Trust Thy Neighbor -
Comparing Trust Behavior between Northern and Southern Vietnam

Abstract

This thesis aims to explore how trust behavior varies between northern and southern Vietnam, in order to improve our understanding of what is required to increase economic performance in the developing world. We use economic experiments with university students to study differences in deception, trust and trustworthiness between northern and southern Vietnam; two regions with different income levels and different degrees of market integration. We also study the correlation between deception and trust. Our findings do not confirm any differences, on the contrary, they indicate that overall trust behavior is fairly similar between the two regions and that deception is not correlated with trust. Our findings also suggest that there are gender differences in deception, trust and trustworthiness in northern Vietnam.

Authors: Emma Mårtensson (19546) and Jacob Stedman (19566)
Tutor: Magnus Johannesson
Discussant: Staffan Nordén (18484)
Examiner: Örjan Sjöberg
Presentation: February 13, 2007, 1.15 pm-3 pm in room 343

Table of Contents

1 Introduction

"In the face of transaction costs trust is ubiquitous to almost every economic transaction, trust is an important lubricant of a social system" – Arrow, 1974

1.1 Economic development and institutions

Economic growth has been significant in many parts of the world over the last decades. But how come that more than one billion people still live in extreme poverty?[1] Alston et al. (1996) argues that part of the answer lies in the concept of *institutions*: "Most social scientists agree that an understanding of institutions is critical for understanding economic development and the economic performance of economies." North (1991) defines institutions as "the humanly devised constraints that structure political, economic and social interaction" and exemplifies with sanctions, taboos, customs, laws and property rights among others. He argues that they determine the "feasibility of engaging in economic activity" since solid institutions can reduce uncertainty, build trust and hence reduce transaction costs. Harriss et al (1995) explicitly defines institutions as "means of reducing […] information and transaction costs".

So are institutions crucial for understanding economic performance? Economists tend to take one of two different viewpoints regarding the need for institutions. Neoclassical economists would argue that institutions such as extensive laws and regulations are second best, that is, a substitute for well-functioning markets. They are convinced that markets work well and that government interventions in the form of laws, regulations and other institutions normally cause more harm than good: "nearly all disasters [of the development experience] have stemmed from widespread resort to 'political pricing'" (Bates 1989 quoting Lal 1984). From a neoclassical standpoint, economic growth is seen as driven by productivity growth, and technology provides an upper bound to realizable economic growth. However, neoclassical theory cannot explain why this growth potential has not been realized in all parts of the world.

Institutionalists, such as North, offer a set of alternative hypotheses. They would claim that neoclassical theory does not adequately deal with institutions, and also that it fails to analyze political and social systems. They argue that institutions can be crucial determinants of the efficiency of markets in a world with transaction costs – even for competitive markets

---

[1] Defined as income of less than 1 USD per day, a poverty line which was adopted by the World Bank in 1990.

involving private goods and perfect information – and therefore play a key role in promoting economic growth.[2] Institutions are the basis for incentive systems in society. If the institutions encourage unproductive outcomes in the long run, the society suffers. As North (1990) puts it: "Third World countries are poor because the institutional constraints define a set of payoffs to political/economic activity that do not encourage productive activity". From that follows that by improving institutions, productivity should improve, which would help alleviating poverty.

According to North and other institutionalists, understanding institutions helps us understand economic development. That is, the different levels of economic development in different countries can be partially explained by differences in their institutional constraints. Institutions that "encourage productive activity", hereafter referred to as "productive institutions", foster economic development. It is therefore important to understand which these institutions are and how they function. However, as North (1990) points out, "we cannot see, feel, touch, or even measure institutions". So how do we investigate them? We argue that a useful methodology is to look at the *effects* of institutions. One example of such an effect is *trust,* which will be the focus of study in this thesis.

1.2 Institutions and trust

Most writers would agree that trust is a possible – and certainly desirable – effect of institutions, for example Platteau (1994) who argues that "norms of generalized morality" such as trust are a necessary prerequisite to avoid high transaction costs. It is not an *inevitable* effect, but in many cases, trust is the crucial link between productive institutions and reduced transaction costs: productive institutions generate trust, and trust decrease transaction costs and encourage productive activities. That implies that if we were to understand the causes of trust, we would better understand some of the effects of productive institutions, and their link to economic development.

Platteau argues that establishing generalized trust and morality contributes to moving a society "from a perverse growth path to a more efficient one". This position is also shared by Arrow (1972) who claims that "much of the economic backwardness in the world can be explained by the lack of mutual confidence" and the World Bank economists Knack and Keefer (1997) who state that "[e]conomic activities that require some agents to

---

[2] North and other proponents of new institutional economics are criticized by advocates of "old" institutionalism for reducing institutions to a way of alleviating transaction costs. That debate, however, is beyond the scope of this overview.

rely on the future actions of others are accomplished at lower cost in higher-trust environments". Putnam (2001) is another social scientist who has written extensively about "social capital" and how it is necessary for stable societies.

1.3 The aim of this study

As subject for our studies we have chosen Vietnam, a country with a turbulent political history. For two decades after the independence from France in 1954, present-day Vietnam consisted of two countries, one communist regime based in Hanoi in the north and one USA-backed republic in Saigon in the south. Society in the north changed rapidly in line with reforms of communism already during the 1950s whereas the south resisted communism until after the unification in 1975. In addition, Ho Chi Minh City (HCMC) – the official name of Saigon today – in the south is the economic and financial hub and the most prosperous area in the country. Average income per person is about 55 percent higher in HCMC than in Hanoi and the annual growth rate in HCMC is 11 percent compared to 7 percent for Hanoi, according to official statistics (Department of Planning and Investment of HCMC 2007, Hanoi Dept of Planning and Investment 2007).[3]

The grant financing this thesis constrains us to study one country only. Also, a wider focus seems outside the scope of a master's thesis. We have chosen Vietnam because the differences between its two geographical regions enable us to study – within one single country – how trust behavior is affected by underlying economic and political differences. More specifically, we will treat the two regions as differing regarding the degree of communism ideals vs. market integration and regarding level of economic development (GDP per capita). This setup enables us to investigate whether these two discrepancies are correlated with differences in people's trusting behavior. Since both populations are from the same country, we will avoid several causes of sample heterogeneity.

In order to improve our understanding of what is required to increase economic performance in the developing world; with this study *we aim to explore how trust behavior varies between northern and southern Vietnam*. We will study two components of trust behavior: *propensity to lie to strangers* and *propensity to trust strangers*. As part of this study, we will also look into the correlation between these two components of trust behavior. Propensity to lie, i.e.

---

[3] Income refer to nominal GDP per capita for 2004, growth rate refers to annualized change in GDP per capita between 2002 and 2004.

deception, is a relatively new field of research in behavioral economics, and we have not found much prior research on the link between it and other forms of trust behavior.

We hope this thesis will add to existing research in two ways. First, by providing additional insights into the interplay between *communism ideals/market integration* and *economic development* on one hand, and *trust behavior* on the other. Second, by exploring the interconnectedness between the behavioral concepts of *lying to strangers* and *trusting strangers*.

To realize this aim, we have performed economic experiments on site in both northern and southern Vietnam during the fall of 2006, which we will present in this thesis. It is structured as follows. Section 2 presents a theoretical and empirical background followed by section 3 where we treat experimental design. Section 4 reports the empirical findings and in section 5 we discuss our findings. Section 6 concludes.

2 Theoretical and empirical background

As stated in the introduction, the aim of this study is to explore *trust behavior*, and more specifically if it systematically *varies between northern and southern Vietnam.* This is done in order to improve our understanding of what is usually associated with higher economic performance in the developing world.[4] We will study two components of trust behavior: *propensity to lie to strangers* and *propensity to trust strangers*. Propensity to lie to strangers will be referred to as *deception* or simply lying. To understand propensity to trust strangers, we will explore the concepts of *trusting* and being *trustworthy*.

Deception, trusting and being trustworthy will be understood through the concepts of

1. *a consequentialist preferences for certain distributions* (feelings or *donation motives* that can be referred to as generosity[5] or, alternatively, selfishness[6]),
2. *a consequentialist preference for risk-taking,*
3. *a non-consequentialist[7] aversion to lying* and
4. *a non-consequentialist feeling of reciprocity* triggered by somebody else's generosity.

This thesis may be described as structured based on a method of *abductive reasoning*, where we try to find explanations to our empirical evidence. However, it takes a *deductive approach* initially since we, in this section, review the existing literature in the field in order to construct a preliminary theoretical framework for interpreting the empirical presentation. Based on the existing research, we will formulate four hypotheses to be tested. Three of the hypotheses refer to the proposed correlation between subjects' regional background and the dependent variables propensity to lie, trusting and trustworthiness; while the last hypothesis aims to assess the correlation between subjects' propensity to lie and their degree of trusting.

The independent variable "regional background" deserves some special attention. Our hypotheses are based on the notion that northern Vietnam differs from southern Vietnam in

---

[4] It is not obvious if trusting behavior in a society creates economic prosperity or if economic prosperity leads to more trust or if both are true. We therefore would like to point out that while our study is designed to measure trust and deception, it was not designed to infer causality from correlation.

[5] The terms generosity, kindness and altruism will be used interchangeably to denote a certain set of distributional preferences, even though altruism is sometimes used to refer to a stricter set of preferences.

[6] Both selfishness and self-interest will be used to refer to distributional preferences which are the opposite of altruistic.

[7] Consequentialist refers to the idea that only end-states are relevant, non-consequentialist to the belief that *how* allocations come about also matters. An article that explores this dichotomy is Sen (1997).

two important aspects: communist institutions are more widespread, with a corresponding lower degree of market integration, and income levels are lower in the northern part of the country. We argue that lower income levels result in more selfish behavior. This is derived from classical economic theory, which dictates that in a model with exogenous distributional preferences, the opportunity cost of generosity will be higher when income levels are low. That is, the utility of a certain selfish action will be higher if income levels are lower, assuming diminishing marginal utility of money and that monetary gains and costs are both fixed. Specific support for this principle applied to economic games can be derived from Henrich (2001), who shows – as a side effect – that proposers in ultimatum games[8] are usually less generous in poor small-scale agriculture and hunting societies than in industrial societies, even though rejection rates are generally very low. This would imply that selfish choices, i.e. decisions made on the basis of an individual's economic self-interest, should be more common in less affluent regions, within or between countries.

This theoretical overview will be based on microeconomic principles and game-theoretical findings. Another line of argument could be based on the macroeconomic and sociologic findings regarding trust and development referred to in the introduction. As we have seen, there is a widespread belief amongst researchers that trust contributes to development. Clearly, there are other influencing factors, but *ceteris paribus*, it seems reasonable that the lower degree of economic development in northern Vietnam would correspond to a lower level of trust. This correlation itself is not dependent on causality; it is simply an extrapolation of the observed correlation between trust and levels of economic development.

2.1 Deception as a function of self-interest and lying aversion

When discussing the concept of lying in this thesis, we will be referring to lies which are used instrumentally to benefit the liar financially, not white lies or lies with other intents. We use the same definition as Gneezy (2005), which is based on Vrij (2001): "A successful or unsuccessful deliberate attempt, without forewarning, to create in another a belief that the communicator considers to be untrue in order to increase the communicator's payoff at the expense of the other side."

---

[8] Like the dictator game mentioned earlier, but the receiver has the opportunity the reject the bid proposed by the sender, in which case neither receive anything.

As Gneezy models it, a person's decision whether to lie or not is influenced by his or her consequentialist preference for certain distributions (a person's beliefs about fair end-states) as well as a non-consequentialist aversion to lying (a person's belief that some end-states are not worth reaching if it involves lying). Liars also assume, correctly in most cases, that their lies will be successful. Gneezy models this into a cost of lying, which is driven by several context-dependent variables, such as own potential gains and the counterpart's potential losses. There also seem to be individual coefficients which affect a certain person's cost of lying: people have different distributional preferences and are more or less deception-avert.

According to the model, people lie more if the relative profits from lying increase. By definition, selfish people should be more sensitive to these profit increases (and also less sensitive to any resulting counterparty disutility). That means that a high prevalence of people who (for various reasons) make selfish choices is one enabling factor for deception, so selfish people would be more likely to lie, assuming the non-consequentialist aversion to lying were on average equally strong amongst both selfish and less selfish people. In a demographic group where selfish choices are more common – as would be the case in a less affluent region – the propensity to lie should be higher, and vice versa.

In the case of Vietnam, we forecast propensity to lie to be lower in the southern region, where average income levels are higher. This leads to our first hypothesis, about the linkage between deception and regional background:

H1: Propensity to lie is negatively correlated with having a southern background.

2.2 Trust as a function of self-interest and risk-taking

Trust in this thesis is measured using a *trust game*, as performed by Berg et al. (1995) and reproduced by Holm and Danielson (2005). The peculiars of the game will be discussed in more detail in the next section. For the following discussion, it is enough to know that the game consists of a sender who exhibits *trust* by sending money to a counterpart, and a receiver who exhibits *trustworthiness* by deciding whether to return some of that money.

The amount of money sent in the trust game is said to represent trusting. The sender's distributional preferences play a minor part, according to Holm and Danielson (2005) and Ashraf et al. (2006), in the decision about how much to send. They argue instead that the decision primarily shows the extent of trust manifested in choosing to *take a risk* and trust an

anonymous person. The risk consists of accurately predicting whether the counterparty's distributional preferences and reciprocity will cause him or her to return money.

However, in the Holm and Danielson trust game, both senders and receivers were assigned identical initial endowments, so even if senders had had a strong inequality aversion, they would not have sent a higher amount for that reason. In a trust game where only senders get an initial endowment, distributional preferences such as generosity should play a larger role. This is supported by a study performed by Ashraf et al. (2003), where it is argued that the amount of money sent in the trust game reflect altruistic giving. Ashraf et al. (2006) weakens the argument and states that "expectations of return account for most of the variance in trust, but unconditional kindness also matters".

In less affluent regions, where the opportunity cost of a choice promoting equality between the players is high, selfishness would be more common, as argued above. This would have two effects. Firstly, senders would be less generous. Secondly, an individual with rational expectations would be less likely to trust a person in such a region, since a prevalence of selfish distributional choices is one reason for a lower trustworthiness. Even without specific experience about how historical counterparties in the region have behaved; a person could form such a belief from his or her personality if it is true that "people tend to think that others are like them" (Ellingsen and Johannesson 2006). It might be true that people systematically overestimate the degree of similarity (Ross et al. 1977), but it is still rational to use information about one's own inclinations to infer the likely inclinations of others (Dawes 1989). This prediction is reinforced by a literature review by Camerer and Hogarth (1999). The majority of studies reviewed find that participants become more risk-avert when money becomes an issue.[9]

That implies that in poor regions, assuming other factors are held constant, general *thin trust*[10] in strangers can be assumed to be lower. Thus, trust behavior in an experimental setting would be weaker, both because of less generosity and more pessimistic expectations about others' generosity. This should apply equally to developing countries vs. developed countries, and

---

[9] Actually, the studies reviewed find that participants became more risk-avert if financial payoffs were introduced or increased, given a certain participant income. In real terms, the reaction should be similar if income decreased while payoffs were held fixed.

[10] *Thin trust* refers to trust between strangers, while *thicker trust* means trust between people who know each other well.

poorer vs. richer regions within a country. The differences in trust between developing and developed countries are confirmed by both social scientists such as Arrow (1972), economists such as Knack and Keefer (1997), as well as responses to survey questions about trust as performed by World Values Survey (Inglehart 1997) and by Holm and Danielson (2005). Based on this body of research, we argue that more trust will be exhibited in the more prosperous southern region.

This position is inconsistent with findings by Holm and Danielson (2005) and others which show that trust levels as exhibited in trust games tends to be similar between developing and developed countries. However, in our game, as opposed to theirs, the receiver does not get an initial endowment. That means that donation motives, i.e. generosity, could influence the decision more, and these should differ between the two regions as previously argued.

Another reason to expect a higher degree of trust in the more market-oriented southern part relates to findings by Tanaka et al. (2006), indicating that individuals who engage in trade are more trusting. This is also consistent with findings from Henrich et al. (2001) suggesting that market integration is correlated with fair sharing.

Therefore, we model trusting as a function of regional background, as we expect trusting to be positively correlated with being from the south:

H2: Trusting is positively correlated with having a southern background.

2.3 Trust as a function of propensity to lie

Since propensity to lie is a function of – among other things – distributional preferences and level of selfishness, if distributional preferences are correlated with trusting, propensity to lie and trusting should be correlated. A less generous individual would be more likely to lie and would also exhibit a different trust behavior than the average person.

Results from previous experiments are not consistent, though. Holm and Danielson (2005) found in their study that trust behavior was *not* markedly affected by distributional preferences. However, as stated above, distributional preferences should be more relevant in a game where the initial endowment for the receiver is zero. In fact, Cardenas and Carpenter (2005) describes several other experiments where it has been showed that senders who turn

out to be more selfish, as demonstrated in a dictator game,[11] send less in the trust games. One notable example is Ashraf et al. (2003) which shows that altruism is significantly correlated with trust. Also, it could be argued that a person who is more selfish than the average would have a more pessimistic view of other participants' distributional preferences, and therefore be less likely to invest in that person.

Therefore, we model trusting as a function of individual deceitfulness, as we expect trusting to be negatively correlated to propensity to lie:

H3: Trusting is negatively correlated with propensity to lie.

2.4 Trustworthiness as a function of self-interest and reciprocity

Exhibiting trust is a feature of the sending side, while the recipient side's behavior is referred to as *being trustworthy* or *trustworthiness*. It is defined as the act of returning money to the sender in the trust game. As noted above, this is explained either by generous distribution preferences (believing that the sender deserves a greater share) or a non-consequentialist preference for reciprocity (believing that the sender should be compensated for actively sharing). Both Holm and Danielson (2005) and Ashraf et al. (2006) argue that unconditional distributional preferences, as indicated by a dictator game, seem to be the more decisive factor. However, Holm and Danielson (2005) also finds reciprocity to be relatively more important in a developed country. Findings by Tanaka et al. (2006) suggest that individuals who engage in commerce return more in trust games, and since market integration is higher in the south, this also indicates that general levels of trustworthiness would be higher in the south.

Assuming that people show more generosity in the south as argued above, and assuming that reciprocity is a preference which is either stronger in the south or constant, having a southern regional background would supposedly be positively correlated with trustworthiness:

H4: Trustworthiness is positively correlated with having a southern background.

---

[11] A dictator game is a sender-receiver game where the sender chooses how much to keep and how much to send out of an initial endowment, while the receiver does not make any decisions.

3 Experimental Design

Experimental economics has become an important tool for understanding how individuals in developing countries make decisions. Cardenas and Carpenter (2005) provides an overview of how economic experiments have been used to understand various aspects of economic development, including testing "the degree to which institutions matter and whether institutions have the intended effects".

3.1 The Games

For the first part of our study we use a cheap talk[12] sender-receiver game used by Gneezy (2005) called a *deception game*. It is a two-player communication game where the sender has private information and the receiver is asked to take an action after being sent a message. The players are equally allocated into two groups with an aisle dividing the groups. Payoff is determined by the action chosen after the message is sent. Both participants are aware that two possible monetary distributions exist, A and B. Option A will result in the sender getting a payoff of 20,000 VND (Vietnamese dong) and the recipient getting 25,000 VND.[13] The payoffs are reversed for option B. This payoff structure is known only to the sender. He or she has to choose one of the following messages:

Message 1: "Option A will earn you more money than option B"
Message 2: "Option B will earn you more money than option A"

Message 1 is thus true and Message 2 is deceptive. The decision is communicated by filling out a decision sheet that is sent to the randomly chosen counterpart.[14] In the next round, that counterpart is asked to choose one of the options, being aware that the sender has made a choice between message 1 and 2, but not what the different options actually imply and thus whether the sender's message was true. Consequently, the sender chooses *whether to lie for personal gain or not*, while the receiver gets to evaluate the honesty of another person.

For the second part of the study we introduce another sender-receiver game: an *investment game/trust game* for the same participants in a two-player exchange. The pairs are randomly allocated again, but all senders still acts as senders. The new game setting is based on the

---

[12] Cheap talk refers to non-binding promises.
[13] 1 USD = 16,732 VND as of September 26, 2006 when the first experiment was performed.
[14] The pairs where chosen by the computer's random number generation functions.

original design by Berg et al. (1995) and reproduced in Holm and Danielson (2005) among others.

The sender is here given an initial endowment of 20,000 VND. This person is asked to decide to transfer "nothing, a fraction or all of that money", to the anonymous counterpart in the second group, the receiver. The amount transferred will be tripled before reaching the receiver, and both sides are informed of that. The receiver is then asked to transfer back nothing, a fraction or all of that money by filling in a new decision sheet. The amount transferred by the sender is seen as a measure of *trust* in the receiver and the amount returned by him or her is considered to be an indication of *trustworthiness*.

3.2 Subject pool and procedure

Many economic experiments rely on student populations, mainly since they are easily accessible and more homogenous than a group of random individuals. We eventually decided, for the same reasons, to use students in our experiments. The participants were 150 university

Figure 1: Map of Vietnam

students at the Thang Long University in Hanoi in the north of Vietnam and 120 students at the University of Technology in Ho Chi Minh City (HCMC) in the south of Vietnam (see *figure 1*). In Hanoi the student pool consisted of students from four different undergraduate majors: Mathematics and Informatics, Economics, Foreign Languages and others (e.g. Public Health). Almost all students were aged between 19 and 23 years. In HCMC, all students belonged to the School of Industrial Management but they were a mix of undergraduate and graduate (continued education following working experience) students[15]. The ages varied between 23 and 30 years old. In addition to major, data on gender and geographical background[16] were collected on decisions sheets. In the second experiment, data on age was also collected.

All participated voluntarily and were told that the experiments would take about 3 hours in total and that payments would be made according to their outcome of the games. In Hanoi, the

---

[15] The "graduate" level was referred to as "second bachelor degree", but we chose to designate it as graduate since that seemed to correspond more closely to the term as commonly used.
[16] The options were "Hanoi", "other North Vietnam", "HCMC" and "other South Vietnam". Population figures for major cities: Hanoi 3.1 million, HCMC 6.3 million, Haiphong (Other North) 1.1 million, Danang (Other North) 0.7 million, Can Tho (Other South) 1.1 million.

student union arranged for registration and the experiment was held after classes finished for the day. In HCMC we were given class-time from a professor at our disposal to perform the experiment. In addition, the students were told that their decisions would remain completely anonymous and that they would never find out about their two different counterparts in the two different games. They were asked not to talk during any time of the experiment and not to share decisions with any other participants. In Hanoi these instructions were communicated orally through an interpreter whereas in HCMC the students were given a page with general instructions, since an interpreter was not available. All instructions were given in Vietnamese, the participants' mother tongue.

The games consisted of three rounds, as illustrated in *figure 2*. In the first round, the sending side played the deception game, while the receiving side was asked to wait. In the second round, the receiving side played the deception game based on the input from the previous round, while the sending side continued with the trust game. In the third round, students of the sending side were asked to wait and the receiving side played the part of the trust game. Each round lasted 15 minutes and there were pauses of 10 minutes in between to allow the experimenters to prepare the decision sheets for the next round. The payments were made about 45 minutes after both games were completed. The subjects received two envelopes with VND notes[17], one for the trust game payoffs, one for the deception game payoffs.

Figure 2: Experimental timeline
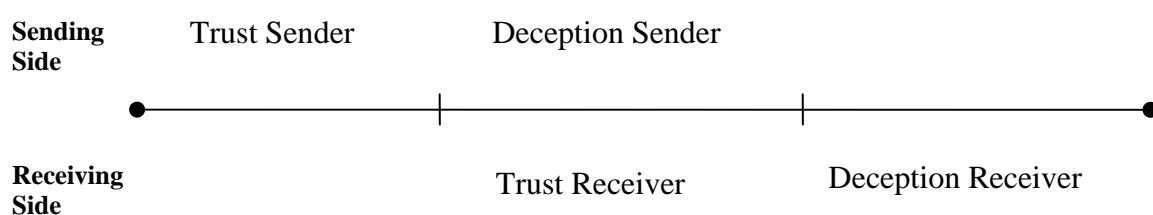
The decision sheets were translated from English into Vietnamese. The English versions can be found as *appendix I*, and the Vietnamese versions are freely available from the authors. The Vietnamese versions were cross-checked by translating them back into English, and this exercise did uncover one error in the decision sheet for receivers in the trust game. Unfortunately, this was not found and corrected before the first experiment had been conducted. Since the mistake was minor – it introduced some confusion, but was not directly

---

[17] About 10 subjects did receive some coins as well as the central bank decided to abolish 5000 VND notes prior to our second experiment.

misleading – we chose to use the corrected decision sheet for all subjects in HCMC, instead of keeping the incorrect version for comparison purposes. Trustworthiness results were on average rather similar between the experiments, which suggests that this flaw did not significantly affect responses.

An overview of the subjects can be found in *table 1*. A total of 75 pairs participated in the first experiment in the north and another 60 pairs in the second experiment in the south. One of the southern senders failed to state his/her regional background. Thus, there is only 134 data points with an urban/rural classification[18].

We use three independent binary variables to classify subjects: man/woman, rural/urban, north/south. Rural/urban refers to the subjects' upbringing, but north/south refers to where the experiment was conducted. We also collected data on a subject level on regional background which we are not using since all subjects in the northern experiments did grow up in the north, and all subjects but four in the southern experiments grew up in the south.

Table 1: Student pool

	All	North	South
Senders			
Men	78 (58%)	31 (41%)	47 (78%)
Women	57 (42%)	44 (59%)	13 (22%)
Rural	69 (51%)	29 (39%)	40 (68%)
Urban	65 (49%)	46 (61%)	19 (32%)
North	75 (56%)	75 (100%)	0 (0%)
South	60 (44%)	0 (0%)	60 (100%)
Receivers			
Men	59 (44%)	27 (36%)	32 (53%)
Women	76 (56%)	48 (64%)	28 (47%)
Rural	63 (47%)	31 (41%)	32 (53%)
Urban	72 (53%)	44 (59%)	28 (47%)
North	75 (56%)	75 (100%)	0 (0%)
South	60 (44%)	0 (0%)	60 (100%)
Total pairs	135	75	60

---

[18] Urban/rural classification was based on a survey question whether or not brought up in the two major cities in the north (Hanoi) or the south (HCMC), as described in note 16.

3.3 Design considerations

Our budgetary constraint for the study was USD 6 per pair, or roughly 90,000 VND, which we split evenly between the two games in order to avoid giving an impression to the participants that one game was more important than the other. The earning per pair for deception game was thus set to 45,000 VND (USD 2.7). We knew from Holm and Danielson (2005) that senders typically send slightly more than 50 percent of the endowment, and since the pay-off per pair increases if a larger amount is sent[19] we chose to err on the side of a high ratio in order to have a safety margin. When assuming 62.5 percent sent, the initial endowment corresponding to an average pay-off of 45,000 VND turned out to be 20,000 VND (USD 1.2).[20]

The size of endowments and estimated average pay-offs constitute important design choices. Even though we were not able to substantially increase the experimental budget, we wanted to validate that the payoffs were of the same order of magnitude as in other studies. We chose Gneezy (2005) and Holm and Danielson (2005) as benchmarks for the deception and the trust game, respectively.

The purpose of financial incentives is to offer the participant a utility increase if certain actions are taken. If we regard the desired purchasing power and resulting utility to the individual as fixed to benchmark levels, the endowment size would vary with price levels. We must take into account both absolute and relative differences in price levels. *Absolute* differences refer to the fact that *nominal prices* converted according to a nominal exchange rate differ between Vietnam and other countries.[21] *Relative* differences exist since average income levels also differ. The concept of Purchase Power Parity (PPP) adjusted GDP per capita captures differences in both nominal price levels and average income levels.

The nominal endowments used by Gneezy (2005) for a deception game in Israel were USD 11-20 per pair. When taking into consideration purchasing power – Israel's PPP-adjusted GDP per capita is 8 times higher than Vietnam's[22] – the corresponding figure becomes about

---

[19] The payoff *per pair* is (InitialEndowment–AmountSent)+3*AmountSent = InitialEndowment + 2*AmountSent. However the payoff for *an individual participant* need not increase as the amount sent increases.
[20] When substituting 62.5 % InitialEndowment as AmountSent in the equation above, solving for InitialEndowment yields 20,000.
[21] With the exception of goods which have international market prices, such as basic materials and other commodities.
[22] USD 21,981 in Israel vs USD 2,647 in Vietnam; 2003 data from Heston et al (2006).

USD 2 per pair for a comparable endowment in Vietnam, which is similar to the levels we chose. The Holm and Danielson (2005) trust game yielded an average nominal payoff of about USD 6 per pair in Tanzania and USD 44 per pair in Sweden, which would correspond to about USD 16 and USD 4 per pair, respectively, if PPP-adjusted to a Vietnam context.[23] The Tanzanian PPP-adjusted payoff is clearly higher than in our experiments, while the Swedish payoff is in line with the level we chose.

Since game behavior may be affected by the relative size of the incentives, our results cannot be directly compared to other studies.[24] However, the payoff levels chosen are still reasonably close to the ones used in other studies, meaning that our designated levels probably are feasible.

Since the experiments are devised to determine how the dependent variables (trusting behavior) change when one specific independent variable (regional belonging) change, it is important to avoid including other variables which are undesirable variation that may affect the dependent variable. Unless these variables either do not covariate with the independent variable, or are controlled for, they can bias the outcome of the experiments.

One partial solution is to make the subjects groups in the two experiments carried out in Hanoi and HCMC as similar to one another as possible. Both groups consisted entirely of Vietnamese university students pursuing theoretical degrees, most of them between 18 and 30 years of age. However, the individual subjects did differ on dimensions such as gender, geographic background and major. A complementary solution is to control statistically for certain variables. For the purpose of comparability, we collected data on gender, geographical background and major of study. Also, we collected data on age in the second experiment. In the first experiment, data on age was not collected, but we were provided with lists of all students and could therefore extract the mean age and standard deviation.[25]

---

[23] USD 991 in Tanzania, USD 27,473 in Sweden, USD 2,647 in Vietnam; 2003 data from Heston et al (2006)

[24] There are also other reasons why it is unwise to make such a comparison. These include differences in sample and game design. Nevertheless, our data is consistent with other studies, especially concerning deception. Gneezy (2005) reports exactly the same propensity to lie – 36 % – for Israeli students when the potential gains from lying equal about half a light lunch's worth of local consumption ($1 in Israel, 2500 VND in Vietnam) and the counterparty losses are of the same size.

[25] These lists identified the students by name and year of birth, but this personal data was not in any way matched with experimental data. The students were made aware of this.

There were some interesting and significant gender-related differences, which we will return to later in the analysis. Geographical background was used to derive urban vs. rural background, which we also discuss in the analysis. There were no significant differences between the majors, which may be partly due to small sample size for some majors. We did not collect data on family income, and therefore cannot control for it. While that would clearly have been interesting, it would have introduced a potentially sensitive element into the decision sheets.

4 Empirical findings

4.1 Descriptive statistics

An overview of the results from the experiments can be found in *table 2*.

Table 2: Descriptive statistics

	All	North	South
Senders			
Lied in deception game	35.6%	36.0%	35.0%
Amount sent in trust game[26]	60.4%	57.3%	64.2%
Receivers			
Believed sender in deception game	60.0%	60.0%	60.0%
Amount returned in trust game[27]	39.7%	38.1%	41.7%
Total pairs	135	75	60

Each of our four hypotheses is tested using its own regression. The dependent variables are *Lying* for H1, *AmountSent* for H2 and H3 and *RetInPercent* for H4, respectively. The independent variables used for all the regressions are *Gender*, *Rural/Urban* and *North/South*. For H4, we are using independent variables reflecting the recipient since trustworthiness is a feature of the receiving end in the trust game. For the other hypotheses, the independent variables reflect the senders' demographic data, since it is the sender who exhibits deceptive behavior and trusting in our games. Some of the regressions are constructed using additional independent variables. All variables are listed in *table 3*.

In previous studies on trust, e.g. Tanaka et al. (2006), a return on investment (ROI) measure is used to see whether trusting was the right decision for the sender. In order to allow for comparability, we have also included this measure, defined as the amount possessed by the sender at the end of the trust game in relation to the money originally sent by him or her,[28] although this result is not used to investigate our hypothesis. ROI is on average 25 percent for all subjects, indicating that trusting does pay off. This is similar to results from Tanaka et al. (2006).

---

[26] Share of sender's initial endowment, AmountSent / InitialEndowment.
[27] Share of amount received from the sender, Returned / AmountSent.
[28] ROI = (InitialEndowment – AmountSent + Returned) / AmountSent.

Table 3: List of variables

Variable	Description	Values
Lying	Dummy	True message=0, Deceptive message=1
AmountSent	Initial endowment sent	0, 5,000, 10,000, 15,000 or 20,000 VND
RetInPercent	Percentage returned	0 – 100
Gender	Dummy	Man=0, Woman=1
Rural/Urban	Dummy	Rural=0, Urban=1
North/South	Dummy	Hanoi treatment=0, HCMC treatment=1
Gender*North/South	Interaction	Southern females=1, all other=0
AmountSent*North/South	Interaction	0-20,000 for south, 0 for north

4.2 Hypothesis test: deception

The sender's decision whether to send a deceptive or non-deceptive message in the deception game is used as the proxy for his or her propensity to lie. On average, 35.6 percent of the senders choose to lie, and as *table 2* tells us, the difference between northern senders and southern senders is very small. Therefore, we cannot reject the null hypothesis that the propensity to lie is not correlated with having a southern background.

To formally test *H1*, that *propensity to lie is negatively correlated with having a southern background*, and to look for other explanatory variables, we run a regression. We have chosen a logit model, based on the non-linear logistical curve, which is more realistic for binary dependent variable such as *Lying* than an ordinary linear model. We estimate the logit function as:

$$L_i = \log(P_i/(1 - P_i)) = \alpha + \beta_k X_{ki}$$

where

α Constant for the regression. e^{α} would be the odds ratio if all the explanatory variables were zero for a specific individual.

β_k Coefficient for explanatory variable k

X_{ki} Actual data for individual i, explanatory variable k

P_i The predicted probability that individual i lies.

$P_i/(1-P_i)$ Odds ratio for individual i, a higher ratio means a higher probability of lying

We use maximum likelihood estimation in order to get consistent estimates of the coefficients. The results of the model estimations are shown in *table 4* below.

Table 4: Regression on deception (Logit Model)

Dependent variable: Lying

Variable		All	North	South
Gender	Odds ratio (95% C.I.)	1.104 (0.51-2.38)	1.683 (0.63-4.50)	0.495 (0.11-2.07)
	t	0.253	1.038	-0.962
	p-value	0.800	0.299	0.336
Rural/Urban	Odds ratio (95% C.I.)	0.840 (0.40-1.76)	0.896 (0.34-2.37)	0.877 (0.27-2.86)
	T	-0.463	-0.220	-0.217
	p-value	0.643	0.826	0.828
North/South	Odds ratio (95% C.I.)	0.943 (0.43-2.09)	-	-
	t	-0.144	-	-
	p-value	0.885	-	-
Log Likelihood Value		175.435	96.837	76.555
McFadden Pseudo R^2		0.002	0.012	0.015
Observations		135	75	60

As already established, the hypothesis that people with a southern background have a lower propensity to lie is not supported. In fact, none of the independent variables seem to have an effect on the propensity to lie as no coefficients are significant. A pseudo R^2 is calculated indicating a very low model fit.

It is noteworthy that even though the odds ratio for *Gender* for all subjects together is close to 1.0, odds ratios for the two experiments separately deviate from 1.0 in different directions. In the north, a woman seems more likely than a man to lie,[29] while the opposite is true for the south.[30] When including *Gender * North/South* as an interaction variable in the regression for all data points, we do find some tendencies that the combination of gender and region is interesting. The new interaction variable has a lower p-value than any of the other independent variables, but at 0.16 it is still not significant.

Our main conclusions are that the results indicate that lying aversion is relatively constant and not dependent on gender or background. However, we do note that there seem to be a tendency for gender-influence on propensity to lie to differ between the two regions.

---

[29] If we compare men and women who grow up in Hanoi, that difference in propensity to lie is significant at the 10% level, but women's propensity to lie is similar for the whole northern region.

[30] Women seem to lie less than men in the experiment in the south, but the sample size there is quite small.

4.3 Hypothesis test: Trust and its link to deception

The absolute amount in VND sent in the trust game, *AmountSent,* is used as a proxy for measuring levels of trust. The average amount sent for all subjects is 12,074 VND, i.e. 60.4 percent of the sender's initial endowment of 20,000 VND. The median is 10,000 VND.

We will test both *H2,* that *trusting is positively correlated with having a southern background, and H3, that trusting is negatively correlated with propensity to lie,* with a single regression. This time we use a linear regression with the absolute amount sent as the dependent variable. The function used is:

$$AmountSent_i = \alpha_i + \beta_{Lying}\ Lying_i + \beta_{Gender}\ Gender_i +$$
$$\beta_{RuralUrban}\ RuralUrban_i + \beta_{NorthSouth}\ NorthSouth + v_i$$

Table 5: Regression on trust (linear regression)

Dependent variable: AmountSent

Variable		All	North	South
Constant	α	14,265	14,156	14,545
	t	11.647	10.099	11.445
	p-value	0.000	0.000	0.000
Lying	β	-514	612	-1,624
	t	-0.475	0.445	-0.921
	p-value	0.636	0.657	0.361
Gender	β	* -1,899	** -2,903	-286
	t	-1.679	-2.167	-0.139
	p-value	0.095	0.034	0.890
Rural/Urban	β	** -2,445	-1,967	* -3,416
	t	-2.251	-1.462	-1.880
	p-value	0.026	0.148	0.065
North/South	β	-66	-	-
	t	-0.057	-	-
	p-value	0.955	-	-
Adjusted R^2		0.043	0.046	0.023
Observations		135	75	60

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

We are again unable to reject the null hypothesis: there is no support for a correlation between north/south background and trusting, neither for a correlation between lying and trusting. Thus, we cannot validate either H2 or H3.

Our findings thus provide no support for a correlation between lying and trusting; liars and non-liars send the same amount on average in the trust game. This is true both on a general level and for subsets of the data. For example, students with a rural background exhibit significantly more trust than urban people, but the prevalence of liars in the rural subset is similar to the urban subset, as discussed previously.

However, there are some interesting correlations between some of the other independent variables and trusting. *Gender* is significant at the 10 percent level and women are predicted by the model to send about 1,900 VND less on average. The results are even stronger if we regard the north only, where the prediction, at 5 percent significance, is that women send about 2,900 VND less. In the south, there are no noticeable gender differences in trust. However, an interaction between *Gender* and *North/South* does not confirm any significant variation in gender differences between the regions (p-value 0.284). There is a tendency that females in the south send more than females in the north, but there are too few female senders in the south to allow for any conclusions. However, men in the north and men in the south send virtually identical amounts on average. Thus, the data seems to indicate that most of the north/south difference in gender-driven behavior is related to female subjects' behavior.

We also note that a rural background is positively correlated with strong trust behavior. For all combinations of *North/South* and *Gender*, a student with rural background will exhibit more trust than a student with urban background. The average rural student sends 13,260 VND, which is to be compared with 10,700 VND for a student from the major cities, out of the initial endowment of 20,000 VND. *Rural/urban* is significant for the total sample at the 5-percent level. The difference between urban and rural subjects in the south seems bigger than the corresponding difference in the north, but the p-values for both individual experiments when we stratify by *North/South* increase compared to the total sample.

4.4 Hypothesis test: Trustworthiness

The share returned by the receiver in the trust game, *RetInPercent*, is used as a proxy for trustworthiness. The average percentage returned for all receivers is 39.7 percent, with the median being 33.3 percent. In absolute terms, the average amount returned is 14,556 VND (out of the amount received, which is the range 0 – 60,000 VND). The median amount returned in absolute terms is 10,000 VND.

To test *H4*, that *trustworthiness is positively correlated with having a southern background,* we run a linear regression with *RetInPercent* as dependent variable. The function we use is:

$$RetInPercent_i = \alpha_i + \beta_{AmountSent}AmountSent_i + \beta_{AmountSentSqr}AmountSent_i^2 + \beta_{Gender}Gender_i + \beta_{RuralUrban}RuralUrban_i + \beta_{NorthSouth}NorthSouth_i + v_i$$

We chose to include *AmountSent* squared since visual inspection of *graph 1* suggested that would capture the trend better. Observations with *AmountSent = 0* was filtered out before the regression was run, since the receiver has no options when he or she receives nil. Thus, we cannot assess his or her trustworthiness in those cases.

Table 7: Regression on trustworthiness (linear regression)

Dependent variable: RetInPercent				
Variable		**All**	**North**	**South**
Constant	α	77.980	102.915	48.029
	t	6.170	6.046	2.597
	p-value	0.000	0.000	0.012
AmountSent	β	** -0.005	*** -0.008	-0.001
	t	-2.325	-2.884	-0.169
	p-value	0.022	0.005	0.867
AmountSent^2	β	** 0.000	** 0.000	0.000
	t	2.120	2.537	0.222
	p-value	0.036	0.014	0.826
Gender	β	*** -12.367	*** -15.525	-7.092
	t	-3.049	-2.751	-1.209
	p-value	0.003	0.008	0.232
Rural/Urban	β	-1.307	-5.652	1.348
	t	-0.328	-1.001	0.232
	p-value	0.744	0.321	0.818
North/South	β	1.813	-	-
	t	0.442	-	-
	p-value	0.659	-	-
Adjusted R^2		0.10	0.21	-0.04
Observations		129	72	57

*** Significant at the 1% level

** Significant at the 5% level

* Significant at the 10% level

The results in *table 7* shows that we cannot reject the null hypothesis that subjects with a southern background return, on average, as much as subjects with a northern background.

However, two independent variables are significantly correlated with trustworthiness in the northern experiment. The first one is *Gender*. On an aggregated level, there is a highly significant difference between men who return 48 percent on average and women who return 33 percent. Male students with a northern background returned 52 percent compared to their female counterparts who returned 31 percent, a difference which is also highly significant. The pattern is similar in the south, although not significant (males 46 percent vs. females 37 percent). To assess whether the gender difference varies significantly between the regions, we ran the above regression again, this time including an interaction between *Gender* and *North/South*. The interaction coefficient has a positive sign and suggests that gender differences are larger in the north, but with a p-value of 0.175, it is not significant.

The gender difference actually accounts for the small difference we do observe between the two regions. The slightly higher share returned in the south is primarily due to the gender mix: the majority of receivers were females in the first experiment in the north, and there are a few more male receivers in the second experiment in the south. Since females return considerably less, the more female-dominated north returned slightly less on average.

The second significant independent variable is *AmountSent*, which is significantly correlated with *RetInPercent* for northern subjects and for the population as a whole. The correlation is *negative*, meaning that the greater the amount sent in absolute terms, the smaller portion returned. The results also indicate a *positive* correlation between *AmountSent squared* and *RetInPercent*. Since a squared variable increase faster than the underlying variable itself, the correlation should be more pronounced for amounts at the upper end of the spectrum. This would indicate that there is a positive correlation between *AmountSent* and *RetInPercent* for *high* amounts, but a negative correlation for *lower* amounts sent. *Graph 1* visually confirms this and shows us that the mode *RetInPercent* diminishes as *AmountSent* increases, except for *AmountSent* = 100 percent where *RetInPercent* increases again. The trend line is modeled from the polynomial function above, holding *Gender*, *Rural/Urban* and *North/South* constant at their weighted average values.

Graph 1: Returned share as a function of fraction of endowment sent
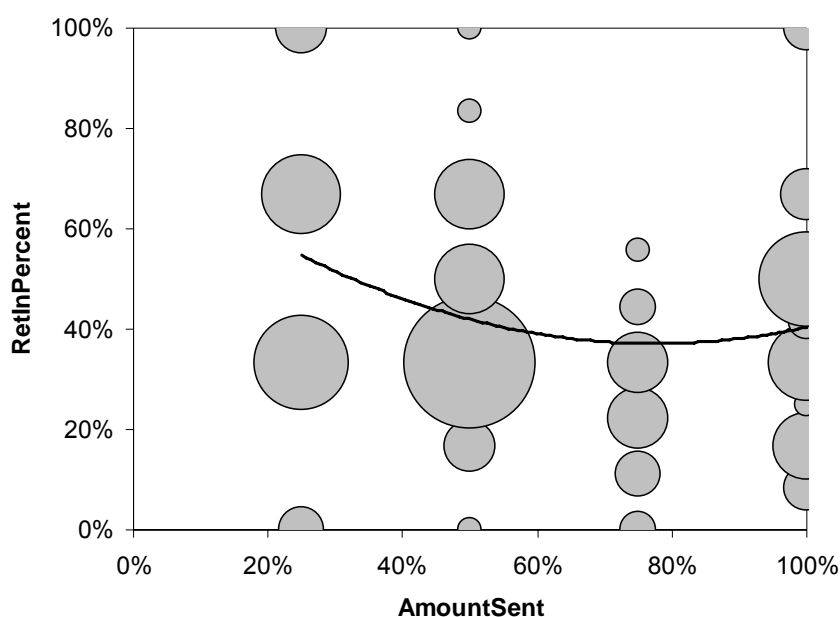
In order to better understand *regional differences* in the correlation between *AmountSent* and *RetInPercent,* we ran another regression including an interaction between *AmountSent* and *North/South.* The interaction variable is significant with a positive sign and a p-value of 0.066.[31] When stratified by *North/South* as shown in *table 7*, the negative and significant linear correlation between *AmountSent* and *RetInPercent* is confirmed to exist only in the north. This implies that *RetInPercent* decreases as *AmountSent* increases. This means that amounts returned in *absolute* terms might be constant as *AmountSent* increases.[32] In the south, no correlation can be found, which means that as *AmountSent* increases, the amount returned in *absolute* terms will be correspondingly higher since *RetInPercent* is held as constant.

---

[31] In this regression, the *AmountSent^2* was not included.
[32] They could also decrease or even increase, but more slowly, depending on the strength of the correlation.

5 Discussion

In this section, we will focus on our initial hypotheses regarding the correlations between regional background and deception, trust and trustworthiness, respectively; as well as the correlation between trust and propensity to lie. We also discuss the potential gender difference between north and south as a result of our study.

5.1 Understanding deception as a function of lying aversion

We find no support for our hypothesis that people from the less affluent northern region with more incorporated communistic ideals would lie to a greater extent.[33] This hypothesis was based on the negative correlation between absolute income levels and the opportunity cost of generosity, based on the proven assumption of diminishing marginal utility of extra income.[34] We thus anticipated that less generous senders would be more prevalent in a more poor setting, and since propensity to lie is partly driven by a selfish desire to benefit at the expense of somebody else, there would be a higher fraction of lies in a poorer region.

One possible explanation for the empirical observations could be that the decision to lie is driven less by calculated selfishness and more by a general and constant non-consequentialist lying aversion. Findings by Gneezy (2005) portray this aversion as present in all deception decisions, no matter what a potential weighted cost-benefit analysis of the opportunity to lie would have yielded. If this constant aversion was relatively large, the cost of lying would be more or less constant unless the possible gains of lying relative to income were major (which is not the case in our study).

This lying aversion seems related to concepts used by Rabin (1994) and Konow (2000) in their discussions of norm preferences and the utility individuals derive from following a certain norm, or rule of behavior. They also mention the concept of *cognitive dissonance*, which refers to the disutility experienced when deviating from behavior viewed as correct in society. A person with a high dissonance sensitivity and with a high cost of self-deception, which would prevent him or her from changing beliefs about what is correct behavior, would typically abstain from actions viewed as normatively incorrect, e.g. lying. Dissonance sensitivity and cost of self-deception seem not to vary with income levels.

---

[33] Also, we find no evidence that a "rural" upbringing, i.e. outside the two major cities, increases the propensity to lie, even though income levels outside the major cities would typically be lower (average income levels are several times higher in the two major cities than for the country as a whole, see note 35 for more details).

[34] This is a classical proposition in economics.

In addition, the lack of a difference in deception between north and south could possibly be explained by communism's offsetting effect. A society with more incorporated communistic ideals should imply a stronger sense of collectivism, thus reducing the degree of selfishness and likewise the propensity to lie. Results by Tanaka et al. (2006) are in line with this argument and claims that the effects of stronger communism in the north are significant, as subjects return larger amounts in a trust game and thus prove less selfish.[35]

Another explanation is due to an entirely different model of lying. Hurkens and Kartik (2006) has an alternative view based on a hypothesis that some "ethical" people *never* lie, while some "economic" people *always* lie as long as they benefit from doing so (that is, they prefer the outcome obtained by lying over the outcome obtained by telling the truth). For the latter group, own gains and counterparty losses do not influence the decision to lie as long as the benefits outweigh their opportunity cost. Hurkens and Kartik find that they cannot statistically reject this hypothesis, even though their analysis of Gneezy's data suggests counterparty losses do matter. Our findings do not contradict Hurkens and Kartik's outcomes, assuming that the proportion of "ethical" and "economic" types are constant between the regions.

5.2 Understanding trust as a function of risk-taking

Contrary to our hypothesis, average trust behavior is fairly similar between the regions. Our results are in line with the results of Bellemare and Kröger (2003) and Fehr et al. (2003) where it found that relative income does not seem to be a significant determinant of the behavior of adult age groups in a trust game. In our study, it seems to be true when income differences are 55 percent, as in our case, but it also holds for the games performed by Holm and Danielson (2005) in Tanzania and Sweden where the differences in GDP per capita is almost 30 times. However, they do find that *survey responses* indicate that people trust strangers less in developing countries. One reason for this discrepancy, according to them, is that survey questions measure *thin trust* toward anonymous strangers, while the games measure *thicker trust* towards people who might be strangers but still are the same age cohort and go to the same university.

---

[35] Tanaka's results could also be explained by feelings of non-consequentalist reciprocity being stronger in the north, even though this seems less intuitive.

So if income and generosity is correlated, and trust game partly measures generosity, why is trust not affected by income? The reason might be, as argued by Holm and Danielson (2005) and Ashraf et al. (2006), that trust games reflect risk-taking more than generosity. If so, any potential regional-dependent selfishness does not influence the trust game outcome, meaning that the neutral outcome rather proves that *risk-taking behavior* does not differ between the two regions.

Our empirical findings show that men on average exhibit more trust than women. If we disregard selfish distributional preferences as an explanation, exhibiting trust can be seen as the process of taking a risk which can result in a higher or lower payoff compared to a situation where no risk is taken, and where that outcome is outside the control of the person exhibiting trust. We know from the literature, for example Croson and Gneezy (2004), that women generally are more risk averse and specifically send lower amounts in trust games (Dreber 2006). The results from trust game studies vary. Dreber (2006) refers to some studies that find no gender differences, as well as others that claim that women tend to be less trusting. Our study is in line with this finding as men send significantly more than women. A weaker, or non-existing, gender effect than in other studies would have been surprising, assuming a similar global biological setup and considering the more conservative gender roles in Vietnamese society.

Our findings also suggest that people with a rural background exhibit stronger trust. A rural background would have two implications: first, an upbringing outside the two major cities would, everything else held constant, imply lower aggregated income levels in society,[36] with a correlated lower level of general trust but with an insignificant difference in trust behavior as demonstrated in the games. A stronger effect is generated by the increased likelihood that the person would have grown up in a smaller community where trust reasonably can be assumed to be *thicker*, since anonymity is less widespread and strangers less prevalent. This would manifest itself in a more trusting behavior. This could be seen as a parallel to the findings in Burks (2003), which showed that trust is stronger when the participants belong to a smaller community.

---

[36] Income in the major cities is significantly higher than in the Vietnamese countryside, when the vast majority are self-sufficient farmers or agricultural workers. When comparing country data from General Statistics Office of Vietnam (2007) with city data from Department of Planning and Investment of HCMC (2007) and Hanoi Dept of Planning and Investment (2007), HCMC and Hanoi GDP per capita turns out to be 2-3 higher than average figures for the country.

5.3 Understanding trust as uncorrelated with propensity to lie

This absence of a correlation between lying and trusting is consistent with the argument that deception and trusting have different drivers: lying aversion can be modeled as having a constant intrinsic cost, while trusting could be seen as driven mainly by attitudes towards risk. If the drivers are different, it would be natural that the exhibited behaviors are not correlated.

In retrospect, it might have been more interesting to make the trust receivers act as senders in the deception game, since both trustworthiness and propensity to lie are thought of as functions of distributional preferences and propensity to make selfish choices. In our games as conducted, trust receivers has a receiving role in the deception game as well, meaning that we are unable to draw any conclusions about a certain individual's behavior.[37]

5.4 Understanding trustworthiness as a function of reciprocity

Our findings lend no support to the theory about a correlation between regional background and trustworthiness. In the Tanaka et al. (2006) study, as previously mentioned, villagers in the south returned a share which was significantly lower than in the north. They attribute this difference to communism's stronger presence amongst the subjects in the north. This may be less noticeable amongst young students, which would explain why our results differ.

We do find some regional differences regarding the correlation between *AmountSent* and *RetInPercent*, which could be interpreted as suggesting that reciprocity is stronger in the south. As discussed by Berg et al (1995), as well as Fehr and Gächter (2000), reciprocity implies that the share returned should be similar or higher for participants who receive larger amounts of money. However, Holm and Danielson (2005) show that in a low-income country, the share returned was not positively correlated with the amount sent. There was even a significant negative correlation when donation motives were controlled for. Our findings are consistent with this pattern: in the north, the correlation is negative and significant. This could be explained by the fact that the opportunity cost in absolute terms of returning a certain share increases when higher amounts are sent, and this effect is more noticeable in a relatively poor setting. In effect, this cancels out any reciprocity effect.

---

[37] Even if we cannot compare certain individuals' behavior when looking for a pattern, we can look at means for various demographic groups, e.g. individuals with a certain gender and north/south belonging. This clearly cannot offer anything except very tentative insights, but it does suggest that there is a negative correlation between deception behavior and level of trustworthiness as indicated by the signs of the independent variables. Women in the south seem to lie less than women in the north (different signs), while women in the north seem less trustworthy than women in the south (much lower coefficients).

When the game was performed in a country with higher income levels, the authors did detect significant reciprocity effects. Our findings tentatively point in the same direction: even though subjects in the more affluent south may return no more on average than a person in the north, the reciprocity effect seems stronger there since amount returned in absolute terms increases along with the amount received.

5.5 Gender differences between north and south

Since there is a growing literature on gender in economic experiments[38] we choose to test for gender differences in deception, trust and trustworthiness. As discussed previously, we have studied the interaction between the *Gender* and *North/South* independent variables. The interactions suggest that there are gender differences and that they manifest themselves differently in the north compared to the south.

First, region and gender interact when it comes to propensity to lie. There are as many male liars as there are female liars overall, but there is a tendency that women lie more than men do in the north. The same difference was not found in the south. This contradicts a study by Dreber (2006) and an article by Eckel and Grossman (1998) that claims that women tend to behave less selfish. If that was true, women would have a higher cost of lying, since they would be more sensitive to the cost they are imposing on their counterpart. Factors which could overcome this supposed altruism could include gender roles in northern Vietnam. This would be an interesting subject for future research.

Second, there is also an interaction between region and gender when it comes to trusting. In the south, gender differences in degrees of trust are very small, while there is a significant difference in trust levels between men and women in the north. Tanaka et al. (2006) also find that the gender differences in trust are larger in the north. We argued in the empirical findings section that most of the regional difference in gender-driven behavior seems to be related to female participants' behavior. Women's greater risk aversion, as reported by Croson and Gneezy (2004), again seem to be more pronounced in the north.

Third, region and gender interact even regarding trustworthiness. Croson and Buchan (1999) and Buchan et al. (2004) show that women return a larger share of the money they have,

---

[38] See Croson and Gneezy (2004) for an overview.

which is usually explained with women being more altruistic and/or having a stronger inequality aversion. Our findings contradict this, and are consistent with Tanaka et al. (2006) in this respect: men return significantly more than women in the north, but the difference is much smaller and not significant in the south.

To summarize our findings on gender, the interaction between *Gender* and *North/South* is significant or nearly significant for both deception and trust behavior: women in the northern experiment seem to lie to a greater extent, they exhibit less trust than men and they return less in the trust game. The lower levels of trust could be explained by a lower level of risk-taking, which is consistent with previous studies. The potentially more deceitful behavior and the observed lower trustworthiness could indicate that women in the north typically make less generous and more self-interested choices. In the south gender differences in behavior are minor, both regarding trust, trustworthiness and deception, and by implication, the underlying factors.

6 Conclusions

This thesis has aimed to *explore how trust behavior varies between northern and southern Vietnam*, in order to learn more about ways to increase economic performance in the developing world. We have tested if *deception*, *trust* and *trustworthiness* vary between the two regions. We also tested for a correlation between deception and trust. We cannot reject the null hypotheses that there are no correlations in any of the four proposed cases. In theory, there might be differences which would be significant with a larger sample (absence of proof is not synonymous with proof of absence). However, while we in no way *prove* that trust behavior is constant between the regions, our empirical findings do seem to suggest that levels of trust, trustworthiness and deception are indeed similar.

We will review our hypotheses one by one. First, propensity to lie seems not to vary between the regions. If that is true, deception patterns appears to be less influenced by the extent of relative personal gain than we hypothesized. This could be explained by a constant lying aversion influencing the decision more than a relatively minor difference in self-interest between the regions, or alternatively that every individual is either 'ethical' or 'economical' and that these proportions do not vary between regions. Second, trust does not seem to vary between the regions. This finding is in line with several previous articles. Possible explanations include the argument that trust games do not really measure *thin trust*, and that it measures risk-taking more than generosity and risk-taking is not correlated with income. Third, we find no evidence that trust is correlated with propensity to lie, which is consistent with attempts to model trust and deception based on different determinants. Fourth, trustworthiness seems similar between the regions. This is not consistent with all previous research. However, we find reciprocal behavior to be stronger in the south, which is in line with previous studies. Finally, our findings suggest that there are gender differences in deception, trust and trustworthiness; but these are present mainly in northern Vietnam.

As has been robustly established elsewhere, there is a strong correlation between economic development and trust as defined by social scientists and as reported in surveys. However, as proved in our study and by previous research, there is no clear correlation between economic development and trust as measured in trust games. We expect future research to address this discrepancy more thoroughly, possibly by inventing other types of games which more closely mimic thin trust as used outside of experimental economics.

7 References

Alston, L. J. et al (1996). *Empirical Studies in Institutional Change.* New York and Cambridge: Cambridge University Press.

Arrow, K. (1972). "Gifts and exchanges", *Philosophy and Public Affairs*. 1.

Ashraf, N., Bohnet, I. and Piankov, N. (2003). *Decomposing trust.* Working Paper, Kennedy School of Government, Harvard University.

Ashraf, N., Bohnet, I. and Piankov, N. (2006). "Decomposing trust and trustworthiness." *Experimental Economics*. 3, 193-208.

Bates, R. H. (1989). *Beyond the Miracle of the Market. The Political Economy of Agrarian Development in Kenya*. New York and Cambridge: Cambridge University Press.

Bellemare, C. and Kröger, S. (2003). *On Representative Trust.* Working Paper, Tilburg University.

Berg, J., Dickhaut, J., and McCabe, K. (1995). "Trust, Reciprocity, and Social History." *Games and Economic Behavior.* 10, 122-142.

Buchan, N., Croson, R. and Solnick, S. (2004). *Trust and Gender: An Examination of Behavior, Biases, and Beliefs in the Investment Game*. Working Paper, University of Pennsylvania.

Burks, S. V., Carpenter, J. P. and Verhoogen, E. (2003). "Playing both roles in the trust game". *Journal of Economic Behavior and Organization.* 51, 195-216.

Camerer, C. (2003). *Behavioral Game Theory: Experiments in Strategic Interaction.* Princeton: Princeton University Press.

Camerer, C. and Hogarth, R. M (1999). "The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework", *Journal of Risk and Uncertainty.* 19, pp. 7-42

Cardenas, J. C. and Carpenter, J. P. (2005). *Experiments and Economic Development: Lessons from Field Labs in the Developing World.* Economics Discussion Paper no. 05-05, Middlebury College.

Croson, R. and Buchan, N. (1999). "Gender and culture: international experimental evidence from trust games". *American Economic Review*. 89 (2).

Croson, R. and Gneezy, U. (2004). *Gender Differences in Preferences: A Review of Economics Experiments.* Working Paper, The Wharton School, University of Pennsylvania.

Dawes, R. M. (1989). "Statistical criteria for establishing a truly false consensus effect". *Journal of Experimental Social Psychology.* 25, 1-17.

Department of Planning and Investment of HCMC (2007). *HCMC – Macro Economics.* Available [online]: http://www.dpi.hochiminhcity.gov.vn/invest/html/eco1.html [January 25, 2007].

Dreber, A. (2006). "Trust me, I'm a Woman." Unpublished paper, Stockholm School of Economics.

Ellingsen, T. and Johannesson, M. (2004). "Promises, threats and fairness", *Economic Journal*, 114, p. 495.

Ellingsen, T. and Johannesson, M. (2006). "Pride and Prejudice: The Human Side of Incentive Theory". Center for Economic Policy Research, Discussion Paper No. 5768.

Eckel, C. and Grossman, P. J. (1998). "Are women less selfish than men? Evidence from dictator experiments." *Economic Journal*. 108, pp. 726-735.

Fehr, E. et al (2003). A Nation-Wide Laboratory: Examining Trust and Trustworthiness by Integrating Behavioral Experiments into Representative Surveys. Institute for the Study of Labor (IZA). Discussion paper.

Fehr, E. and Gächter, S. (2000). "Fairness and Retaliation: The Economics of Reciprocity", *Journal of Economic Perspectives*, 14, pp. 159-181.

General Statistics Office of Vietnam (2007). *Key indicators on National Accounts*.
Available [online]:
http://www.gso.gov.vn/default_en.aspx?tabid=468&idmid=3&ItemID=4740 [Jan 25, 2007].

Gneezy, U. (2005). "Deception: the role of consequences." *American Economic Review*. 95, pp. 384-394.

Hanoi Dept of Planning and Investment (2007). E-mail correspondence with Minh Anh Thi Luong at the Central Institute for Economic Management within the Ministry of Planning and Investment, Vietnam. [January 21, 2007].

Harriss et al (1995). *The New Institutional Economics and Third World Development*, London: Routledge.

Henrich, J. et al. (2001). *'Economic Man' in Cross-cultural Perspective: Behavioral Experiments in 15 Small-Scale Societies*. Working Paper no. 01-11-063, Santa Fe Institute.

Heston, A. et al. (2006). *Penn World Table Version 6.2*. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

Holm, H. J. and Danielson, A. (2005). "Tropic Trust Versus Nordic Trust: Experimental Evidence from Tanzania and Sweden." *Economic Journal*. 115(503), pp. 505-32.

Inglehart, R. (1999). "Trust, well-being and democracy." In Warren, M. (ed.), *Democracy and Trust*. New York and Cambridge: Cambridge University Press.

Knack, S. and Keefer, P. (1997). "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics*. 112(4), pp. 1251-88.

Konow, J. (2000). "Fair shares: Accountability and Cognitive Dissonance in Allocation Decisions", *American Economic Review*. 90(4), pp 1072-1091.

North, D. C. (1990). *Institutions, Institutional Change and Economic Performance.* New York and Cambridge: Cambridge University Press.

North, D. C. (1991). "Institutions", *The Journal of Economic Perspectives*, 5(1).

Platteau, J. P. (1994). "Behind the Market Stage Where Real Societies Exist – Part II: The Role of Moral Norms". *The Journal of Development Studies*. 30 (3).

Putnam, R. D. (2001). *Bowling alone. The collapse and revival of the American community.* New York, NY: Simon & Schuster.

Rabin, M. (1994), "Cognitive dissonance and social change", *Journal of Economic Behavior & Organization.* 23, pp 177-194.

Ross, L., Greene, D. and House, P. (1977): "The 'false-consensus' effect: An egocentric bias in social perception and attribution processes", *Journal of Experimental Social Psychology.* 13, pp. 279–301.

Sen, A. (1997). "Maximization and the Act of Choice", *Econometrica*, 65 (4), pp. 745-779.

Tanaka, T. et al. (2006). *Preferences, poverty and politics: Experimental and survey data from Vietnam.* Working Paper, California Institute of Technology.

Vrij, A. (2001). *Detecting Lies and Decit*. New York: Wiley.

Appendix I – instructions as distributed to the players

Experiment 1 [for sending side]

Dear participant,

Thank you for participating in these two experiments in decision-making. This is the first of the two experiments today.

The instructions you are about to read are self-explanatory. We will not answer any questions during this experiment. If you have any questions, you should read back through these instructions. Now that the experiment has begun, we ask that you do not talk, at all, during this experiment. Since your decision is private we also ask that you do not tell anyone your decision either during or after the experiment.

You will have 15 minutes to read these instructions and make your choice. After 15 minutes, this sheet will be collected and this experiment will be over. We will then give you further instructions verbally. Until you receive further instructions, please stay seated and do not speak.

In this experiment, you will be paired with another participant who is in another section of the room. Neither of you will know the identity of the other, not even after the experiment. You will notice that there are other people in the same section with you who are also participating in this experiment. You will not be paired with any of these people.

During the experiments you will earn real money that will be paid to you, privately and in cash, in this room after the experiments are over. The payment will be in dong. In front of you, you will find a sheet with your seat number. Please keep this sheet after you leave the room. This is your ID number. You will need it to receive your payment. You will receive your money in two envelopes. No other participants will know how much you receive.

Two possible monetary payments are available to you and your counterpart in this experiment. The two payment options are:

Option A: 20,000 dong to you and 25,000 to the other participant

Option B: 25,000 dong to you and 20,000 to the other participant

The choice rests with your counterpart who will have to choose either option A or option B. The only information he or she will have is information sent by you in a message. That is, he or she will not know the monetary payments associated with each choice.

We now ask you to choose which of the following two possible messages you will send to your counterpart:

Message 1: "Option A will earn you more money than option B"

Message 2: "Option B will earn you more money than option A"

We will show the other participant your message, and ask him or her to choose either A or B. To repeat, your counterpart's choice will determine the payments in the experiment. However, you counterpart will never know what sums were actually offered in the option not chosen (that is, he or she will never know whether your message was true or not). Moreover, he or she will never know the sums to be paid to you according to the different options.

We will pay the two of you according to the choice made by your counterpart.

I choose to send (please circle one option)

Message 1   Message 2

Experiment 1 [for receiving side]

Dear participant,

Thank you for participating in these two experiments in decision-making. This is the first of the two experiments today.

The instructions you are about to read are self-explanatory. We will not answer any questions during this experiment. If you have any questions, you should read back through these instructions. Now that the experiment has begun, we ask that you do not talk, at all, during this experiment. Since your decision is private we also ask that you do not tell anyone your decision either during or after the experiment.

You will have 15 minutes to read these instructions and make your choice. After 15 minutes, this sheet will be collected and this experiment will be over. We will then give you further instructions verbally. Until you receive further instructions, please stay seated and do not speak.

In this experiment, you will be paired with another participant who is in another section of the room. Neither of you will know the identity of the other, not even after the experiment. You will notice that there are other people in the same section with you who are also participating in this experiment. You will not be paired with any of these people.

During the experiments you will earn real money that will be paid to you, privately and in cash, in this room after the experiments are over. The payment will be in dong. In front of you, you will find a sheet with your seat number. Please keep this sheet after you leave the room. This is your ID number. You will need it to receive your payment. You will receive your money in two envelopes. No other participants will know how much you receive.

Two possible monetary payments are available to you and your counterpart in this experiment, option A and option B. The payments depend on the option chosen by you. We showed the two payment options to your counterpart. The only information you will have is the message your counterpart sends to you.

Two possible messages could be sent:

Message 1: "Option A will earn you more money than option B"

Message 2: "Option B will earn you more money than option A"

Your counterpart decided to send you message: _____

We now ask you to choose either option A or option B. Your choice will determine the payments in the experiment. You will never know what sums were actually offered in the option not chosen (that is, if the message sent by your counterpart was true or not). Moreover, you will never know the sums your counterpart could be paid with the other option.

We will pay the two of you according to the choice you make.

I choose (please circle one option)

Option A   Option B

Experiment 2 [for sending side]

Dear participant,

Thank you for participating in these two experiments in decision-making. This is the last of the two experiments today.

The instructions you are about to read are self-explanatory. We will not answer any questions during this experiment. If you have any questions, you should read back through these instructions. Now that the experiment has begun, we ask that you do not talk, at all, during this experiment. Since your decision is private we also ask that you do not tell anyone your decision either during or after the experiment.

You will have 15 minutes to read these instructions and make your choice. After 15 minutes, this sheet will be collected and this experiment will be over. We will then give you further instructions verbally. Until you receive further instructions, please stay seated and do not speak.

In this experiment, you will also be matched with another person, who will be your counterpart. Your counterpart will be in the other section. Please note that this other person is not the same person as in the previous experiment. As before, neither of you will know the identity of the other.

During the experiments you will earn real money that will be paid to you, privately and in cash, in this room after the experiments are over. The payment will be in dong. In front of you, you will find a sheet with your seat number. Please keep this sheet after you leave the room. This is your ID number. You will need it to receive your payment. You will receive your money in two envelopes. No other participants will know how much you receive.

At the beginning of this experiment you will receive an endowment of 20,000 dong. Your counterpart will not receive any money. You have the opportunity to decide whether you wish to transfer some, all or none of these 20,000 dong to the person you are matched with. Please choose a value in multiples of 5,000 dong, i.e. 0; 5,000; 10,000; 15,000 or 20,000 dong,

All sums you send to your counterpart will be tripled. For example, if you decide to transfer 5,000 dong, he or she will receive 15,000 dong. If you transfer 10,000 dong, he or she will receive 30,000 dong. These are examples only; the actual decision is up to each person.

Your counterpart will then decide how much of that money to send back to you and how much money to keep. This could be anything between 0 dong and the full amount you sent him/her. The amount returned will be an even multiple of 5000 dong (i.e. 0 dong, 5000 dong, 10000 dong etc). Please note that the sum returned to you will not be tripled. For example, if your counterpart returns 5000, you will get 5000 in addition to what is left of the 20,000 dong you had initially.

We will pay the two of you according to the choice made by you and your counterpart.

I choose to send (please circle one option)

0 dong   5000 dong   10,000 dong   15,000 dong   20,000 dong

Also, we would appreciate if you could indicate your gender (please circle one option)

Male   Female

What part of Vietnam are you from (please circle one option)?

Hanoi   Other north   Ho Chi Minh City   Other south

Do you study for a first or a second bachelor degree? (please circle one option) **[this part had slightly different options in the first experiment]**
First bachelor degree   Second bachelor degree

What year were you born? _____ **[this part was not included in the first experiment]**

Experiment 2 [for receiving side]

Dear participant,

Thank you for participating in these two experiments in decision-making. This is the last of the two experiments today.

The instructions you are about to read are self-explanatory. We will not answer any questions during this experiment. If you have any questions, you should read back through these instructions. Now that the experiment has begun, we ask that you do not talk, at all, during this experiment. Since your decision is private we also ask that you do not tell anyone your decision either during or after the experiment.

You will have 15 minutes to read these instructions and make your choice. After 15 minutes, this sheet will be collected and this experiment will be over. We will then give you further instructions verbally. Until you receive further instructions, please stay seated and do not speak.

In this experiment, you will also be matched with another person, who will be your counterpart. Your counterpart will be in the other section. Please note that this other person is not the same person as in the previous experiment. As before, neither of you will know the identity of the other.

During the experiments you will earn real money that will be paid to you, privately and in cash, in this room after the experiments are over. The payment will be in dong. In front of you, you will find a sheet with your seat number. Please keep this sheet after you leave the room. This is your ID number. You will need it to receive your payment. You will receive your money in two envelopes. No other participants will know how much you receive.

At the beginning of this experiment, your counterpart received 20,000 dong. He/she was asked if he/she would like to transfer some, all or none of these 20,000 dong to you. We have tripled the amount of money he/she voluntarily decided to transfer to you. Your counterpart knew that the amount he/she transferred would be tripled. The number of dong he/she did not transfer remained his/her to keep.

You have been matched with a specific counterpart, and other people in your room have been matched with other counterparts and have received different amounts of money. You role is to decide if you would like to transfer some, all or none of the money you received back to your counterpart. We ask you to pick a sum which is an even multiple of 5,000 dong, that is 0 dong; 5,000 dong; 10,000 dong etc. If your counterpart chose to send you nothing, you do not have any money and therefore cannot transfer anything back. Please note that the sum you return to your counterpart will not be tripled. For example, if you return 5000, he or she will get 5000 in addition to what is left of the 20,000 dong he or she had initially.

Your decision will conclude the experiment. Your counterpart has received the same kind of information about this experiment as you have.

We will pay the two of you according to the choice made by you and your counterpart.

You counterpart chose to send _____ dong, so you received _____ dong (three times what was sent)

I choose to return _____ dong (please use a multiple of 5,000)

Also, we would appreciate if you could indicate your gender (please circle one option)
Male   Female

What part of Vietnam are you from (please circle one option)?
Hanoi   Other north   Ho Chi Minh City   Other south

Do you study for a first or a second bachelor degree? (please circle one option) **[this part had slightly different options in the first experiment]**
First bachelor degree   Second bachelor degree

What year were you born? _____ **[this part was not included in the first experiment]**