	☐9
(18.10)	Human Rights are not respected in developing countries	☐1	☐2	☐3	☐4	☐5	☐9
(18.11)	Poor business conditions	☐1	☐2	☐3	☐4	☐5	☐9
(18.12)	The countries prioritize incorrect sectors	☐1	☐2	☐3	☐4	☐5	☐9

NORWEGIANS AND DEVELOPMENT AID PART 2

19. Did you donate money to any of the projects in the money experiment?

Yes ..... ☐1 ➔ Go to question 20
No, I wrote zero on all the projects ..... ☐2 ➔ Go to question 21

20. Which of the following statement fits with why you donated money to the development aid projects in the experiment? ***Make one mark***

I donated money to the projects because I wanted to help the recipients of the money ..... ☐1
I donated money to the projects because I felt it was a more fair distribution of the 250 NOK..... ☐2
I donated money to the projects because I got a good feeling..... ☐3
Other..... ☐4

Media, travel and cultural interests

21. How interested are you in issues on developing countries and development aid in media? ***Make one mark***

Very interested ..... ☐1
Rather interested ..... ☐2
Somewhat interested ..... ☐3
Not interested ..... ☐4
Do not know..... ☐9

22. Do you think the mass media mostly provides a correct picture of the situation in developing countries?
Make one mark

Yes ..... ☐1
No ..... ☐2
Do not know ..... ☐3

23. Do you think that the reports from developing countries provide a too negative or too positive overall view of the situation in these countries? ***Make one mark***

Too positive..... ☐1
A little too positive..... ☐2
Correct view..... ☐3
A little too negative..... ☐4
Too negative view..... ☐5
Do not know..... ☐6

24. On a scale from fully agree to fully disagree, to what degree do you agree or disagree with the following statements on foreign cultures. ***Make one mark for each line***

		Fully agree	Partly agree	Partly disagree	Fully disagree
(24.1)	I am very interested in foreign cultures	☐1	☐2	☐3	☐4 (24.2)
	are close to me.....	☐1	☐2	☐3	☐4
(24.4)	I wish that Norway and Norwegians would be more open for the world around us.....	☐1	☐2	☐3	☐4

25. How many times have you travelled abroad by plane during the last 24 months? ***Make one mark***

- None ☐1
- 1-3 times ☐2
- 4-9 times ☐3
- 10 or more ☐4

26. Have you ever visited any of the following parts of the world? ***Make a mark for each part of the world you have visited***

- Eastern Europe ☐1
- Africa South of Sahara ☐2
- Middle East ☐3
- Latin America ☐4
- South and Southeast Asia ☐5

27. Have you lived two months or more in a developing country in Africa, Asia or Latin America? ***Make one mark***

- Yes ☐1 ➔**Where and how long:**_____
- No ☐2 _____

Political attitudes

28. What is your position in the Norwegian political landscape? ***Make one mark***

	To the left		**Somewhat to the left**		**At the center**		**Somewhat to the right**		**To the right**
I am	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐8	☐9

29. What did you vote at the last election? Keep in mind that the answers will be treated anonymously. ***Make one mark***

- Labor Party (AP) ☐1
- Socialistic Left Party (SV) ☐2
- Center Party (SP) ☐3
- Progress Party (FRP) ☐4
- Conservative Party (H) ☐5
- Christian Democratic Party (KrF) ☐6
- Liberal Party (V) ☐7
- Red (R) ☐8
- Other ☐9
- Did not vote ☐10
- Do not want to answer ☐11

30. Which attitudes are mostly in line with your view on refugees to Norway? ***Make one mark***

- We must do our best to receive more refugees in Norway ☐1
- Instead of receiving refugees in Norway, we should use the money to support them in their own country or in countries that are close to their home country ☐2
- We do not have enough resources to support refugees as long as we have many unsolved issues here in Norway ☐3

31. On a scale from fully agree to fully disagree, to what degree to you agree or disagree with the following statements on immigration? ***Make one mark for each line*****.**

		Fully agree	Partly agree	Neither nor	Partly disagree	Fully disagree
(31.1)	Immigrants enrich Norway	☐1	☐2	☐3	☐4	☐5
(31.2)	I have many friends with a different cultural background than myself	☐1	☐2	☐3	☐4	☐5
(31.3)	I am skeptical towards immigrants	☐1	☐2	☐3	☐4	☐5
(31.4)	Immigration leads to higher unemployment in Norway	☐1	☐2	☐3	☐4	☐5
(31.5)	Immigration leads to higher criminality in Norway	☐1	☐2	☐3	☐4	☐5
(31.6)	Immigration leads to higher growth in Norway	☐1	☐2	☐3	☐4	☐5

Finally a few question about you

32. How old are you?
Write down number of years: _____

34. Are you a woman or a man?
Woman ☐1
Man ☐2

35. Are you a Norwegian citizen?
Yes ☐1
No ☐2

36. How many years have you studied at the university level?
Write down number of years: _____

37. What degree are you studying for?
Bachelor ☐1
Master ☐2
Other ☐3 ➔ What:_____

38. At which institute du you study?
IHA ☐1
Noragric ☐2
IKBM ☐3
ILP ☐4
IMT ☐5
INA ☐6
IPM ☐7
IØR ☐8
Other ☐9 ➔ What:_____

39. Do you believe in Good?
Yes ☐1
No ☐2
Uncertain ☐3

40. Are you a member of a religious community?

Yes ..... ☐1
No ..... ☐2

41. Are you a member/supporter of a NGO working on development aid?

Yes ..... ☐1
No ..... ☐2

42. Do you have a full study loan?

Yes ..... ☐1
No ..... ☐2

43. Do you work besides studying?

Yes ..... ☐1
No ..... ☐2

44. About how much money do you spend personally each month (included all your expenses)? If you are several persons that have a common economy, you can split the total consumption by the number of people.

0-3999 ..... ☐1
4000-7999 ..... ☐2
8000-11999 ..... ☐3
12000-15999 ..... ☐4
16000-19999 ..... ☐5
20000-24999 ..... ☐6
More than 25000 ..... ☐7

45. Did you participate in the focus group on development in the course AOS240 this fall?

Yes ..... ☐1
No ..... ☐2

If you have any further comments, please include them here:

Thank you very much for answering all the questions!

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Maren Elise Bachke was born in Drøbak in 1973. She holds a Cand. Agric. from the Agricultural University of Norway from 1999.

This thesis contributes to the debate on development, development aid and poverty reduction, and identifies possible pathways to development. I study financing of development aid projects, and farmers' organizations and legal origins contributions to poverty reduction.

Most charity organizations depend on contributions from the general public, but little research has been conducted on donor preferences in Norway. We designed a conjoint analysis experiment where people rate development aid projects by donating money in dictator games. The participants show strong age, gender, regional, and thematic preferences for development aid projects run by non-governmental organizations. We also find significant differences in preferences between female and male donors. Furthermore, we develop a model of charitable donations with uncertainty. We increase the uncertainty of the projects by omitting information about some of the characteristics and varying the presented project information to induce differences in utility derived from the donations. As predicted by our theory, we find that omitting information about the project reduces donations.

I study the welfare effect of membership in farmers' organizations in Mozambique using difference-in-difference estimators that control for unobservable selection bias. I find a positive impact of membership on the marketed surplus, the value of agricultural production and on total income, indicating that support to farmers' organizations can contribute to poverty reduction.

Finally, I study the associations between legal origin in explaining levels of poverty, income inequality, and miserliness of countries, and I find no consistent difference between countries with French and English legal origin on these outcomes. Moreover, French legal origin correlates negatively with income inequality and miserliness in Sub-Saharan Africa.

Professor Frode Alfnes, Professor Arild Angelsen and the late Carl-Erik Schulz were the supervisors for this thesis.
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