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Deciding to Migrate: The Role of Social Preferences, Biased Beliefs and Superstition in a Risky Choice

Johanna Katharina Gereke

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of Political and Social Sciences
of the European University Institute

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European University Institute
Department of Political and Social Sciences

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Abstract

This dissertation explores how individuals understand and evaluate risks when making migration decisions. Migration entails serious financial risks, including upfront payments to labour brokers or human smugglers whose promises of abundant job opportunities, decent wages and safe working conditions may not materialize. In order to understand why some individuals decide that these risks are worth taking, I examine how migrants evaluate these risks when making their decisions. I draw upon multiple empirical strategies including (1) original ethnographic fieldwork amongst Thai migrants in Los Angeles, USA, (2) a survey and a lab-in-the-field experiment with prospective migrants in northern Thailand, and (3) a natural experiment leveraging individual-level census records documenting migration experiences within Vietnam.

Most scholarship on the micro-level determinants of migration choices sets out from a standard expected-utility model according to which migrants assess the potential benefits against the costs of migration, weighted by the probability that such outcomes will occur. While this basic economic model of migration decision-making has helped to shed light on some migration patterns, I propose to extend the model by incorporating sociological insights in order to gain a better understanding on an old puzzle, namely *why some people move while others decide to stay given that they face the same socio-economic conditions*.

In particular, this dissertation is composed of five stand-alone, but related empirical chapters, in which I examine the role of social preferences, biased beliefs and superstition in migration decision-making. My findings show how relative deprivation (i.e. the perception of being economically “left behind”) and beliefs about luck affect evaluations of risk, and consequently, migration decisions. Overall, my results assert that there are many yet under-explored but important factors influencing how individuals assess risks during the migration decision-making process.

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I believe that writing a PhD thesis is never easy, and always requires a great deal of motivation, courage and perseverance. During my intellectual journey over the past four years at the beautiful campus of the European University Institute in Florence, I experienced many moments of joy, but also of doubtfulness and confusion. I am profoundly thankful to the people who have helped me to overcome these difficult moments in completing the thesis.

An accomplished scholar once explained that a successful doctoral project requires three ingredients: (1) your own creativity, skill and effort, (2) your advisor's guidance, and (3) your peers' engagement in commenting, criticizing and supporting your work. I certainly feel that this thesis has been greatly shaped by the comments I have received from my advisor Diego Gambetta, my husband Nan Zhang, and the unconditional support of my family and friends.

My greatest thanks go to my husband and best friend Nan who, without hesitation, moved with me from Stanford, California to Florence, Italy when I decided to go to graduate school and pursue a PhD. As he has already completed a JD/PhD before I ventured into academia, Nan has been my role model, from whom I have learned the nuts and bolts of writing a dissertation. He continuously pushed me to think harder, to focus on the essentials when I no longer saw the forest for the trees, and to write in a more precise manner when my mind switched to German-style convoluted and never-ending sentences. Unwittingly, he was the sounding-board for all of my brilliant and not so brilliant ideas, my personal data clinic when frustration over regression results caused me headaches, and my most important research assistant during my second fieldwork trip to Thailand. And although we initially thought that we could never work together, the last empirical chapter of this thesis is our first co-authored piece, and the result of a surprisingly painless collaboration. Besides, but most importantly, Nan has been a loving partner, with whom I am lucky to share the daily adventure of our life together. This dissertation is dedicated to him.

I would also like to express my special thanks to Diego Gambetta for supervising this thesis. Although our first email communication frightened me because, even before arriving at the EUI, Diego told me that I had a MBA-like attitude that was hardly compatible with serious sociological scholarship, I like to think that we have grown more similar over the years :-). I learned a lot from

Diego's careful counterfactual thinking, his way of depicting complex relationships in beautifully simple graphs, and his gift for focusing on interesting social phenomena that are sometimes too obvious to be taken seriously by scholars (i.e. norms of tipping), or at other times too hidden and seemingly impossible to be empirically studied (i.e. engineer jihadists). My research project has changed tremendously over the years from my initial proposal of studying why individuals trust human traffickers and, thanks to Diego, I have had the freedom to conduct exploratory fieldwork and to follow the line of research that I found most interesting. Diego has continually pushed me to think in terms of causation and testable implications, to question and empirically validate my intuitions, and to write less, but more precisely. Diego has become much more than just a PhD supervisor and mentor to me. He has become a friend, whose work I greatly admire and from whom I hope to continue to learn.

I would not have developed and nurtured my passion for learning if it were not for my family, especially my parents who battled, but ultimately did not restrict, my natural curiosity and my observant and critical nature from an early age onwards (one of the few rules we had was that I was not allowed to ask any "why" questions during meal times). They raised me in a small village community, an environment without pressure to succeed, which always served as a calm refuge for me when academic life was turbulent. Though they did not read a single word of my dissertation, they always comforted and supported me without question. My sister Madeleine always listened to my complaints, talked with me through different strategies and ideas, and helped me to see the light at the end of the tunnel. Spending time together with her and her partner Hilton - paddling on the lac de Saint Croix or enjoying a fresh breeze from Hilton's electric fan on a hot summer night in Marseille - reminded me that life is much more than academia. I would also like to thank my parents in law who spoiled me with delicious Chinese food, wonderful vacations, and warm woolen socks and sweaters, which were essential in keeping my blood circulating while sitting at the desk all winter.

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I also conducted a small replication of my experiment in Italy, and I would like to thank my Italian teacher Camilla Salvi, who has not only been patient with my slow progress in learning Italian, but who went out of her way to put me in touch with vocational schools in Florence. She also accompanied me to the meetings with the school directors, and helped me to host the experimental participants at the EUI for a special workshop. Moreover, all this would have been difficult to achieve without the excellent research assistance of Gianandrea Lanzara, who helped with the translation and moderation of the experiment.

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Introduction

Migration is an increasingly important global phenomenon. According to the population division of the United Nations (UN), there were an estimated 232 million international migrants and 740 million internal migrants worldwide in 2013. Even excluding the number of internal migrants, total population flows across borders have grown by over 50% since 1990 (from a base of approximately 154 million), and by approximately 30% in just the past decade alone. Consequently, some scholars have declared that we live in “worlds in motion” (Massey et al., 1999) or the “age of migration” (Castles, Miller and Ammendola, 2005).

Much of the research on migration has focused on the economic benefits of labor migration for migrants and their families in terms of remittances, human capital development, and the diversification of household income against external shocks (Massey et al., 1993; Stark and Levhari, 1982; Sjaastad, 1962; Taylor, 1999). However, migration is also costly: often migrants must make substantial upfront monetary investments including visa and transport fees and payments to labor brokers. In addition, while migration may represent, *on average*, a winning proposition, migrants may also face extremely variable conditions in the destination country, such that they cannot be sure of what they will earn. This combination of uncertain gains with monetary costs makes migration a risky proposition. Therefore, an analysis of migration decision-making must also involve an analysis of migrants’ willingness to take these risks.

Despite the pervasive risks in migrating, little research has engaged with the question of how individuals understand, process and make decisions in the presence of this uncertainty (Williams and Baláz, 2014a). In particular, most economic models of risk-taking assume that individuals possess stable risk preferences, full information about the expected costs and benefits of a (migration) decision, and sufficient cognitive resources, coupled with a “rational” mindset, to process this information in a way which maximizes utility.¹ Yet, we know from studies in social psychology, cognitive sciences and behavioral economics that imperfect information and cognitive biases influence human decision-making and judgment (Camerer, Loewenstein and Rabin, 2011; Kahneman and Tversky, 1979; Tversky and

¹An exception is a recent article outlining a “migration prospect theory” (Czaika, 2015).

Kahneman, 1973). Further, research has shown that models which fail to incorporate these behavioral insights are likely to yield flawed predictions of individual-level behavior (Henrich et al., 2004; Sanfey, 2007; Simon, 1959). So far studies on the determinants of migration have not incorporated these findings from the behavioral social sciences (Castles, Miller and Ammendola, 2005; Faist, 2000; De Haas, 2011; Massey et al., 1993).

In this dissertation, I combine insights from the decision sciences with a focus on the risks of migration to better understand how and why individuals choose to enter the global labor market. In particular, I begin with a standard expected-utility model of risky decision-making, which I then expand along two fronts. First, I argue that individuals do not have stable risk preferences. Rather, individuals' willingness to take risks is strongly conditioned by inequalities in the social environment. Specifically, feelings of relative deprivation can drive greater risk-taking as individuals strive to "catch up" to their better-off peers. Secondly, I demonstrate that individuals do not engage in accurate probabilistic calculations of the costs and benefits of migration. Instead, (culturally bound) beliefs about personal luck are employed as heuristics when making risky decisions. Overall, by highlighting the role of social preferences, biased beliefs and superstition in migrants' decision-making, the dissertation highlights the central role of sociological and social-psychological factors in shaping migration outcomes.

The remainder of this chapter outlines the various elements of the dissertation project. Before proceeding however, two caveats are in order. First, I wish to stress that the focus of this dissertation is on the decision-making of individuals who engage in "voluntary" labor migration. The dissertation does not consider human mobility resulting from violence, famine and other forms of forced displacement. In part, this choice was driven by my own personal interest in judgment and decision-making: while refugees and internally-displaced persons are certainly an important part of global migration flows, "decisions" taken in these contexts are likely to be much more constrained, as compared to situations where individuals move for primarily economic reasons. Therefore, to maximize the ecological validity of my research, I have focused on migration situations involving calculations of mainly financial and economic risks.

Secondly, I assume throughout this dissertation that individuals are indeed aware of at least some of the potential perils they may face in migrating. However, I do not systematically map out the exact content of the information that individuals possess, nor have I attempted to manipulate this information in order to test for its effects on migration outcomes. While such an endeavor would contribute significantly to our knowledge of migrants' decision-making, it was beyond the scope of what I could accomplish within the constraints of the present dissertation.

Case Selection and Methods

This dissertation is composed of one theoretical and five empirical chapters. Empirically, it draws mainly upon evidence from my fieldwork in Thailand, as well as census data documenting migration in Vietnam. This case selection is driven by my initial interest in a legal case involving Thai migrant farmworkers in the United States. I became connected with the individuals involved in this case through a local NGO supporting Thai migrants' rights in Los Angeles, and I subsequently had the opportunity to travel to these migrants' home communities in Northern Thailand (Lampang Province). Through these initial connections, I built a network of personal relationships that facilitated my later survey and experimental work, which make up the core of this dissertation. This evidence was then supplemented via publicly-available rural household surveys from the Townsend Thai Project,² as well as publicly-available census records from neighboring Vietnam.³

Given the nature of my fieldwork sites, the vast majority of my evidence concerns temporary labor migration from predominantly poor, agricultural areas in Southeast Asia, where migration has become increasingly common over the past three decades. That being said, I believe that this evidence can also shed light on the general psychological mechanisms driving migration flows in other countries. In particular, Thailand and Vietnam are not unique in that aspiring migrants face imperfect information, mobility costs and the prospect of uncertain benefits in the destination country. In other words, there is no reason to believe that rural out-migration from these countries is *especially* risky (nor *especially* safe), as compared to out-migration from other developing countries with similar historical experiences of migration.⁴

Thailand is typical of countries in the process of industrialization, where the forces of economic growth have stretched the income distribution, leading to increasing income inequality and a larger disparity between rural and urban areas since the 1980s (Ikemoto and Uehara, 2000; Motonishi, 2006). In these contexts, rural citizens may feel that modernization is leaving them behind, creating a relative deprivation dynamic (Bhandari, 2004; Sassen, 1999; Stark, 1984). By documenting how this dynamic shapes migration decisions in the Thai case, I hope to highlight its importance in other rapidly modernization countries as well.

Finally, with regards to beliefs in luck, it has been well documented that such beliefs play an important role in everyday life in Thailand and other Asian societies (e.g. Antipov and Pokryshevskaya, 2015; Goodkind, 1996; Klima, 2009; Pravichai and Ariyabuddhipongs, 2015). In this sense, my research may not be able to speak to migration dynamics in societies where such superstitions are

²Data collected by the Thai Family Research Project and secondary data archived by the University of the Thai Chamber of Commerce available at <http://www.http://cier.uchicago.edu>

³Available through the Integrated Public Use Microdata Series project at <http://www.http://www.ipums.org>.

⁴Of course, origin countries with different migration histories may differ with respect to the extent to which migrants already have a social network of family and friends in the destination country, who would be able to decrease mobility costs (e.g. by financially supporting them) and increase the potential benefits of migration (e.g. by helping them find a job).

less prominent. However, as research into the “gamblers’ fallacy”⁵ and the “hot hand fallacy”⁶ has shown, beliefs in personal luckiness are widespread even in advanced industrialized societies where we might expect “rational” expectations to obtain. Therefore, *a fortiori*, in more “traditional” societies that characterize many rural areas in developing countries, we can expect the luck mechanism to also prevail. In fact, recent work has indeed documented a similar link between beliefs in luck and migration across diverse contexts from African to Central America (Hernández-Carretero and Carling, 2012; Holmes, 2013).

In terms of methodology, I use a combination of semi-structured interviews, surveys, lab-in-the-field experiments, and a natural experiment. The multiplicity of techniques reflects an emerging consensus in the social sciences about the strength of multi-method research designs. Leveraging such designs, researchers are able to investigate social phenomena by converging on a target from different angles, and drawing inferences from complementary methods. In my work, I started with exploratory interviews with Thai migrants, which helped me to formulate initial hypotheses about the drivers of individual migration choices. I then designed and implemented economic experiments using a simple financial decision-making task to test the behavioral assumptions and implications of my ideas at the micro-level. Using experimental methods, I was able to directly manipulate my variables of interest - economic inequality and risk taking - and also generate new data about beliefs in luck. Finally, I tested the validity of my inferences about luck and risk-taking in an “out-of-sample” case using data from the Vietnamese census.

Roadmap

The dissertation proceeds as follows. In Chapter 1, I start from the endpoint of a migration journey, and show what can happen as a result of the decision to migrate. The data are drawn from semi-structured interviews I conducted with Thai migrants in the United States, as well as their family members and returned migrants in Thailand. In the process, I illustrate that the risks of migration are real and important. Next, I consider the extent to which individuals were aware of these risks at the moment of making their decisions. Here, I supplement my interviews with data from a survey with over 200 prospective labor migrants from Thailand to develop a more rigorous picture of what risks individuals considered the most prominent when making their migration decisions. Analysis of this data shows that migrants in fact distinguish between two types of risks: *risks of nature*, which can be thought of as the result of happenstance or “bad luck,” and *social risks*, which refer to misfortune caused by the opportunistic behavior of other individuals.

⁵The belief that the probability of an event is lowered when that event has recently occurred, even though the probability of the event is objectively known to be independent from one trial to the next (Clotfelter and Cook, 1993).

⁶The belief that a person who has experienced success with a random event has a greater chance of further success in additional attempts (Camerer, 1989).

In Chapter 2, I introduce a theoretical framework for understanding why migrants often decide to take these risks. In particular, I begin with a model of behavior drawn from the economic analysis of expected utility. This model contains many of the features which characterize migrants' decision environment including (a) the existence of multiple possible actions leading to (b) both positive and negative outcomes (c) in a probabilistic manner. However, I argue that the model's predictions are based on a set of flawed assumptions about individual judgment. Notably, the model fails to incorporate important factors such as social preferences, biased beliefs and superstitions, which may play a significant role in migrants' judgments about the expected benefits of mobility. The chapter sets the stage for the remainder of the dissertation, which will investigate the role that these factors play in the migration context.

In Chapters 3 and 4, I focus on the link between relative deprivation, the willingness to take risks, and migration. First, in Chapter 3, I test whether subjective feelings of relative deprivation are linked to a greater propensity to migrate in Thailand, using household survey data from the Townsend Thai Project. My results provide empirical support for the relative deprivation-migration hypothesis: even controlling for actual household income, households where respondents feel relatively deprived are more likely to have a migrant member.

Next, in Chapter 4, I experimentally test the micro-foundations linking economic inequality and feelings of relative deprivation to financial risk-taking, distinguishing between *risks of nature* and *social risks*. I find that, amongst aspiring migrants from rural Thailand, relative deprivation significantly increases individuals' willingness to take risks determined by chance. However, my findings also indicate that relative deprivation may decrease individuals' propensity to take social risks (i.e. to trust another person). Together, the results suggest that the positive relationship between relative deprivation and migration propensity operates primarily through the risk-as-chance channel.

Chapters 5 and 6, I explore how biased beliefs and superstitions can undermine "rational" information processing. In Chapter 5, I examine how beliefs in luck shape individuals' risk perceptions and the willingness to accept risky migration offers. Using a lab-in-the-field experiment among aspiring labor migrants in Thailand, I find that individuals do not accurately attach probabilities to outcomes when evaluating risks. Instead, I find that individuals' decisions are significantly correlated with beliefs about their own good luck, a phenomenon that I term the "fortuna heuristic." Building upon these results, I then present survey evidence illustrating that prospective labor migrants also use this "fortuna heuristic" in deciding whether to accept a hypothetical risky overseas job offer.

In Chapter 6, I present an "out-of-sample" test of this last result through a natural experiment drawing upon Vietnamese census data. The natural experiment exploits widespread cultural stereotypes about the characteristics of individuals born in different years of the Chinese zodiac to estimate the effect of superstitious beliefs on individual's migration propensity. Specifically, according to Vietnamese astrology, dates of birth are believed to be determinants of success, luck, and character, and people born in the year of the horse are often perceived to be forward-looking and prone to

venturing out into the unknown. As a consequence, individuals who believe that they are blessed with such traits may actually be more willing to migrate. Using micro-data from the Vietnamese population census, I find mixed evidence. While there is no proof of a general year of the horse effect, the effect exists for those born in the year of the “golden horse,” and is especially strong with regards to migration flows to rapidly developing urban areas. In sum, this final empirical Chapter illustrates the importance of culturally-bound “non-rational” belief systems in shaping migration decisions.

Finally, Chapter 8 summarizes the main results, and discusses contributions of the dissertation to the wider migration and sociology scholarship.

Contributions

This dissertation contributes to several strands of the migration literature. First, at the macro-level, past research has examined the relationship between labor migration flows and legal restrictions (Ruhs, 2013), income differentials across countries (Borjas, 1989), absolute poverty levels in the origin country (Skeldon, 2014) and the presence and size of the diaspora in destination countries (Beine, Docquier and Özden, 2011; Massey and España, 1987). While this research has yielded new insights into the country-level correlates of labor migration, it also makes implicit assumptions about individual behavior - namely, labor is commonly modeled as simply any other factor of production and (like capital) will invariably flow to where it can earn the highest return. In essence, individual decision-making is treated as a “black box,” and concepts such as migrants’ perceptions, aspirations and judgment are left unexplored.

My dissertation adds to the migration literature by trying to unpack this “black box,” and thereby lay the micro-foundations for building more realistic theories of migration choices. In doing so, I join a growing chorus of scholars investigating the role of risk preferences (e.g. Akgüc et al., 2015; Dustmann et al., 2015; Jaeger et al., 2010; Hao et al., 2014; Özera, Fouargea and De Grippa, 2015), aspirations (e.g. Carling, 2002; Czaika and Vothknecht, 2014; De Haas, 2011; Schewel, 2015), “imagined futures” (Koikkalainen and Kyle, 2015) and other social mechanisms, such as the role of social ties in shaping migration decisions (Garip and Asad, 2013) in shaping mobility outcomes. More specifically, I bring insights from sociology and social psychology about how relative deprivation and beliefs in luck shape decision-making under risk. My contribution is to link these ideas to the migration context in order to shed light on a key question in migration research: why do some people move, while others stay?

Moreover, I also contribute with this dissertation to a growing scholarship in analytical sociology using experimental methods to establish causation and test micro-mechanisms that explain social behavior (e.g. Abascal, 2015; Baldassarri, 2015; Bigoni et al., 2013; Gambetta and Przepiorka, 2014;

Gambetta and Székely, 2014; Gërxhani, Brandts and Schram, 2013; Schram et al., 2009). Although the experimental method in the traditionally observational social sciences (i.e. political science, economics, anthropology) has become more popular since the 1990's (Jackson and Cox, 2013), their use in sociology is still less common.⁷ My dissertation is one of the first efforts to use lab-in-the-field experiments, which are of particular interest to sociologists because they allow researchers wanting to conduct empirically driven experiments to explore the behavior of a representative sample of individuals while maintaining the social environment (Smelser and Swedberg, 2010). In addition, my lab-in-the field experiment adds to our understanding of social action among largely understudied non-WEIRD “western, educated, industrial, rich and democratic” populations (Henrich, Heine and Norenzayan, 2010). By combining insights from sociology and economics in researching real-life decisions, lab-in-the-field experiments can generate new insights. The results presented in this dissertation illustrate that, contrary to what economists often assume, namely that the willingness to take risks is an individual characteristic or preference, risk-taking is also influenced by structural forces such as economic inequality and culturally based beliefs about luck.

⁷For a brief history of experiments in sociology, see Jackson and Cox (2013).

Chapter 1

Migrants' Perceptions of Risks: Betrayal of Trust or Bad Fortune?

Introduction

In the hope of improving their livelihoods, people cross the globe in search of better economic opportunities. However, all too often expectations are disappointed, shattering migrants' dreams of a better life. Examples of such futile migration enterprises have recently filled newspaper headlines and human rights reports covering the situation of migrants in Qatar, who in preparation for the Soccer World Cup in 2022 are building the infrastructure while enduring extremely difficult working and living conditions.¹ The plight of migrants has spurred scholars and the human rights community to question why the process often ends badly, and to search for solutions that address migrants' vulnerabilities.

For the most part, research and policy efforts have focused on the fact that migrants are often exploited by a range of opportunistic actors in the "migration industry" - ranging from local recruiters to foreign employers to criminal gangs (e.g. Castles, 2004; Faist et al., 2014; Fernandez, 2013; Spaan, 1994; Xiang and Lindquist, 2014). For instance, Fernandez (2013) highlights how the unregulated

¹ "Death and Servitude in Qatar", New York Times (1 Nov 2013), "Qatar's Showcase of Shame", New York Times (Jan 5, 2014), "Death toll among Qatar's 2022 World Cup workers revealed" The Guardian (23 Dec 2014), "The plight of Qatar's migrant workers", Al Jazeera (Jun 14, 2012) "Qatar: Serious Migrant Workers Abuses", Human Rights Watch (21 Jan 2014), "The dark side of migration: Spotlight on Qatar's construction sector ahead of the World Cup", Amnesty International (2013)

behavior of private employment agencies and labor brokers places Ethiopian domestic workers in precarious positions across the Middle East. This understanding of the cause of migrants' vulnerability has also entered the agenda of civil society and policymakers. In a recent report to the UN General Assembly, Special Rapporteur on the Rights of Migrants, Francois Crepeau, urged governments to be vigilant against "deceptive recruitment practices, both by employers and intermediaries".² Importantly, the key feature underlying this perspective is that migrants have placed their fates in the hands of another individual, who then acts opportunistically to betray this trust.

While the exploitation of migrants by unscrupulous actors is certainly an important problem deserving of public attention, this perspective fails to recognize that, in many instances, negative migration outcomes cannot be attributed to any intentional (in)action, but, rather, are due to a concatenation of unpredictable circumstances or unintended mishaps. For example, a sudden economic downturn may throw migrants out of work, stranding them in the destination country without adequate means of support, or a way to return to their countries of origin. An unexpected change in visa policies may make it impossible for migrants to continue working legally, therefore driving them to more dangerous occupations. These "occupational hazards" inherent in the migration process are distinct from the instances of exploitation described above, in that migrants' trust is not actively betrayed by unscrupulous intermediaries.

In this chapter, I investigate how migrants' *themselves* understand the types of risk they face. This is a crucial undertaking because, despite numerous calls to examine the micro-mechanisms driving migration behavior (Mahmoud and Trebesch, 2010; McKenzie, Gibson and Stillman, 2013; Weitzer, 2014), migrants' perspectives remain largely absent in the literature. Moreover, in order to explain migration choices and to develop relevant and effective policies, we must first identify the problems that migrants themselves view as most salient. This chapter therefore fills an important gap in the migration literature.

I adopt a multi-method approach to study migrants' perceptions. First, I present findings from a series of semi-structured interviews with Thai agricultural workers in both the U.S. (destination country) and Thailand. All of my interview subjects were involved in the *El Dorado Manpower* case (described in detail below),³ one of the most important migrants' rights cases ever brought before U.S. courts. In addition to this core group, I also draw from interviews with family members in Thailand, Thai government officials, and the local labor recruiter in this case. These interviews were supplemented by official data and court documents, newspaper reports, and secondary research.

In a series of ongoing court battles, *El Dorado Manpower* has been accused of "engaging in a conspiracy to commit forced labor and document servitude," stemming from its treatment of over 600

²Francois Crepeau, the OHCHR Special Rapporteur on the Rights of Migrants, presenting his annual report in the UN General Assembly, 3 April 2014, p.5

³I am using pseudonyms for the organizations and individuals involved in this case, as it is still ongoing.

Thai workers. The alleged abuses include the illegal confiscation of passports, subjecting migrants to uninhabitable housing and insufficient food, paying inadequate wages, and physical intimidation and violence - in other words, all elements typical of a case of intentional exploitation. However, when I interviewed the migrants and their families, I found that, while my interview subjects were of course unhappy with their poor living and working conditions in the U.S. and the wage abuses they suffered, their primary complaint stemmed from not being able to complete their contracts, which was caused by El Dorado Manpower's inability to supply enough work. In other words, while the legal case focused on the exploitation that migrants faced, the migrants themselves viewed their plight as primarily caused by unintended circumstances.

Yet, can we generalize these conclusions beyond this particular case? To shed light on this question, I conducted an "out-of-sample" test using a survey instrument administered to prospective labor migrants from the same province of northern Thailand (Lampang) from which most of the El Dorado Manpower workers were recruited. All of the survey respondents were preparing to leave for temporary jobs in South Korea, and can thus be considered a "typical" group of migrant workers. I presented respondents with a hypothetical scenario which was closely modeled after the *El Dorado Manpower* case. Following the scenario, respondents were asked to apportion responsibility for the negative outcome between several different sources. I then employ a confirmatory factor analysis to identify the underlying dimensionality of the responses.

I find that prospective migrants distinguish between two latent factors: (1) failing due to unintended circumstances and (2) being intentionally exploited. These two factors explain 75% of the variance in the responses. Furthermore, my survey results provide important evidence that prospective migrants place different priorities on these explanations, attributing the negative outcome described in the scenario to unintended complications such as sickness, visa problems, and the employer's economic difficulties. These results provide additional support for my conclusions drawn from qualitative interviews: migrants, at least in this part of Northern Thailand, tend to see the migration process as involving primarily risks stemming from unintended mishaps.

This chapter makes several contributions to the theoretical and empirical scholarship on international migration. First, few scholars have examined migrants' perceptions and expectations in understanding the determinants of migration behavior (Mahmud, 2014; Mbaye, 2014; McKenzie, Gibson and Stillman, 2013). One of the few exceptions is Ryo (2013), who argues that the decision to engage in unauthorized migration cannot be fully understood without considering individuals' underlying values and norms. Mahmud (2014) also reminds us of Weber (1968)'s admonition that, as social scientists, we have to understand the perspective and subjective rationality of the actors whose behavior we strive to explain. This chapter directly speaks to this small but growing literature by taking migrants' perceptions of risks seriously.

Second, despite a widespread acknowledgement that migration usually involves risk and uncertainty (Stark and Levhari, 1982; Williams and Baláz, 2012, 2014b) in addition to requiring interpersonal

trust between migrants and a variety of actors (Poros, 2010; Tilly, 2007), only few social scientists (mostly economists) have analyzed how migrants' attitudes towards risk and trust influence individuals' migration choices (Jaeger et al., 2010; Gibson and McKenzie, 2011; Hao et al., 2014). By importing these concepts into the migration literature, I am able to incorporate insights from a wider literature in sociology, psychology and economics (e.g. Bohnet et al., 2008; Gambetta, 2000; Douglas and Wildavsky, 1982; Hardin, 2002; Fischhoff, 1995; Grätz, 2003; Luhmann, 1993; Slovic, 1987) to study the determinants of labor migration.

Third, in order to understand perceptions and attitudes, we must shift the unit of analysis to the level of the individual. However, this perspective stands in contrast to one of the dominant approaches in the migration literature, which focuses on the level of the household as a decision-making unit (Stark and Blackwell, 1991). While we have certainly gained valuable insights from this approach (known as the New Economics of Labour Migration), this literature makes assumptions about the rationality of households' decision-making processes, and has consequently resulted in a neglect of individual perceptions and attitudes. By returning our attention to the individual level, we can test these assumptions by examining exactly how individuals perceive the risks in the migration process. The approach taken in the present study can therefore also contribute to the existing migration literature by helping scholars build more realistic models of the decision problem facing migrant households.

Lastly, I make a methodological contribution to the study of migrants' rationality by combining qualitative and quantitative methods, using an original survey measure in conjunction with interview techniques and participant observation. While interviews can provide rich descriptive data, they may be clouded by distortions in respondents' memories. The survey can help to address this shortcoming by asking *prospective* migrants to evaluate a hypothetical migration scenario, thereby placing migrants squarely in the present. As Ostrom (2007) notes, when qualitative and quantitative techniques are employed together to answer one set of theoretical questions, our ability to make causal inferences is multiplied. This methodological contribution has the potential to open up new avenues of scholarly inquiry in the study of migrants' perceptions in general.

The remainder of the chapter is organized as follows: In Section 1.2, I review the existing literature that analyses the risks that migrants face, showing that the vast majority of work has been focused solely on exploitation. Second, in Section 1.3, I report results from qualitative interviews with Thai migrants, while Section 1.4 presents the survey results. Section 1.5 concludes.

Literature Review

A Risk is *Not* a Risk: Two Types of Risks

Risk analysis and risk perceptions have emerged as central themes in social theory since the 1990s (Fischhoff et al., 1978; Beck, 1992; Giddens, 1999; Slovic, 1987; Taylor-Gooby and Zinn, 2006). The concepts of risk and uncertainty have been widely applied in the social sciences, and there exist a number of different conceptualizations (Balaz and Williams, 2011; Camerer and Weber, 1992; Zinn, 2008). According to the classical definition, a risky decision can be understood as a choice with a range of possible outcomes, for which the probabilities are known (Tversky and Kahneman, 1992). Thus, economists compare decision-making under risk to the choices individuals face in a lottery game, where the odds of winning are public knowledge.

Furthermore, economic theory conventionally argues that “a risk is a risk is a risk”. This implies that a decision maker facing the same probabilities and payoffs would make the same decision regardless of whether nature or the choice of another person resolves the lottery (Bohnet et al., 2008, p 294). However, the literature on risk perception, which focuses on the judgment of risks, points out that risk assessments are often shaped in more subjective and contextual ways (Taylor-Gooby and Zinn, 2006). In line with this tradition, social psychologists have argued that the behavior of individuals result from their perceptions (Soane, Dewberry and Narendran, 2010; Weber, Blais and Betz, 2002). This perspective is supported by empirical research showing how perceptions of risk influence individual’s behavior in various spheres of life, including gambling (Cheung, Wu and Tao, 2013; Dislich et al., 2010; Pleskac, 2008) or risky health behaviors, such as binge drinking among college students in the U.S. (Prentice and Miller, 1993). Sociologists, in a similar approach, have focused their attention on the way social and cultural factors influence how people interpret and make sense of risk in a specific context (Douglas and Wildavsky, 1982; Weber and Hsee, 1998; Zinn, 2008). They have pointed out that social “filter mechanisms” (Douglas, 1999, p. 126) structure individuals’ perception of risks through a process of selection and cognitive framing in any given society.

I build upon this scholarship on risk perceptions - as the subjective judgment about the severity and characteristics of a risk - which can differ across individuals as well as contexts (Slovic, 1987; Sjöberg, 2000).⁴ This understanding of risk perceptions being socially constructed is also echoed by some anthropologists who show that “risk-taking or risk avoiding behavior is related to an ongoing social process; it is a matter of knowledge and participation in everyday communication. It is not something fixed or definite. Decision-making is influenced by growing experience and depends on how dangers are narrated” (Grätz, 2003, p. 205). For example, Grätz (2003) shows in his research

⁴Regardless of how risk is defined, research on the link between perceptions of risks and individual risk taking has focused on either low ratings of the risk or the perception of benefits to be more valuable than the risk (e.g. (Fischhoff et al., 1978; Slovic et al., 1981)).

on gold mining in northern Benin how miners “often experience the hardship of the mining work as a challenge and see the physical as well as economic risks as a normal phenomenon”.

My analysis examines how individual’s risk perceptions shape their willingness to take risks in terms of taking chances (here defined as *risk of nature*) as well as in terms of interpersonal trust (here defined as *social risk*), which scholars from across the social sciences believe to be closely associated (Luhmann, 1993; Cook and Cooper, 2003; Camerer, 2003; Hardin, 2002). Similar to Bohnet et al. (2008), I use the term *natural risk* to describe situations where outcomes cannot be traced back to specific individuals’ actions. For example, the unexpected crash of the US housing market and the global economic crisis that followed in 2008 suddenly put migrants and their families in origin countries, who often rely on remittances, into precarious financial conditions (Bastia, 2011). In other instances, disasters, which may either be natural (i.e. such as droughts, tsunamis, hurricanes) or man-made (i.e. sudden onset of war, nuclear accident, financial turmoil) can negatively effect migrants’ well-being.

Social risks result from trusting another person, and thus decisions by other humans are the prime source of uncertainty in such situations. For example, prospective migrants often rely on licensed or unlicensed intermediaries, or “merchants of labor” (Barrientos, 2013; Kuptsch, 2006) who facilitate transnational migration due to high barriers of immigration in wealthier countries as well as an increasing need to match employment in the private sector (Fernandez, 2013). Prospective migrants without what Tilly (2007) calls “trust networks” with close social ties that help to provide useful information and advice related to long-distance migration are particularly at risk because they rely on such intermediaries.

Trust always involves the risks of betrayal and thus differs from *risks of nature* in two major respects: First, individuals (trusters) who trust may care about the payoffs going to the other person, the trustee (either positively or negatively). This calculation implies that trusters have not just economic but also social preferences.⁵ These social preferences may influence trusters’ decisions, by either making them less or more likely to accept the *social risk* involved in trusting than a *natural risk*. Second, elements beyond mere outcome-based preferences may enter the utility function. When the truster trusts the trustee, she in effect gambles on the trustee being trustworthy. If trust is violated, she may incur betrayal costs - psychological costs, which lower one’s utility above the material costs (Koehler and Gershoff, 2003). In fact, research on psychological contracts has shown that intentional betrayals, which result from violations of a duty or the break of a promise, can decrease a person’s job satisfaction or lead to retributive actions (Robinson and Morrison, 2000).

Conversely, the truster may reap additional emotional benefits from honoring the social exchange if the trustee is trustworthy. If individuals are affected by such psychological benefits and costs, this could lead trust decisions to differ from risky choices offering the same stakes and odds. Such behavior would suggest that people care about how outcomes came to be, a notion first introduced

⁵for a survey on the social preference literature, see Fehr and Schmidt (2006)

into economics in a seminal paper by Rabin (1993, p. 295). As Bohnet et al. (2008) show in their cross-cultural study, both social and betrayal preferences, in the experimental literature referred to as “exploration aversion” (Fehr, Fischbacher and Kosfeld, 2005) cause individuals to behave differently when faced with *social risks* versus when confronted with *risks of nature*. This differentiation can be traced back to the agent of uncertainty that differs between these two types of risks as well as the difference in the number of actors who receive payoffs.

Risk Attitudes *versus* Risk Perceptions in Migration Research

Ever since the New Economics of Labor Migration school developed, which suggested that migrants and their households make migration choices as an income risk-diversification strategy (Katz and Stark, 1986; Stark and Levhari, 1982; Stark and Blackwell, 1991), have migration scholars indirectly included the concept of risk in their analysis of the determinants of migration. However, only recently have economists empirically examined the direct relationship between individuals' risk attitudes and the decision to migrate. The results so far suggests that the willingness to take risks positively predicts migration behavior (Akgüç et al., 2015; Jaeger et al., 2010; Dustmann et al., 2015; Gibson and McKenzie, 2011).

While risk-attitudes measure people's willingness to engage in risky behaviors (in terms of how risk-averse or risk-loving individuals are), risk perceptions examine the judgments people make when they are asked to evaluate a risky behavior (Slovic et al., 1981; Weber, Blais and Betz, 2002). However, scholars have so far not turned their attention to risk perceptions in the migration context. One noteworthy exception is Hernández-Carretero and Carling (2012)'s study, in which they discuss how prospective migrants in Senegal assess and relate to the risks of migration to Europe. The authors find that among young males from Senegal, risk taking in the migration decision-making is shaped by context-specific interaction of disparate factors, including economic obstacles to reaching social adulthood, notions of masculinity, pride, honor and religion.

In addition, Williams and Baláž (2012) point to risk and uncertainty as useful theoretical concepts in the study of migration behavior, and call for more “theoretical clarity in the understanding of the role of risk in migration” (Williams and Baláž, 2012, p. 1). This chapter therefore hopes to add theoretical clarity as well also empirical evidence to the migration literature by examining migrants' risk perceptions.

The Context: Temporary Labor Migration from Thailand

This chapter is based on empirical evidence of Thai labor migration. This section therefore provides a brief description of temporary labor migration from Thailand with a particular focus on the risks Thai migrants face. Labor migration in Thailand is not a recent phenomenon as much of the population

has traditionally been involved in seasonal labor migration. This seasonal migration was often the consequence of lengthy droughts, which forced rice farmers to search for alternative livelihoods at least for a few months out of the year (Curran et al., 2005; Chantavanich, 1999). Moreover, in the second half of the 20th century as demand for labor in production and export manufacturing in urban areas increased, migration flows from the rural areas in Thailand to the urban centers, and especially to Bangkok, increased rapidly (Bello, Cunningham and Li, 1998; Jansen, 1997; Warr, 1996).

International labor migration from Thailand began in the 1970s, as countries in the Middle East as well as Japan, Taiwan, Singapore, and Malaysia experienced rapid economic development, and thus needed low-wage workers to support their economic growth (Paitoonpong and Chalamwong, 2011; Tsai, Tsay et al., 2004). For example, it is often said in Thailand that Thai men “built Singapore” because so many Thai labor migrants were employed in the construction sector in Singapore during the last decades of the 20th century (Kitiarsa, 2005b).⁶ Since then, temporary labor migration to overseas destinations has become increasingly common, especially for young men from the poorer rural regions.

The financial crisis in Southeast Asia in 1997 further increased the number of Thais seeking temporary employment overseas as employment opportunities in Thailand became more difficult to find, and there was considerable return migration from the cities to the rural areas due to the loss of urban jobs (Chalamwong, 1998). High numbers of international labor migrants have resulted in what Kandel and Massey (2002, p. 981) have called “a culture of migration”. Particularly in the poorest regions in the northeast and north of Thailand, migration has “become a way to express the desire to be up to date and participate in Thai modernity” (Mills, 1997; Kitiarsa, 2014, p. 11). Today, the majority of Thai overseas workers are male, in their 20ies and employed in low-wage sectors, such as manufacturing, agriculture, fishery and construction.⁷

Labor migration from Thailand also involves taking substantial risks. These include risks connected to migrants’ health and safety but also with regards to their financial situation. For example, many healthy working-age Thai construction and factory workers in Singapore have died because of a sudden heart failure, known as SUNDS or mysterious Asian syndrome, which is likely caused by exhaustion.⁸ Moreover, a recent report by Human Rights Watch highlighted the risks Thai migrant workers face in the agricultural sector in Israel where 25,000 Thai nationals work farming fruit, vegetables and seeds.⁹ To address the risks of being deceived by labor brokers and intermediaries in the migration industry, the Israeli government signed a novel type of agreement with the Thai

⁶For more information about Thai migration to Singapore, see the excellent ethnography of Kitiarsa (2005b).

⁷For a more detailed breakdown of the statistics from the TOEA (Thailand’s Overseas Employment Agency), see (Chantavanich et al., 2010).

⁸Thailand’s Public Health Ministry reported that between 1982 and 1994, 407 Thai workers have died because of SUNDS.

⁹<https://www.hrw.org/news/2015/01/21/israel-serious-abuse-thai-migrant-workers>, accessed 10 January 2015.

government, and the International Organization for Migration (IOM) in 2011. The Thailand Israel Cooperation on the Placement of Workers Agreement for the first time enables an international organization, such as the IOM to facilitate the labor migration recruitment process for temporary migrants. Thai labor migrants are permitted to stay a maximum time of 63 months in Israel after which the Israeli farmers can renew their work permits annually. However, while there are now fewer risks and uncertainties at the recruitment and application stage, temporary labor migration to Israel still poses considerable health and security risks. These risks range from the exposure to dangerous pesticides to being a casualty of military offensives in Gaza, which are not just anecdotes of the past. For example, in the summer of 2014, while I was conducting fieldwork in Thailand, a Thai labor migrant in Israel was killed by a missile while working on the agricultural fields close to the border with Gaza, where most of Israel's agricultural land is located.

Furthermore, even when working conditions do not bear risks to the health and safety of migrant workers, Thai migrants still have to take considerable financial risks to realize their aspirations for overseas employment. For example, a recent scandal involved Thai migrants who worked as seasonal berry pickers of blueberries and wild raspberries in northern Sweden and Finland over the European summer months.¹⁰ Many of the Thai migrants were charged enormous upfront recruitment fees by middlemen, which they then had difficulties repaying due to weather fluctuations limiting the berry harvest (Woolfson, Olsson and Thörnqvist, 2012). In this case, the cost of travel and accommodation in Sweden for a berry season amounted to approximately 100,000 Thai bhat (about 2,300 EUR). For many Thai berry pickers, who are otherwise small-scale rice farmers in Thailand's poor provinces in the north-east, this is a substantial amount of money, often equivalent to two years of their annual household income. Therefore, the upfront investment required to become a berry picker in Scandinavia poses a potential investment but also a serious financial risk to the migrants and their families. Bad weather conditions can result in a poor harvest, and leave migrants' to return in debt, which is what happened in 2009, and has been described as the "blueberry fiasco".¹¹

Fieldwork in Los Angeles and Lampang

Background to the El Dorado Manpower Episode

In this section, I present qualitative evidence illustrating how Thai labor migrants perceived migration as a risky decision, involving both intentional exploitation (*social risks*) as well as unintended mishaps (*risks of nature*). I collected this evidence through semi-structured interviews with Thai

¹⁰In 2015, a record number of 3,500 Thai berry pickers were granted tourist visas for Finland.

¹¹More information on the 'blueberry fiasco' at <http://www.pri.org/stories/2015-10-16/thai-berry-pickers-nordic-lapland-take-home-cash-and-antlers>, accessed 10 January 2016.

migrant workers, their families, local government officials and civil society organizations in Los Angeles, U.S. and Lampang, Thailand.¹² Much of the interview time was dedicated to questions about the migration decision-making process and context in order to better understand the motivation, opportunities and constraints of migrants who decided to trust a local labor recruiter and accept a specific employment opportunity abroad.

Demographically, the 15 migrants I interviewed were all middle-aged men between the ages of 30 and 50. Almost all had left behind spouses, children and parents to work overseas. Most interviewees had only primary school education, and, when in Lampang, were self-employed as subsistence farmers on their rice fields. Moreover, one common characteristic of my interviewees was that they had previous temporary labor migration experiences in the Middle East and Asia, which they rated as overall positive.¹³ Similar to what Paul (2011) showed with regards to Filipino migrant domestic workers, I found that these Thai labor migrants also engaged in “stepwise international migration,” highlighting that aspiring labor migrants plan for multi-stage migration trajectories, in which they start working abroad in countries offering the lowest wages but impose the fewest immigration restrictions, and gradually work their way up in the hierarchy of destination countries to one of their preferred destinations, such as North America.

The Thai migrants I interviewed were all connected in that they had accepted an offer by El Dorado Manpower to come to the U.S. for temporary agricultural work during the time period of 2003-2005. The men were approached in their villages in rural Lampang by a local recruiter, who offered full-time jobs picking fruit and vegetables in the United States, a country ranking on the top of Thai farmers’ destination country wish-list as it is associated with glamorous Hollywood movies and a strong “rule of law”. The local labor recruiter, Sin, a wealthy and educated woman in her mid-50ies and from the district’s main city, came to the rural villages with an offer that was not judged to be “too good to be true” but instead “too good to resist”. This migration offer was what many of my interviewees had always dreamed of, and the recruiter was quick to point out that because of tight immigration regulations and the geographic distance, not even their local politicians could afford to travel to the United States, a country where “dreams come true and everything is possible.”

In particular, the job offer came with a salary equivalent to approximately 50,000-60,000 baht per month (which was around \$1,500 - \$1,800), overtime pay, and even medical insurance. The contracts were to run for a minimum of one year, with the potential and likely extension of another two years. The Thai farmers quickly calculated and concluded that they would earn enough money in the first year to pay off the high recruitment fee that they had to pay upfront to the labor recruiter, they could then pocket the earnings for the following two years. This potential earning represented a substantial sum that would allow them to send generous remittances to their families back in Thailand. From

¹²The fieldwork in the U.S. and Thailand was conducted between July and September 2013. Approximately 30 interviews were conducted, some lasting 30 minutes, others lasting 4 hours.

¹³Of course, the respondents’ views in this sample on migration may be biased because they all had positive migration experiences previously.

what I could gather through the interviews and what was confirmed by an interview with Sin, everyone who was presented with the offer, and who was medically eligible, accepted it.¹⁴

Upon arrival at the airports in Los Angeles and Seattle, employees of El Dorado Manpower took away the migrants' passports with their H-2A temporary guest worker visa, as they later justified for "safekeeping" reasons. El Dorado Manpower then transported the Thai migrants to a number of large farms, with which they had subcontracted to provide agricultural labor. The farms were mostly located in two U.S. states: Washington and Hawaii. On these farms, the Thai migrants worked side by side with many other migrant workers, mostly from Mexico but also from other countries, such as Vietnam. However, they were housed in Thai-only housing and mostly communicated only with other Thai migrants.¹⁵

At many of the farms, the Thai migrants found themselves crammed into small and poor housing structures provided either by El Dorado Manpower or by the farm itself. For example, I heard reports and saw photographs of housing units that had small rooms, with many bunk beds, and no proper insulation against the heat or cold. In addition, some of the housing structures lacked running water, a sufficient number of bathrooms and proper cooking facilities. In addition to the physically challenging conditions, many migrants feared that they would be deported back to Thailand, as the threat of deportation was strategically used to intimidate migrant workers and prevent them from complaining to the authorities about their living and working conditions. Finally, the migrants were also subject to a variety of wage abuses. One of my interviewees employed on a Washington farm told me that initially they did not even receive any pay-slip, so he could not even verify whether his hours and his hourly wage had been accurately recorded.

Furthermore, instead of the promised full-time jobs, they often received work only for a few days at a time. Several interviewees reported that some days they would only have one to three hours of work, and thus they were only making \$20 a day, and on other days there was no work at all. Towards the end of a harvesting season, work became even more scarce and it was possible for workers to be out of work for several weeks before they were moved to a different farm growing other crops. As a result of this unexpected underemployment, many of the migrants accumulated more debt than income during their time with El Dorado Manpower. Thus, they feared that they would have to return empty-handed to their families, who were already heavily in debt as a result of having paid the high upfront recruitment fee.

All of the Thai migrants I interviewed were eventually able to escape from the farms and after several months (and in some cases years), they were able to travel to Los Angeles, where the largest Thai community in the United States is situated. As a result of their experience with El Dorado Manpower and because of their cooperation with law enforcement to bring those involved in the

¹⁴In order to be eligible, candidates had to pass a medical check, be able to pay for the recruitment fee and pass an interview at the U.S. embassy in Bangkok.

¹⁵In most cases, El Dorado Manpower had also employed a Thai-speaking manager, who could translate and communicate with the Thai migrants as well as with the farm management.

scheme to justice, they received a special T-visa (trafficking visa) that allowed them to remain and work legally in the U.S.¹⁶ Many still owe debts, mortgaged against their family land, in Thailand. Overall, the experiences of these migrant men from Thailand who fell for the El Dorado Manpower offer illustrate graphically how labor migration can go terribly wrong, and how labor migrants with high expectations of improving their economic well-being find themselves in financial ruin.

The Legal Case of El Dorado in the U.S.

Many of the Thai migrants who escaped from the farms made their way to Los Angeles, where they knew that they could find Thai migrants who could help them. Their limited knowledge of English made it difficult to seek support from outside the Thai community. A local Thai temple initially provided shelter and food for the newcomers. Quickly word-of-mouth spread that the Thai Community Development Center (Thai CDC), a small NGO dedicated to help the most disadvantaged and vulnerable members of the Thai community in LA, would be able to provide assistance in terms of social services (applying for health insurance, food stamps, finding employment) as well as in terms of legal aid. Already in 2003, the first Thai workers from El Dorado approached the Thai CDC, but only when the organization was contacted in 2005 by United Farm Workers, who had heard that a large group of Thai migrants had escaped from a farm in Washington, did they realize that the El Dorado case was a larger scam.

Following the evidence provided by those Thai migrants who had approached the Thai CDC for help, the U.S. Justice Department (DOJ) filed criminal charges against California-based El Dorado Manpower. In what the DOJ described as “the largest human trafficking case related to the agricultural industry”, charges were brought against the CEO, three executives and two Thai labor brokers from El Dorado Manpower. The allegations - conspiracy to commit forced labor - were that El Dorado executives had intentionally planned the exploitation of Thai migrants as “cheap” and “compliant labor”.

The allegations further claimed that El Dorado Manpower lured workers from Thailand with false promises of high paying jobs and legal U.S. work visas. According to the case documents, the company had forced the Thai migrants into debt in Thailand by requiring them to pay high recruitment fees to the local recruiters. The indictment stated that the Thai migrants who earned as little as \$1000 a year from farming rice and sugar cane were charged as much as \$21,000 to obtain the contracts for the farm jobs in the United States. Moreover, the lawsuit filings stated that El Dorado Manpower took away the migrants passports once they entered the country and “subjected the claimants to uninhabitable housing, insufficient food and kitchen facilities, inadequate

¹⁶T-visa holders are able to apply for a Green Card after being present in the U.S. for at least 10 years. At the time of my interviews in LA, many of my interviewees were in the process of applying for the Green Card and the first ones had just succeeded, allowing them to travel back to Thailand, often for the first time since they left with high hopes for a three year contract with El Dorado Manpower.

pay, significant gaps in work, visa and certification violations, suspension, deportation, and/or physical violence". In sum, the criminal case stressed how El Dorado had intentionally tricked and exploited Thai migrants, all to further the profitability of the company.¹⁷ But did the migrants view themselves in the same "victim" roles?

Migrants' Perceptions of their Experiences

Although the living conditions were sub-standard and much worse than any of the Thai migrants had imagined, and their documents were taken away from them, my interviewees primarily did not see themselves as having been duped by greedy, opportunistic actors. Instead, their main complaint was that their work contract had been terminated early, which resulted in the inability to earn the salaries that they had been promised by Sin in Thailand. However, while most of my interviewees understood this situation to have been the result of a mix of problems that the company had in securing enough contracts from farms and allocating workers to the different farms, some did not feel that El Dorado employees were personally to blame for this. In fact, it was only after being taught their rights by the Thai CDC and other institutions providing help to them after their escape that many of the Thai migrants came to see themselves as "human trafficking survivors."

The situation with Sin, the local labor recruiter in Thailand and the Bangkok based recruitment company, which she worked for, is more complicated. While the El Dorado migrants understood that she probably did not have any idea about the situation they would encounter in the U.S., they also felt that she should return their land and property deeds, given their inability to pay back the steep (and illegally high) recruitment fee she had charged them. They perceived this solution as a fair way to "split the cost" of a failed transaction. Thus, they were more concerned about them settling their debt with her (which she has refused to do to this date), rather than about having her pay retribution for unscrupulous behavior by spending time in prison.

Overall, the main conclusion I draw from my interviews and qualitative work on the El Dorado case is that migrants did not view their negative experience as a consequence of intentional exploitation. This conclusion stands in stark contrast with the exploitation paradigm, as well as the structure of the legal protections in place for those who have become stranded. Of course, the Thai CDC and other civil society organizations that are financially supported by government programs and private donations also have institutional incentives to pay particular attention to acts of intentional exploitation since these are usually the ones receiving attention and financial support.

However, I am not suggesting that the El Dorado Manpower case and the sample of migrants interviewed here are representative of experiences of Thai labor migrants more generally. The El

¹⁷In addition, the U.S. Equal Employment Opportunity Commission (EEOC) filed two related class action civil suits based on similar facts against El Dorado Manpower along with the farms in Hawaii and Washington, alleging discrimination under the Title VII of the 1964 Civil Rights Act, for similar exploitative practices directed *specifically* against the Thai workers.

Dorado offer was certainly exceptional in many respects as it (a) involved a highly sought after but rarely offered destination country, namely the United States, (b) a promised salary that was particularly high compared to other similar overseas job offers available in Thailand, and (c) a steep recruitment fee that was above the standard rates for other more common migration destination countries. Yet, I believe that the El Dorado case offers insights into a general phenomenon: migrants at the decision-making stage are not ignorant that exploitation does exist. Instead, they are usually aware of the risks involved in accepting overseas employment. However, of course their post-migration assessment of the situation in terms of risk of nature versus social risks may be more specific to the type of migrants, who were male and had low levels of education, and the specific type of experience (especially since El Dorado Manpower offered explanations for the lack of work based on the weather, market competition, and other difficult to control factors). Therefore, their post-hoc self-reported risk perception may be a result of the indoctrination received from Manpower employees, their reluctance to admit that they had been cheated, or a cultural bias that leads Thai individuals to interpret disappointing outcomes of migration as deriving from risk of nature rather than from intentional exploitation.

In the next section, I try to test whether this interpretation of migrants' risk perceptions is more generalizable in a more rigorous way using original survey data with prospective migrants from northern Thailand.

Original Survey Data with Prospective Migrants

To supplement my qualitative work, I conducted a paper and pencil survey with 205 *prospective* labor migrants in July 2014. The survey took place in the province of Lampang, Northern Thailand, the same province from which also most of the migrants in the El Dorado Manpower case originated. More specifically, the survey respondents were recruited in three Korean language schools, where they were preparing for a language exam, which is required for successful job placement in South Korea.¹⁸ In all of northern Thailand, these are the only three schools where prospective migrants can acquire Korean proficiency, and I was able to survey over 90% the students enrolled at that particular time of the year. I can therefore take these respondents as a "sample in time" of my general population of interest, which consists of all individuals from Northern Thailand preparing to migrate to South Korea.

The survey included approximately 30 questions about individuals' past migration experiences, their migration intentions, attitudes towards risk and trust, and a range of socioeconomic and demographic indicators. In line with previous research on the gender composition of Thai migrants (McDougall, Natali and Tunon, 2011), 80% of my respondents were male (N=161), and all respondents were

¹⁸The exam is administered twice a year. In total 2000 people will sit each of the exams and only about 400-500 per exam will pass. Those who pass will then have the chance to apply for a job in Korea.

between the ages of 18 and 38 with a mean age of 25. The majority of respondents were single (65%) and without children (67%). Moreover, about 33% of the respondents had attended vocational school, 32% high school, and 12% had some post-secondary education, while the remaining 24% had only a middle or primary school education. Respondents perceived overseas migration as a very common phenomenon: 63% believed that “most” or “almost all” men of their age group from their area would seek temporary work abroad. In addition, 68% of respondents knew someone personally who was currently working abroad.

Respondents indicated a number of reasons for going abroad, some of which were surprising. Of course, the primary reason was to gain higher wages (70% said it was “very important” and 30% indicated it was “somewhat important”). However, other factors such as family and peer pressure which have been given much attention in the literature were not rated as important: Only 9% said they were following the example of others, and only 14% indicated they felt family pressure. Instead, respondents listed a number of self-expressive reasons for their migration decisions, including: interest in performing different types of work (50%), and a desire to see the world (40%).

However, while respondents clearly viewed the upside of migration, their evaluation of the downside is much more ambiguous, and perhaps even contradictory. On the one hand, 97% of people said it was very important or somewhat important that the job abroad should be legal, and 91% were concerned about working conditions. On the other hand, only about one in three respondents stated that they would turn down a job offer because they feared exploitative conditions.

How can we make sense of this discrepancy? I suspect that it has become “politically correct” to say that one should only accept legal work. The Thai government has introduced various initiatives, such as strengthening the role of district labor offices in matching prospective migrants and potential overseas employers, in order to guarantee legal and safe temporary labor migration. However, this does not mean that respondents would really believe in the importance of a legal status. Rather, I find respondents' answers to the “would you turn down a job question” more credible. These answers also confirm what my interviewees indicated, namely, that they would be willing to endure very poor living and working conditions as long as they were guaranteed to make “good” money.¹⁹

Evaluation of a “Failed” Migration Scenario

In addition to the above questions, I presented respondents with the following hypothetical scenario, based on the El Dorado Manpower case:

Nut is a rural farmer from northern Thailand. He has a wife and three children. One day, a local labor recruiter comes to his village and offers Nut a full-time job for three years in the agricultural sector in

¹⁹One should note, however that their evaluations are likely to be judged based on their specific reference frame, which may be their working conditions in Thailand. Therefore, it is understandable that they would be willing to endure poor living conditions to increase their income significantly given that their working conditions in Thailand are often also poor.

a far away country. This job would pay Nut a total of 900,000 baht. However, as a recruitment fee, the labor recruiter is asking that Nut pay 300,000 baht up front, or about 1 year of his future earnings. Nut decides to accept the offer. To pay the recruitment fee, he borrows money from relatives and mortgages his family land. However, once abroad, he finds out that he can only work part time, and after the first year he is without job. Nut cannot earn the salary he was promised, and he will not be able to pay back the loan he has taken out.

To verify whether the scenario describes a realistic migration experience, I asked respondents whether they knew anyone personally with a similar experience. I find that 38% personally knew somebody with a similar experience.²⁰ Furthermore, 77% could imagine that something similar could happen to their friends, a family member or themselves.

Importantly, although this scenario describes a negative migration experience, it does not provide any information on the causes of Nut's plight. This was done intentionally so that respondents could "fill in the blank" using their own intuitions about what were the most likely pitfalls one could face in the migration process. In particular, I asked respondents to rate their agreement / disagreement with the following five statements on a 5-point Likert scale ("*completely agree*", "*agree*", "*neither agree nor disagree*", "*disagree*", "*completely disagree*"):

1. Nut falls sick and thus, becomes unable to continue to work.
2. The company had a cash flow problem and was unable to pay Nut.
3. Nut had problems with his visa.
4. In spite of having signed an employment contract with Nut, the company did not pay him because they knew he would not take them before court.
5. The greedy labor recruiter wanted to be paid a high commission for a job that did not exist as described.

Notice that the first three statements describe unintentional causes of Nut's predicament, while statements four and five describe classically "exploitative" (intentional) situations.

I conducted a factor analysis to test this grouping of the statements. Factor analysis is a useful technique that helps to reduce the dimensionality of data. In effect, it looks at the interrelationships between a set of observable variables, which in turn can be summarized by a smaller set of latent variable (i.e. the factors) (Treier and Jackman, 2008). There are two types of factor analysis: (1) exploratory and (2) confirmatory. Exploratory factor analysis is employed when there is no pre-defined idea of how many dimensions are in a set of variables. On the other hand, confirmatory factor analysis is employed when a specific hypothesis about the structure or the number of dimensions underlying a set of variables is tested.

²⁰In most cases, this person was someone with very close social ties to them, such as a relative or friend, but in some instances respondents named people from their wider social network, such as neighbors or other villagers.

I use confirmatory factor analysis to test whether items one through three do indeed comprise a separate set (relating to unintended mishaps) than items four and five (relating to exploitation).²¹ The results are shown in Table 1.1.

Table 1.1: Factor Analysis of Explanations for Nut's Experience

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	2.466	1.284	0.493	0.493
Factor 2	1.182	0.590	0.236	0.729
Factor 3	0.596	0.131	0.119	0.849
Factor 4	0.465	0.172	0.093	0.941
Factor 5	0.292	.	0.059	1.000

LR test: independent vs. saturated: $\chi^2(10) = 285.31$; $\text{Prob} > \chi^2 = 0.000$

N = 200

I find that there are two factors with an eigenvalue (variance of the factor) greater than 1, which is the cut-off threshold for statistically significant factors. The primary factor (Factor 1) explains about 49% of the variance in the data and the second factor (Factor 2) explains an additional 24%.

Table 1.2 reports factor loadings for the two statistically significant factors. Factor loadings demonstrate the bivariate correlation between the variables and the latent factor (Hendrix, 2010, p.280). The uniqueness represents the proportion of the common variance of the variable not associated with any of the factors. I report only the factor loadings > 0.4 .

Table 1.2: Rotated Factor Loadings and Unique Variances

Variable	Factor Loadings		Uniqueness
	Factor1	Factor2	
1. Sickness	0.858		0.318
2. Cashflow Problem	0.838		0.237
3. Visa Issue	0.693		0.254
4. Firm Greed		0.731	0.292
5. Broker Greed		0.898	0.252

From Table 1.2, we see that Factor 1 is composed of items one through three, while items four and five load highly onto Factor 2. In other words, respondents do distinguish between *unintended* and *intended* explanations for Nut's case as hypothesized earlier.

One limitation of factor analysis is that the resulting factors are constructed with mean 0 and sd 1. The result is that, by looking at the factors alone, we are not able to see whether respondents prioritize one set of explanations over another. Moreover, just by looking at the raw item scores themselves does not provide useful information in this regard, because the answers may reflect only

²¹I also conducted a Kaiser-Meyer-Olkin (kmo) test to measure sampling adequacy in order to check whether a factor analysis is justified. I find that all five values are above the standard threshold of 0.5, and therefore using factor analysis is justified.

how respondents feel about the specific actors (i.e. the company, labor recruiter) described in the explanations, rather than their perceptions of these actors' underlying motivations. For example, respondents rated item 5 (the labor broker) most likely, while rating items 2 and 4 (the company) least likely. The rating for the explanation featuring the migrant's sickness fell in between the rating of the labor broker and the company, while visa problems were rated as the least likely of all causes for Nut's negative experience.

Instead, I adopt a comparative strategy to investigate whether unintentional explanations of Nut's case figure more prominently in the minds of different subsets of respondents, relative to intentional explanations. In particular, I am interested in examining how gender, education level and financial satisfaction affect perceptions. I focus on these variables because most overseas migrants from Thailand are (a) male, (b) low educated and / or (c) poor.

In Table 1.3, I report the findings from a number of paired t-tests of both factor loadings, by population segments. I find that there is no difference between any of the categories in terms of respondents' evaluations of unintended mishaps. However, the results suggest that there is a difference in terms of who focuses on intentional exploitation. Most strikingly, my results show that men's and women's judgments are statistically significantly different (diff = 0.38, s.e. = 0.17, p-value < 0.05): Male respondents are less likely to agree that Nut's situation was due to exploitation compared to female respondents. Furthermore, respondents with lower levels of education (primary or middle school) are also less likely to attribute blame to intentional exploitation of the migrant (diff = 0.33, s.e. = 0.17, p-value < 0.05). Other socio-demographic characteristics, such as marital and parental status, ratings of financial satisfaction and relative poverty were not significantly associated with differences in respondents' evaluations.

In sum, the survey data suggest two main findings: first, the factor analysis shows supporting evidence for the hypothesis that there are two unique dimensions to the risks assessments of prospective migrants. On the one hand, there are those risks during the migration process which are due to intentional exploitative actions. On the other hand, there are also unintended mishaps, which are not any one individual's fault, but which lead to migrants suffering. Nevertheless, these unintended mishaps may strike and cause harm to migrants, annulling their initial financial investment in the migration journey. Second, men and respondents with lower education are less likely to believe that intentional exploitation resulted in Nut's situation. Given that most temporary labor migration from Thailand is by men with lower levels of education, the survey results are particularly informative. Overall, the findings reinforce the impressions gained from the interviews. While not suggesting that exploitation is unimportant, the results indicate that migrants and prospective migrants (especially men with lower levels of education) are generally less concerned about becoming victims of intentional deception and exploitation.

Table 1.3: Comparing Factors by Respondent Characteristics

	Unintended Mishaps						Intentional Exploitation					
	X1			X2			X1			X2		
	N	Mean	Difference S.E.	N	Mean	p-value	N	Mean	Difference S.E.	N	Mean	p-value
Male - Female	159	-0.002	0.178	40	0.022	0.893	159	-0.065	0.173	40	0.315	0.030*
Single: No - Yes	68	-0.054	0.15	132	0.028	0.583	68	0.040	0.15	132	-0.019	0.715
Children: No - Yes	137	0.056	0.152	63	-0.120	0.251	137	-0.026	0.152	63	0.056	0.596
Primary/Middle School - Higher Educ.	44	-0.068	0.172	153	0.015	0.632	44	-0.255	0.170	153	0.079	0.051*
Vocational - Uni Track	65	0.089	0.180	65	0.093	0.983	65	0.101	0.177	65	0.124	0.895
Employed: No - Yes	131	-0.009	0.149	69	0.017	0.859	131	0.004	0.149	69	-0.008	0.993
Subjectively Poor: No - Yes	77	0.065	0.159	82	-0.061	0.431	77	-0.020	0.159	82	0.018	0.811
Financial Satisfaction: Low - High	66	-0.123	0.193	48	0.010	0.493	66	0.084	0.177	48	-0.117	0.256

* p<0.05,two tailed t-tests were used to determine if there are significant differences between X1 and X2. Higher values indicate that respondents were in more agreement about the statement.

Conclusion

This chapter has sought to highlight a missing piece of the puzzle in explaining individuals' migration choices by examining how migrants *themselves* perceive the risks inherent in migration. Scholars have previously pointed out that international migration often involves tremendous uncertainty and risks (Hernández-Carretero and Carling, 2012; Williams and Baláz, 2012, 2014*b*). Much of the literature has focused either on recruiters, smugglers and criminal gangs who intentionally deceive their victims or on unscrupulous employers who illegally withhold their workers' pay, or provide unsafe and unhealthy working conditions (Faist et al., 2014; Mahmud, 2013; Spaan, 1994; Fernandez, 2013; Xiang and Lindquist, 2014). However, the literature has so far overlooked the risks that are not due to opportunistic actors, but rather to a concatenation of unpredictable circumstances or unintended mishaps.

The evidence of this study rests on two pillars: semi-structured interviews with migrants in the U.S. and Thailand and original survey data with prospective migrants from Thailand. Using this multi-method approach, the article makes three main contributions: First, this study highlights two different types of risks present in migration: (1) those that are determined by chance or by more structural conditions, which can be conceptualized as unintended mishaps or *risks of nature* and (2) those that are the result of intentional opportunistic behavior of others, which can be understood as intentional exploitation or *social risks*. Second, I find that migrants as well as *prospective* migrants from Thailand understand both types of risks to be present in temporary labor migration, and that they predominantly view negative outcomes to result from unintended mishaps.²²

Of course unintentional risks (i.e. in the form of wage and employment volatility or on-the-job accidents) are inherent in any form of employment, regardless of whether migrants are involved. Yet, some sectors tend to be more risky than others. For example, in terms of fatalities, injuries and work-related ill-health, agriculture and construction are among the most hazardous sectors according to the International Labor Organization (2009).²³ These are also the sectors in which many low-wage labor migrants tend to cluster (Fan and Stark, 2011; Orrenius and Zavodny, 2009).²⁴ The concentration of migrants in these high-risk sectors means that this type of unintentional risk is

²²Note that I particularly focus on low educated males

²³The ILO estimates that agricultural workers run twice the risk of dying on the job compared to workers in other sectors: At least 170,00 agricultural workers are killed each year and many more are seriously injured in accidents involving agricultural machinery or poisoned by pesticides or other agrochemicals. Moreover, there is widespread under-reporting of deaths, injuries and occupational diseases in this sector, which implies that the real situation is likely to be worse than the official statistics suggest.

²⁴For example, according to the most recent National Agricultural Workers Survey from 2012, 78% of farm workers in the U.S. were foreign-born, the vast majority of whom are from Mexico. In the same year, 374 farmers and farm workers died from a work-related injury, resulting in a fatality rate of 20.2 deaths per 100,000 workers (Centers for Disease Control and Prevention). The Bureau of Labor Statistics reports that of the of the 797 fatal work injuries incurred by Hispanic or Latino workers in 2013, 527 (or 66 percent) involved foreign-born workers, which represents 3.8 per 100,000 FTE workers, and is thus considerably higher than the national rate of 3.2 per 100,000 FTE workers. In the construction sector, similar proportions exist: 21 of 29 fatal construction accidents in New York City during a recent 12-month period involved workers who were immigrants or had limited English proficiency (Chan, 2006).

likely to be an especially important determinant of whether they have successful and rewarding experiences.

A possible lesson for policy makers is that temporary labor migrants (and other workers employed in these precarious jobs) could benefit more from governments and companies in these sectors, which (i) either come up with ways to mitigate the nature of these jobs or (ii) guarantee higher compensation that reflect the true human costs of these high-risk jobs. While this line of policy may be not “sexy” in terms of capturing international media headlines and spurring donations for migrant rights NGO’s, it may be these more mundane issues what temporary labor migrants care about most.

Moreover, the findings point to several implications for future research on temporary labor migration: first, in order to understand migrants’ behavior, we need to thoroughly understand how migrants *themselves* perceive the given structural constraints and opportunities, and how they attach meaning to it. Second, migrants, at least in this context, view temporary labor migration predominantly in terms of unintended mishaps. From a scholarly perspective, this implies that we should try to better understand how these individuals treat and understand games of chance, and their decision-making in probabilistic or uncertain settings, rather than how they behave in situations of interpersonal trust. However, one of the limitations of the present study is that these conclusions are based on a small sample of prospective and current migrants from Northern Thailand, and in other contexts, migrants may be more concerned about being cheated by intermediaries. For this reason, it may be useful to replicate this research in different countries of origin and destination and with migrant populations who are confronted with different structural conditions.

Chapter 2

Theoretical Framework: A Migration Decision-Making Model

The Black Box of Migration Decision-making

The field of migration studies is rich with theories explaining why people move (e.g. Massey et al., 1993; Brettell and Hollifield, 2014; Cohen, 1996). In the simplest iteration, labor migrants are treated as simply a commodity or economic factor of production (Harris and Todaro, 1970; Sjaastad, 1962; Todaro, 1969). Thus, like capital, labor flows to where it can command the highest returns. In this model, wage differentials across countries (or across regions within a single country) give rise to migration, as people move in search of higher earnings. Interestingly, this basic mechanism also lies at the heart of arguments put forward by World Systems Theory (Wallerstein, 1974) to explain migration flows, only with the added normative twist that inequalities between countries are the result of rich nations exploiting poor societies through the global capitalist system (Castells, 1989; Portes and Walton, 1981; Petras, 1981; Sassen, 1988).¹

Empirically, these arguments provide an obvious explanation for one of the “big facts” in the migration literature - namely, that the larger the income gap between two countries, the greater the bilateral flow of migrants from the poor country to the rich country. This is true even though migrants may be confined to “low status” jobs in the destination country because, if cross-national

¹For example, the influx of foreign capital is often blamed for distorting the local economy in poor countries, throwing poor farmers off their land, and consequently driving them to seek livelihoods abroad (Saskia, 1991).

income gaps are large enough, even menial jobs abroad are more attractive than “normal” jobs at home.² For example, following the Bracero program, Mexican migrants in the United States filled farm jobs that had become defined as immigrant jobs and were socially unacceptable (in terms of pay and status) to US citizens (Massey, Durand and Malone, 2002). Dual labor markets theory rests on the premise that international migration stems from intrinsic labor demands of modern industrial societies for cheap and flexible labor (Piore, 1979, p. 440) and that immigrants are willing to perform what are relatively unattractive jobs because of their wage-earning goals and different comparison groups.

Other scholars have extended this basic insight about wage differentials as the key driver of mobility to incorporate a discussion of transactions costs in the migration process. This literature emphasizes that labor cannot flow freely across borders: migrants often face legal barriers to entry and restrictions in the labor market of the destination country (McKenzie, 2007; Ruhs, 2013). In addition, even to physically cross borders often requires large upfront payments to secure transportation, visas and other intermediary services (Gammeltoft-Hansen and Sorensen, 2013). Finally, new arrivals may often need to invest substantial time and energy in “getting to know” the local labor market and learning to speak the local language.

The existence of these transactions costs can explain two other “big facts” in the migration literature. First, the poorest of the poor are paradoxically *less* likely to migrate than their (slightly) better off peers (De Haas, 2010).³ Although these individuals may have the greatest desire to migrate, they may simply lack the resources to surmount the upfront fixed costs and transactions costs inherent in the migration process.⁴ This is particularly true in poor countries, where ordinary citizens do not have access to formal financial institutions and must therefore rely upon family funding sources for major investments, such as migration endeavors.

This last consideration relates to the the last “big fact” concerning the importance of social networks and diasporas in facilitating migration flows (Massey, 1990). Specifically, research has shown that both the presence and size of diasporas are correlated with greater bilateral migration (Beine, Docquier and Özden, 2011; Brettell and Hollifield, 2014; Nyberg-Sørensen, Hear and Engberg-Pedersen, 2002). In particular diasporas can help to surmount these transactions costs by providing resources, information and other “transition” services to new migrants. Moreover, as migrant networks deepen, a “culture of migration” is created whereby it becomes “normal” to search for work abroad. These new social norms facilitate greater out-migration by providing realistic “role models” of success and increasing the degree to which leaving home becomes “imaginable.”

²For example, Foster (2009) discusses how international trained physicians face labor market restrictions in Canada, i.e. neurosurgeons become taxi drivers.

³For a discussion on the difference between migration aspirations and capabilities, see (Carling, 2002).

⁴Wealthy people, on the other hand, even in developing countries usually can afford to migrate but see little benefit to doing so. Therefore, the relationship between income and the propensity to migrate has been described as an inverted U shape: people in the middle of the income distribution, who have the incentive to migrate and the ability to finance it, are most likely to migrate (Collier, 2013, p. 154).

Interestingly, in all of these theories just surveyed, migration is conceptualized as the result of individuals responding “rationally” to structural economic conditions and incentives. Yet, none of the traditional theoretical traditions in the migration literature have seriously questioned how this behavioral regularity comes about.⁵ In other words, what are the micro-level mechanisms that actually produce the macro-level patterns we observe? How exactly do migrants weigh the costs and benefits of mobility when making their decisions? These micro-foundations of individual decision-making are simply left under-specified in the migration literature. I aim to address this gap by opening up the “black box” of migration decision-making.

Rational Choice and Its Discontents: The Model

To accomplish this, I draw upon various approaches in the decision sciences that aim to describe the motivations behind individual choice. I begin with the rational-choice approach, which has originated in economics, but become increasingly standard in sociology and the other social sciences. This approach starts from an assumption that individuals have stable preferences over outcomes, and choose the outcome that maximizes their welfare (or happiness / utility). Further, individuals are commonly modeled to have full information about the set of possible outcomes which are possible, and if there is some uncertainty in the mapping of actions to outcomes (e.g. the decision to migrate increases the likelihood of economic success, but does not guarantee that such an outcome will occur), then individuals are assumed to attach the “correct” probabilities to different states of the world.

One straightforward way to apply this approach to the migration context (where the mapping of actions to outcomes is subject to some uncertainty) is through the use of a conventional expected-utility model (Ajzen and Fishbein, 1980). This model starts by assuming that the value of choosing the status quo (not migrating) is zero. Next, we can model the expected value of choosing to migrate as:

$$E(Migrate) = \sum_{i=1}^N p_i \times v_i \quad (2.1)$$

where i indexes the set of all possible outcomes $\{1, 2, \dots, N\}$ that can result from the decision to migrate, v_i is the value (utility) attached to each of these outcomes, and p_i represents the probability

⁵Fawcett (1985) described already in the 1980s two broad areas for migration-related psychology research it is surprising that migration theory has not taken any of the findings into account. More specifically, the two areas are: (i) examining reasons and processes causing an individual to migrate, and (ii) the consequences of that migration to the individual. While Fawcett (1985)’s latter suggestion has evolved into a large body of scholarship of attitudes towards immigrants, ethnic minorities, immigrant acculturation, and intergroup-relations between immigrants and host country residents, the former has largely been forgotten.

that each outcome will occur. Solving the model, an individual chooses to migrate if the utility she derives from migrating exceeds the utility of the status quo:

$$E(\text{Migrate}) > 0. \quad (2.2)$$

In plain language, the model highlights three crucial parameters in migrants' decision-making:

1. The information that individuals possess about the possible fates that can befall migrants (represented by the set $i = 1 \dots N$)
2. How much individuals value the benefits (or fear the dangers) of migration, relative to the status quo (represented by the v parameter), and
3. Individuals' beliefs about the likelihood of encountering positive versus negative experiences (presented by the p parameter)

To the extent that these parameters accurately characterize the decision-making process, the model is likely to make accurate predictions about migration outcomes.

However, the behavioral assumptions of the rational-choice approach have been called into question by a vast body of evidence drawn from psychology, cognitive sciences and behavioral economics (e.g. Gilovich, Griffin and Kahneman, 2002; Kahneman and Tversky, 1979; Thaler et al., 1997; Simon, 1959, 1982; Tversky and Kahneman, 1974).⁶ In particular, research has challenged the idea that individuals are fully-informed utility maximizers, capable of aggregating probabilities and utilities over multiple outcomes in the manner depicted in Equation (1). Rather, individuals can be more accurately described as “boundedly rational” (Simon, 1982): while people certainly formulate strategies in the pursuit of goals, these strategies are often based on incomplete information, and they may not lead to a search for the “best” course of action, but rather for a “satisficing” solution that is “good enough” (Lopes, 1987; Parker, Bruine de Bruin and Fischhoff, 2007). .

Other research has set out to challenge the extent to which individuals have stable preferences (Loewenstein and Angner, 2003). For example, Tversky and Kahneman (1981) show in their research on framing effects how people's choices are sensitive to whether outcomes are presented as losses or gains. While individuals tend to avoid outcomes that are described in a loss frame, they seek the same outcomes when framed as a gain. According to classical expected utility theory, the framing of outcomes should not matter in how individuals determine their choices. However, clearly, as these scholars have empirically shown, people's valuation of different outcomes is affected by something so trivial as the framing of the information.

The framing effect points to a third feature of bounded rationality, namely that cognitive action often suffers from a number of biases, or “severe and systematic errors” (Tversky and Kahneman, 1974,

⁶For a discussion, see the 2015 World Development Report: Mind, Society, and Behavior (Bank, 2015).

p. 1125) which are the result of limitations to how humans process information. Social psychologists have documented a number of such biases relating to the tendency to (a) overestimate the probability that rare events will occur (Hertwig et al., 2004), (b) overvalue the present relative to the future (Samuelson and Zeckhauser, 1988), (c) see causal stories from patterns of random events (Gilovich, Vallone and Tversky, 1985), (d) resort to easily-retrievable stereotypes in judgment (Greenwald and Banaji, 1995), and (e) recall information depending on its agreement with previous beliefs (Nickerson, 1998).

In the migration context, we can think about these features of bounded rationality as problematizing our three key parameters in the model given by Equation 1 above. First, individuals may possess incomplete (or even false) information about the set of outcomes $\{1, 2, \dots, N\}$ that may obtain should they choose to migrate. This situation could arise, for example, if prospective migrants believe that they will be able to find work in white collar office jobs, while ignoring the possibility that most opportunities will actually be in the construction sector. Having noted this possibility, I reiterate that I do not examine this mechanism in the dissertation. However, I provided some evidence in the previous Chapter, suggesting that most migrants are at least aware of some of the negative outcomes they could experience in the migration process.

Secondly, prospective migrants' valuation of outcomes (i.e. the set of all v_i) may vary, depending upon the framing of the decision context. In Chapter 3 and 4, I examine one determinant of this variability: relative deprivation. Briefly put, I explore the extent to which relative deprivation - or the fear of falling behind comparable others - may drive individuals to accept greater migration risks. This relationship can work through two mechanisms: first, individuals who are dissatisfied with their relative income position may see migration as a tool for catching up. This can be modeled as a negative shift in the value of choosing the status quo, which is equivalent to a positive shift in every v_i . Thus, the $E(Migrate)^{deprivation} > E(Migrate)$, which translates to a higher level of migration amongst the relatively deprived. The second mechanism relates to the fact that relatively poor individuals could feel that they simply have less to lose. In other words, they undervalue the cost that they would incur, should they encounter a negative migration experience. This can be modeled as a "deflation" of the subset of all *negative* v_i towards zero, which again increases the attractiveness of migration amongst the relatively deprived. In Chapters 3 and 4, I present both survey and experimental evidence in support of the relationship between relative deprivation, risk-taking and migration.

Third, prospective migrants may attach "incorrect" probabilities to the set of potential migration outcomes. For example, individuals may convince themselves that nothing bad will happen on the migration trail. In Chapters 5 and 6, I investigate this dynamic through the lens of beliefs about personalized luck. Such beliefs change the calculation of $E(Migrate)$ by placing greater probability weights p_i on the subset of all *positive* v_i , while placing smaller probability weights on the subset of all *negative* v_i . In Chapter 5, I demonstrate using a lab-in-the-field experiment that most individuals

in fact do not calculate probabilities objectively, but rather rely upon a “*fortuna* heuristic” shaped by their perceptions of personal luckiness when estimating probabilistic outcomes. In Chapter 6, I explore the influence of zodiac-based beliefs that individuals born in the year of the horse are likely to find good fortune through migration. Drawing upon Vietnamese census records, I show that these beliefs have a “self-fulfilling” effect of actually increasing migration rates amongst individuals born in particularly “fortunate” years.

In sum, in this chapter, I have argued that despite decades of research on migration, migration theory lacks a good understanding of the micro-foundations of decision-making. Similar to De Jong and Gardner (2013), I suggest that in order to fully understand migration behavior, it is necessary to identify individuals’ motives for intending to move or stay, as well as their migration-related values and expectations. This line of reasoning is also reiterated in a the recent call to “refocus migration theory on the micro-level” and to conduct empirical research on how individuals decide prior to the move (Koikkalainen and Kyle, 2015, p. 1).

In this chapter, I first surveyed the literature on the determinants of migration and pointed out that migration decision-making and behavior is still not fully understood as Arango (2000), Kley (2011) and Koikkalainen and Kyle (2015) have also recently noted. Next, I introduced a basic expected-utility model of migration decision-making based on the rational-choice approach before reviewing and discussing insights from the decision science that challenge the model. Finally, I have illustrated how the standard model of rational decision-making may fall short in describing actual migration decision-making. This discussion serves as a framework for organizing the empirical chapters to follow.

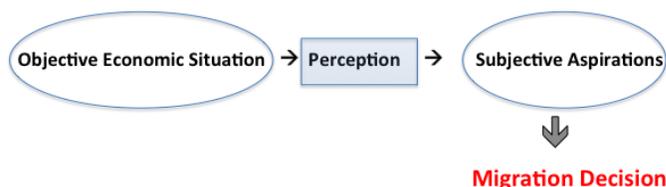
Chapter 3

The Relative Deprivation and Migration Nexus

Introduction

A large branch of the migration literature understands international labor migration as a standard economic decision wherein prospective migrants weigh the costs and benefits of seeking employment abroad. While migration promises benefits in terms of higher wages, the potential costs of this are treated as transaction costs, and thus exert a negligible effect on individual calculations. Consequently, in the neoclassical microeconomic model of individual choice, international wage differences function as the primary predictor of movement across borders, or within the regions of a single country: individuals move to where their labor can earn the highest objective return (e.g. Sjaastad, 1962; Todaro, 1969).

However, it is likely that the propensity to migrate does not stem from “objective” economic conditions alone, but also from the “subjective” evaluation of one’s *perceived* economic position in a larger social environment. While it could be true that individuals view migration as a tool to improve their lot, they first have to understand that their lot needs improving, and then aspire to do so. In the migration literature, a number of scholars have highlighted the importance of aspirations in explaining why some people migrate but others in similar circumstances do not (Carling, 2002; Czaika and de Haas, 2012; De Haas, 2011; Hernández-Carretero and Carling, 2012; Mo, 2011). Following this line of reasoning, I argue that objective economic conditions, such as household income, have to be interpreted subjectively by individuals, before they lead to aspirations and action (as illustrated by Figure 3.1).

Figure 3.1: Poverty-Migration Decision Model

Relative Deprivation Theory

Under what circumstances will individuals or households feel that their objective economic conditions are unsatisfactory? For an answer to this question, we can turn to the concept of relative deprivation, which draws on social comparison theory (Festinger, 1954). The basic idea underlying this line of research is that humans are social animals. As such, people evaluate their own well-being not in absolute terms, but by comparing their conditions to those of others in their social environment. In economics and sociology, the idea that social comparison and positional concerns are important for understanding subjective well-being and economic and social behavior has a long intellectual history reaching back to the classical works of Adam Smith and Karl Marx and has been influential in the scholarship of Veblen (2007), Duesenberry (1949) and Leibenstein (1950).

Related to this literature, the “relative income” hypothesis suggests that individual i ’s satisfaction varies inversely with the income or consumption of those in i ’s social circle, who constitute the “reference group” (Hyman, 1942). Evidently, a reference group is one that functions as a source of information for forming judgments and evaluations “to the extent that the behavior, attitudes, circumstances, or other characteristics of its members represent standards or comparison points” (Kelley et al., 1952, p.412).¹

When people engage in these social comparisons, they can come out either satisfied or unsatisfied. In relation to the purpose of this study, when people come away unsatisfied, they become what Runciman (1966) has termed “relatively deprived”.² In a more precise formulation of relative deprivation, Runciman considers four potential conditions:

“We can roughly say that [a person] is relatively deprived of X when (i) he does not have X; (ii) he sees some other person or persons, which may include himself at some previous

¹There is still no clear answer to how a particular reference group is chosen. The question of how reference group form and change is of interest because migrants may change reference groups when they arrive in the destination country. For a more detailed discussion, on reference groups see Barber and Merton (1957) and on their role in the migration context, see De Haas (2010).

²For an excellent discussion of the concept of relative deprivation and its origin in social psychology and sociology, see Smith et al. (2012); Walker and Pettigrew (1984), and Manzo (2009).

or expected time, as having X, (iii) he wants X, and (iv) he sees it as feasible that he should have X" (Runciman, 1966, p. 10).

Note that Runciman's definition of relative deprivation highlights two types of relative deprivation: (1) inter-temporal relative deprivation, in which the reference group is one's past or expected future self and (2) cross-sectional relative deprivation, in which the reference group is another person or a group of people who is sufficiently similar so that condition (iv) is also met, namely that it is possible to obtain X. Runciman also distinguishes between egoistic (individual) and fraternal (group) relative deprivation, implying that individuals can feel personally deprived or they can experience relative deprivation as part of a social group that is deprived. In this study, I focus on (i) cross-sectional relative deprivation, where the specific reference group is other households in the village and (ii) egoistic relative deprivation rather than group level relative deprivation.

Inter-temporal or cross-sectional - Runciman (1966) suggests that those who feel that they are relatively deprived (i.e. "falling behind") experience emotions of envy and frustration, and are likely to look for ways to "catch up" with their reference group. The idea that people can feel left behind, become discontent and feel envy when they view others progress is illustrated in Hirschman and Rothschild (1973)'s parable of the tunnel effect:

Suppose that I drive through a two-lane tunnel, both lanes going in the same direction, and run into a serious traffic jam. No car moves in either lane as far as I can see (which is not very far). I am in the left lane and feel dejected. After a while the cars in the right lane begin to move. Naturally, my spirits lift considerably, for I know that the jam has been broken and that my lane's turn to move will surely come any moment now. Even though I still sit still, I feel much better off than before because of the expectation that I shall soon be on the move. But suppose that the expectation is disappointed and only the right lane keeps moving: in that case I, along with my left lane cosufferers, shall suspect foul play, and many of us will at some point become quite furious and ready to correct manifest injustice by taking direct action (such as illegally crossing the double lines separating the two lanes).

The initial gratification of observing others move is what Hirschman and Rothschild (1973) call "the tunnel effect". However, as this poignant analogy highlights, when others advance while I remain where I was, I will actually feel worse off than before because my relative position has declined.

Literature Review

Relative Deprivation as an Independent Variable

What is the evidence that people's satisfaction goes down (and negative emotions go up) when they are feeling relatively deprived? Stouffer et al. (1949) were among the first sociologists to examine the effects of relative deprivation on social dynamics in the U.S. army. One interesting study in their seminal work *The American Soldier* concerns job satisfaction amongst African-American service members from Northern and Southern states. Since typically African Americans would be assigned to the same jobs regardless of their region of origin, we would expect job satisfaction to be the same for the two groups. However, Stouffer found that job satisfaction was much higher for service members from the South. The authors reasoned that African American soldiers in the North compared their own status with the status of other African Americans around them, many of whom had well-paying defense jobs, and consequently, they themselves felt relatively deprived in comparison to their better off reference group. By contrast, African American soldiers in the South compared their lot to fellow black Southerners, who bore the brunt of racial discrimination, and as a result, they felt themselves relatively fortunate. In other words, social comparison helps to explain differences in satisfaction levels in a situation where objective job conditions did not differ.

Another aspect of Stouffer et al. (1949)'s study looked at job satisfaction amongst different branches of the military. Specifically, Stouffer compared military police (MPs) to air corpsmen, and found that MPs displayed higher job satisfaction. On its face, this finding is also puzzling, since the military police was known as a "dead end" branch of the service with few prospects for promotion, while promotion rates amongst air corpsmen were generally much higher. However, as Stouffer et al. (1949) argued, promotion was perceived as the "norm" amongst airmen, such that those who were promoted gained little satisfaction, and those who were not promoted felt frustration and resentment. By contrast, amongst MPs, no promotion was the norm, such that most individuals felt satisfied even though they were "stuck" in the career ladder, and the few who earned promotions felt even better. The overall lesson from Stouffer's study is that the evaluation of our subjective well-being depends on the comparisons we make, and that we can come away satisfied or dissatisfied depending on where we situate ourselves on an imagined intra-group inequality scale (see also Blau and Blau, 1982; Kawachi, Kennedy and Wilkinson, 1999).

Relative deprivation theory also helps to resolve the so-called Easterlin Paradox, or the lack of improvement in individual happiness even as societies become richer over time (Easterlin, 1995). According to standard economic theory, this is puzzling, since happiness (or utility) should be a direct function of one's own objective economic conditions. Applying relative deprivation theory to this puzzle can shed new light on it: even though the rising tide of economic growth may lift all boats, dissatisfaction may actually grow as citizens feel themselves fall further and further behind the wealthiest members of their communities. In fact, such malaise in the face of rising prosperity

is neatly captured in Leibenstein (1950)'s description of the stresses involved with "keeping up with the Joneses."

There is also empirical evidence that positional concerns influence not just subjective well-being and feelings of life satisfaction, but also behavior in a way that is in direct contradiction to (objective) material self-interest. In an innovative study, Solnick and Hemenway (1998) asked survey participants to choose between a hypothetical reality in which they have more of a good than others, and one in which everyone's endowment of the good is higher, but the respondent herself has relatively less than others. They find that half of the survey respondents preferred to earn a higher relative income, even though this amounted to 50% less real income. Clearly, in this case, individual preferences for a large proportion of respondents reflected *subjective* rather than *objective* well-being. Another way of interpreting these results is that individuals were willing to pay real money for a chance to move ahead of the pack.

The findings of this experimental study in the laboratory are echoed by Card et al. (2012), who exploit a natural experiment in which a California court decision made the salary of any California state employee public knowledge. They find that employees of the University of California, who found out about their colleagues' earnings after a court decision and were paid below the reference group median, were more likely to look for a new job (bearing the associated transactions costs), as compared to those who were not informed about other's salaries. Therefore, these results show that individuals who feel that their position is relatively worse than that of comparable others are likely to behave differently with regard to the set of opportunities to changing their position in the social structure.

This behavioral difference has also been highlighted in the education literature analyzing career decision-making. In this context, one might expect that largely innate abilities like intelligence (e.g. IQ) would predict whether people applied to more demanding and higher paying jobs. Furthermore, a factor such as IQ is likely to remain relatively stable, independently of one's social environment, such that we would expect two people with the same innate abilities to apply for the same types of jobs. However, the perception of one's innate abilities is also shaped by a person's educational and social environment. In fact, Davis (1966) show how male college students who are the "little fish in a big pond" are more pessimistic about their own academic ability - which may be objectively the same, or even higher - than "big fish in little ponds", and these perceptions have strong implications for their career choices.

Relative Deprivation and Migration

Relative deprivation theory has been applied to the migration context by scholars of the New Economics of Labor Migration (Stark, 1984; Stark and Yitzhaki, 1988; Stark and Taylor, 1991). They suggest that prospective migrants in origin countries assess their own position in terms of income -

and potentially other dimensions such as wealth, status, and influence - in relation to a particular reference group, such as the average village resident, before they decide whether to engage in labor migration or remain settled.³ Migration is thus perceived as a tool to catch up to or to avoid falling further behind more well-off members of one's reference groups.

Empirically, Stark and Taylor (1989) find support for their relative deprivation hypothesis amongst Mexican households. They show that Mexicans earning incomes below the community average are significantly more likely to migrate to the United States. Similarly, Bhandari (2004) examines the effect of relative deprivation on internal migration in the rural agricultural setting of Nepal, measuring relative deprivation in terms of households access to cultivated land. Bhandari (2004) also finds support for the relative deprivation-migration hypothesis: those Nepalese with less access to land are more likely to engage in labor migration than those from relatively well-off households with more land holdings.

Other migration scholars have used more encompassing definitions of relative deprivation to examine the relationship between relative deprivation and migration. For example, Quinn (2006) analyzes Mexican migration flows using measures of land ownership, housing quality and size, and ownership of consumer durables as proxies for household economic status. Importantly, he finds that *even controlling for a household's objective economic situation*, the household's relative status plays an important role in explaining migration decisions. Hyll and Schneider (2014) also establish similar effects analyzing the migration propensity of East Germans following the fall of the Berlin wall. They highlight that even controlling for household income and social networks, relative deprivation is associated with a greater preference for migration, a relationship that is particularly strong for those with close contacts to their reference group.

In this chapter, I contribute to this body of evidence on the relationship between relative income deprivation and the propensity to migrate along two fronts: First, the previous literature has measured relative deprivation with objective indicators (e.g. relative deprivation is calculated using the ratio of the household income to the average village income). However, the sociological origins of relative deprivation theory stresses its importance as a measure of subjective feelings of economic well-being. To the best of my knowledge, my study is the first to measure these feelings directly, thus providing arguably a better operationalization of the explanatory variable of interest. Secondly, I also add to the empirical evidence on the relative deprivation-migration axis by illustrating the mechanisms in a as of yet unstudied population (Thailand), which is faced with a particularly stark urban-rural divide between the urban concentration of power and wealth in the capital city Bangkok and the rest of the country (for more information on the Thai rural-urban divide, see the Thailand Human Development Report 2009). I therefore hypothesize that people in rural Thailand may perceive "greener pastures" elsewhere and use migration as a tool to achieve upward social mobility (Jaeger et al., 2010; Stark and Taylor, 1989). To test this hypothesis, I employ observational data from the

³Moreover, Stark and Bloom (1985) have put forward the idea that migration decisions are not made by isolated individual actors, but rather collectively at the household level.

Townsend Thai Project (1997), which comprises a representative sample of rural households from four provinces in Thailand’s Central and Northeast region. In the next section, I discuss the data and present the results.

Survey Evidence from the Townsend Thai Project

Data Description

I use observational data from the socio-economic survey of 2863 rural households in Thailand, which was collected by the Townsend Thai Project (1997) (Townsend, 2011).⁴ The Townsend survey includes a representative sample of rural households from four provinces (*changwats*) in Thailand’s Central and Northeast region: Lop Buri and Chachoengsao in the Central region and Sisaket and Buriram in the Northeast (see provinces marked in blue in Figure 3.2).

Within each of the four provinces, 12 *tambons* (sub-districts) were selected at random using stratification based on an analysis of satellite imagery. Within each *tambon*, four villages and approximately 720 households were selected at random totaling a number of 192 villages or 2683 households. 65% of the respondents self-identified as the head of the household, 26% as the spouse of the household head, and the rest as other relatives (e.g. son or daughter of household head approx. 7%). 51% of the respondents were male, while 49 % were female.

The dependent variable - *Migrate* - is constructed using the following question:

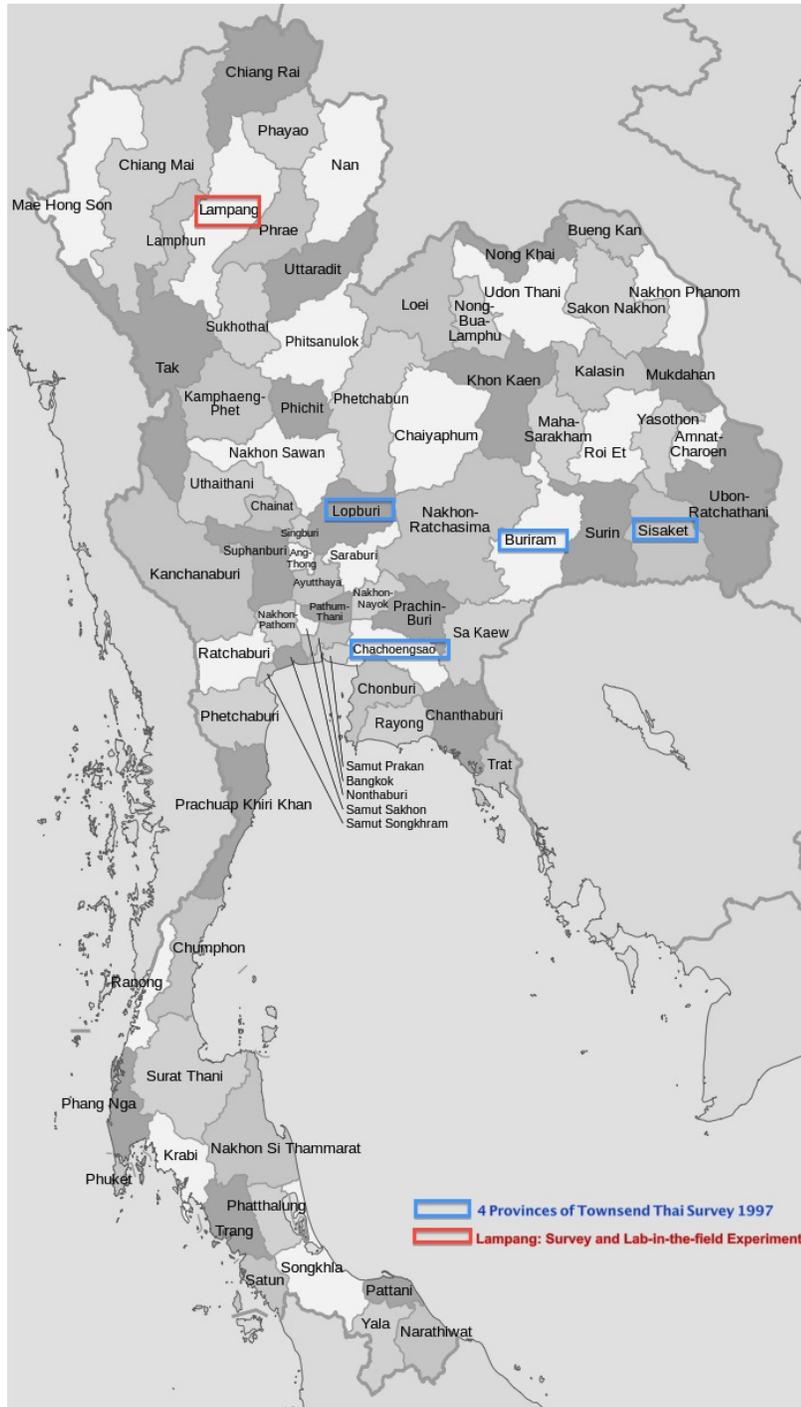
In a year when income is normal - neither particularly high nor particularly low - do any household members usually migrate to work?

Overall, 42% of the households answered “yes” to this question.

This measure of migration behavior embeds information about the timing of migration. Specifically, the question asks about migration behavior in an “average year,” and thus we do not have any information about the migration behavior of household members in a particularly bad year. As a result of this limitation, the subsequent analysis cannot capture the inter-temporal type of relative deprivation (comparison of one’s present with one’s past economic situation). Rather, given the construction of the dependent variable, I am only able to test for the effects of the the cross-sectional type of relative deprivation (i.e. social comparison with others in the village).

⁴The Survey project started by Dr. Robert M. Townsend who sought to understand what risks households in a typical village experience in 1997. Although the survey was continued after the initial baseline in 1997, the relevant question used below to construct the relative deprivation index only appeared in the initial survey. For more information about the Townsend Thai Project, see <http://cier.uchicago.edu/about/>

Figure 3.2: Map of Thailand's Provinces



The main independent variable - *Poor* - is constructed from a 5-point social comparison question, in which respondents were asked the following question:

Compared to the other people in your village, would you say that your household is among the:

- (1) *poorest households in the village*
- (2) *middle, but poor compared to other people around the middle*
- (3) *middle in terms of wealth*
- (4) *middle, but rich compared to other people around the middle*
- (5) *richest households in the village*

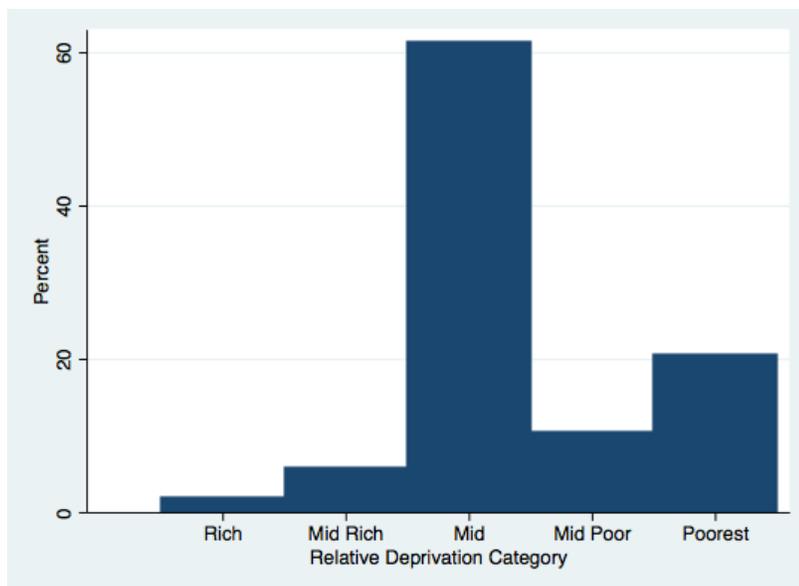
Figure 3.3 shows the distribution of respondents in these five answer categories. The vast majority of respondents indicate that they feel that they are in the “middle in terms of wealth” (61%). The lowest percentage of respondents indicate that they are the “richest households in the village” (2%), and few answered that they were “in the middle, but rich compared to other people around the middle” (6%). 20% of households estimated that they were among the “poorest” in the village and 10% that they were among the “middle, but poor compared to other people around the middle”.

To facilitate the analysis and interpretation, I created a dummy variable (*Poor*) which comprises both categories (1) “poorest households in the village” and (2) “middle, but poor compared to other people around the middle”. Respondents who choose either of these two answers consider themselves below the middle in terms of wealth in their village.⁵

In the analysis below, I also add a number of control variables, namely: the log of household income, household size, and a dummy variable indicating whether the household head is a farmer. I control for household income because individuals who feel poor are, of course, likely to actually be poor, and vice versa. However, the objective condition of being poor is also likely to affect individual’s migration propensity, for reasons independent of the aspiration to catch up. On the one hand, migration often entails an upfront cost in terms of recruitment fees, financing the migration journey, etc., and poor families may be less able to afford the investment in migration. On the other hand, poor families may be compelled by the economic plight to migrate. Thus, to isolate the independent effect of feelings of relative deprivation on migration propensity, it is crucial to control for objective income. Moreover, since the distribution of incomes is highly skewed, in the analysis below, I use a log-transformed version of this variable.

Furthermore, I add household size as a control variable because the larger the household, the more likely one has a family member who is a migrant. In addition, larger households may experience a labor-surplus for their agricultural land, thereby increasing the likelihood that a family member

⁵I also conducted the analysis with the 5-point indicator of relative deprivation as opposed to the 0-1 indicator and the substantial results are the same. I chose to report the pooled results because conceptually it is more easily to interpret.

Figure 3.3: Histogram of Subjective Position in Village Hierarchy

migrates. On the other hand, it is also possible that larger households face more constraints on income, thus making it more difficult to invest in migration.

Finally, I control for whether the household head is a farmer. If a household mostly depends on agriculture as source of income, it may more likely have a family member who migrates for work because agricultural work is seasonal and hence households are likely to send a member away in the off-season. In addition, most farmers who engage in small subsistence farming cannot generate sufficient cash income to cover the necessary costs for a number of products and services considered essential to sustain life in rural Thailand, such as medication or consumer electronics. Therefore, farming households are more likely to rely upon migration to generate this extra cash. Table 3.1 shows descriptive statistics for all the variables in the models.

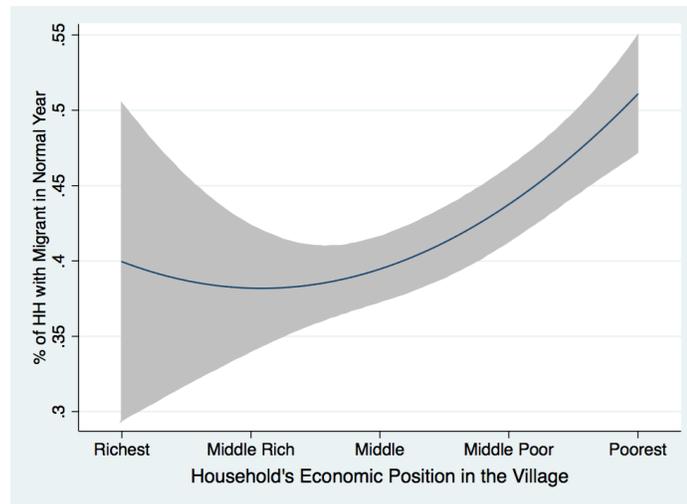
Table 3.1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Migrate	0.42	0.49	0	1	2863
Poor	0.30	0.46	0	1	2950
Log Income	10.72	1.30	4.09	14.49	2860
HH size	4.57	1.96	1	17	2870
Farmer	0.79	0.40	0	1	2861

Results and Discussion

The main result is presented in Figure 3.4. The x-axis lists survey respondents' self-rated economic positions in the village from "richest" to "poorest". The y-axis shows the percentage of households with a migrant in a year where income is normal. We see that around 40% of households which self-rate as occupying a "middle" economic position or better have a migrant family member. However, this number rises to over 50% amongst the very poorest households.⁶

Figure 3.4: The Effect of Relative Deprivation on the Migration Propensity in Thailand



I also estimate the relationship between relative deprivation and migration using a Linear Probability Model. Model (1) of Table 3.2 reports the bivariate relationship between relative deprivation, in terms of inter-household comparisons of subjective economic standing, and the propensity to have a household member migrate in a "normal" year. As Figure 3.4 shows and in line with my theoretical predictions, I find that, on average, relatively deprived households ($Poor = 1$) are 10% more likely to have a migrant family member, compared to households that do not feel poor. Note that the baseline migration rate for the sample is 42%, or about four times the estimated effect.

In Model (2), I add a control for income. I find that the coefficient on migration remains statistically significant, but shrinks in size by about 40% (from 0.10 to 0.6). Furthermore, as household income increases, the propensity to migrate decreases. More precisely, the coefficient on *Log Income* is -0.04 , while the standard deviation of this variable is 1.30. Thus a one standard deviation movement along the log income scale is associated with a $1.30 \times 0.04 = 0.052$ or 5.2% decrease in migration propensity. Even controlling for perceptions of relative wealth and status, richer households are less likely to migrate. Notice that the estimated coefficient for *Log Income* is almost the same size as the estimated

⁶Note that there are very few households that self-rate as "richest", which is why the associated confidence intervals are so large.

Table 3.2: The Effect of Relative Deprivation on Migration Propensity

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	Probit
Respondent Feels Poor?	0.10*** (0.02)	0.06** (0.02)	0.06** (0.02)	0.16** (0.05)
Log Household Income		-0.04*** (0.01)	-0.05*** (0.01)	-0.12*** (0.02)
Household Size			0.02*** (0.00)	0.05*** (0.01)
Household Head is Farmer?			0.06** (0.02)	0.16** (0.06)
Constant	0.39*** (0.01)	0.87*** (0.08)	0.76*** (0.09)	0.68** (0.23)
Observations	2863	2848	2839	2839
Adjusted R^2	0.008	0.020	0.028	0.022

Heteroskedastic-corrected standard errors. p -values in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

coefficient on *Poor*. Thus, a one standard deviation increase in log income is also associated with around a 5% increased likely of having a migrant from the household. In other words, controlling for objective income, feeling relatively deprived has almost the same effect as *actually being one standard deviation poorer in the income scale* on migration propensity. So, in a nutshell, the Thai data show that relative deprivation seems to exert an effect, which is independent the household's actual income, on migration propensity

Further in Model (3), I show that this result is robust to the inclusion of other household level controls, such as household size and whether the household head is a farmer. As hypothesized, I find that larger households and farming households are significantly more likely to migrate. For any additional family member, a household is 2% more likely to have a migrant. In addition, a farming household is 6% more likely to have a family member as migrant, compared to a non-farming household head facing the same subjective and objective economic conditions.

Finally, to confirm the robustness of these results, I rerun the analysis using a probit model (since the dependent variable "migrate" is a dichotomous variable). The marginal probabilities are reported in Model (4), and are directly comparable with the beta coefficients from Model 3. Substantively, we see that the estimated effects are almost identical, regardless of whether we use an OLS or probit specification. In summary, the data suggest that even controlling for absolute household income, household size and farming households, relative deprivation is significantly positively correlated with migration propensity.

A point worth discussing here is that my findings stand in contrast to one argument in the migration literature, namely that the poorest of the poor are unable to migrate. Therefore, under extreme resource constraints, we should expect to see an inverse U-shape relationship between a household's

economic position in the village and the propensity to have a migrant household member. More specifically, we may expect that the middle poor who have the greatest desire and the greatest capability are those most likely to realize their migration aspirations. However, this is not what I find in the Townsend data. One possible reason that may explain this discrepancy is that it could be the case that in the communities, which are covered by the Townsend data, there are no extreme resource constraints, which would hinder the poorest of the poor to migrate. This line of argument is supported by the fact that the baseline migration rate in the sample is extremely high (between 40-50%). However, in the absence of better data, I can only speculate.

Conclusion

This chapter has set out to empirically test whether relative deprivation leads to a higher propensity to migrate in Thailand. I have employed survey data from the baseline survey of the Townsend Thai Project (1997), which includes a representative sample of rural households from two provinces in Thailand's Central and two provinces in Thailand's Northeast regions, to test the relative deprivation-migration association found previously in other countries (Bhandari, 2004; Quinn, 2006; Stark and Blackwell, 1991; Stark, Micevska and Mycielski, 2009). To the best of my knowledge, this is the first study that examines the link between relative deprivation and the propensity to migrate using self-reported measures of relative deprivation that explicitly refer to a specific reference group (i.e. other households in the village).

The findings of this study confirm that there is a statistically significant and substantive relationship between household's migration behavior and their perceived relative poverty in Thailand. In a "normal" year (in terms of economic well-being), relatively deprived households are on average about 5% more likely to have a migrant family member, compared to similar households that do not feel poor. Given that the baseline migration rate for the sample is 42%, this effect size is not negligible. In the regression, I also include controls for potential confounders, such as household size and whether the household engaged in farming.

Of course there are also several limitations of the present study. First, the data do not provide any information on the direction of migration (i.e. whether it is rural to urban, internal vs. international). However, research on migration in Thailand during this time period of economic growth has shown that most migration occurred from the rural to the urban centers, and particularly to Bangkok, where most its manufacturing industry is located (Garip, 2014; Curran et al., 2005; Tambunlertchai, 1990). Second, migration behavior is captured only at the household level, and we do not know anything about the socio-demographic characteristics of the particular migrant household member, and their feelings of relative deprivation at the time of migration decision-making. Furthermore, relative deprivation is measured only in terms of income and with regards to cross-sectional / inter-household comparison and not in terms of inter-temporal comparison. A full account of relative

deprivation in terms of both of Runciman (1966)'s dimensions would also require longitudinal data on household income. However, since the focus of this study is on relative deprivation with respect to social comparison, the present data is sufficient. Lastly, the data used in the analysis is from 1997 and one may question whether the findings hold 20 years later. However, this is the best data that was publicly available on Thailand, and which included a self-rated relative deprivation measure. Moreover, my goal with this chapter was primarily to illustrate a general -behavioral mechanism, and I had no a priori theoretical reason to expect that this mechanisms would change from one decade to the next.

The next chapter will explore more in depth the causal mechanism that may explain the relationship between relative deprivation and migration propensity.

Chapter 4

Relative Deprivation, Risk Taking and Migration

Introduction

International labor migration has become increasingly important in today's global economy. Each year, millions of individuals worldwide leave their families to search for decent employment and better livelihoods abroad. However, all too often, migrants accept employment opportunities that turn out very differently from what they initially imagined. In particular, low-wage migrants are often employed in "3-D" jobs ("dirty, dangerous and demeaning/degrading"), and are particularly vulnerable to exploitation due to a variety of factors, including in many cases their lack of familiarity with the local language and their legal rights in the destination country (GCIM, 2005; Congress, 2003). Given that information about these potential risks is widely available, we should expect migrants to be very careful about accepting offers of jobs abroad.¹ Yet, as evidenced by the throngs of migrants streaming to Qatar to work on the 2022 FIFA Soccer World Cup projects despite harrowing stories of abuse, it appears that individuals are often undeterred by such information. This example, which is not unique to the Gulf region, illustrates a more general question: Why are informed individuals willing to run such risks in the migration process?

In addressing this question, I take as my starting point one of the most robust findings in the migration literature, namely: that it is not economic desperation *per se* which explains individuals'

¹International organizations, such as the International Organization for Migration and other local and international NGO's have spent much of the last decade raising awareness about the risks of migration through media advocacy. My own survey work with prospective labor migrants from Thailand also shows that approximately 30% of those who are planning to seek temporary work abroad know someone personally who has had a negative migration experience.

migration choices but rather relative poverty, i.e. the economic distance between a potential migrant and others in his close social environment (Stark, 1984; Stark and Yitzhaki, 1988; Stark and Taylor, 1989, 1991). Empirical research has also shown that it is not the ‘poorest of the poor’ who migrate because migration, and in particularly international migration, requires resources and often a considerable up-front investment (Sorensen, Van Hear and Engber-Pedersen, 2003; UNDP, 2009). Instead, relative economic well-being has been found to predict migration propensity in countries as diverse as Mexico (Quinn, 2006; Stark and Taylor, 1989), Nepal (Bhandari, 2004), Germany (Hyll and Schneider, 2014) and Poland (Stark, Micevska and Mycielski, 2009). In the previous chapter, I presented results from an analysis of household-level survey data from the Townsend Thailand project showing that the same relationship between relative deprivation and migration can also be found in Thailand.

While the macro-level patterns have been well established, the micro-level mechanisms linking relative deprivation and migration are relatively understudied. The present paper addresses this gap by highlighting the role of risk attitudes in this relationship. More specifically, since migration is risky, I hypothesize that feelings of relative deprivation may drive migration choices by increasing individuals’ willingness to take risks. Yet, to date, the relationship between relative deprivation and risk attitudes has been neglected in the migration and broader sociological literature. This chapter therefore is the first to identify migrants’ risk attitudes as a potential intervening variable linking relative deprivation to migration propensity.

In addition, I argue that migrants encounter two types of risks. Following Bohnet et al. (2008) I define a *risk of nature* as referring to those situations where outcomes are determined by factors outside any one individual’s control. For example, a financial crisis or a natural disaster (i.e. tsunami or earthquake) in the destination country may throw migrants unexpectedly out of work. I differentiate these risks from *social risks*, which refers to the risk of being taken advantage of by labor brokers, foreign employers or other agents in the migration industry. By considering these two types of risks together, I am able to measure how relative deprivation affects risk-taking behavior in both strategic and non-strategic transactions.

To investigate the link between relative deprivation and risk attitudes, in this chapter I report results from a lab-in-the-field experiment involving aspiring labor migrants in rural Thailand. The experiment involves two separate games designed to capture both *risks of nature* and *social risks*. Further, the experiment manipulates feelings of relative deprivation by randomly assigning participants to either a “high” or “low” income condition. While other scholars have examined the influence of such induced income inequality on risky decision-making (Callan, Shead and Olson, 2011; Haisley, Mostafa and Loewenstein, 2008; Kuziemko et al., 2014), my study is the first to differentiate between *risks of nature* and *social risks*, and causally test the relationship between relative deprivation and the willingness to take risks amongst a population of interest to migration scholars.

To preview my results, I find that while relative deprivation increases individuals' willingness to take risks determined by chance, it has a weak countervailing negative effect on participants' propensity to trust another (anonymous) individual. Thus, this study contributes to evidence showing that economic inequality can lead to a greater willingness to take risks among relatively poor individuals, and that relative deprivation may lead individuals to accept more risky migration offers, with lower chances of success.

This chapter proceeds as follows: the next section reviews the literature on relative deprivation, migration and individual risk attitudes, and derives testable hypotheses. I then explain the design of my lab-in-the-field experiment, and describe its implementation in northern Thailand, before presenting the results. Lastly, I briefly discuss the main implications of the findings and conclude by outlining avenues for future research.

Literature Review

Sociologists, social psychologists, and economists have long established that humans engage in social comparisons which can affect both (i) how we evaluate our abilities and (ii) our subsequent behavior (Merton and Kitt, 1952; Festinger, 1954; Kahneman and Tversky, 1979; Coleman, 1990). The basic idea underlying such relative positional concerns is simple: we tend to judge our well-being and achievement not in absolute terms, but rather in comparison with others who are sufficiently similar - i.e. our reference groups (Runciman, 1966, p. 10). Scholars have also suggested that such social comparisons (or "positional concerns") are a "deep-rooted and ineradicable element in human nature" (Frank, 1999, p. 145). Importantly, such comparisons need not be between ourselves and other individuals, but can also be made between our own present and past selves. The concept of relative deprivation emerged from this research on social comparisons, and has since been applied by social scientists to explain a number of behaviors (e.g. Card et al., 2012; Davis, 1966; Flippen, 2013; Mo, 2011), as discussed in greater detail in the previous chapter.²

Relative deprivation theory has been applied to the migration context by scholars of the New Economics of Labor Migration (Stark, 1984; Stark and Yitzhaki, 1988; Stark and Taylor, 1991). The underlying argument is that individuals who feel relatively deprived compared to their reference group are more likely to search for better opportunities than those with similar levels of wealth but who feel less deprived.³ Migration is thus perceived as a tool to catch up to (or to avoid falling further behind) more well-off members of the reference group. Empirically, this pattern has been found

²Some scholars have also argued that relative deprivation can lead to negative outcomes, such as quitting school, more smoking, and worse health behavior in general through an independent other mechanism, namely an increase in stress and anxiety. This conjecture is known as 'achievement orientation' (Wilkinson and Pickett, 2009).

³There is still no clear answer to how a particular reference group is chosen. The question of how reference groups form and change is of interest because migrants may change reference groups when they arrive in the destination country (Barber and Merton, 1957; De Haas, 2010). However, in the case of international migration, it is generally assumed that cultural, language and other social discontinuities across societies prevent or delay immigrants from

in different countries, including Mexico (Quinn, 2006; Stark and Taylor, 1989), Nepal (Bhandari, 2004), Germany (Hyll and Schneider, 2014) and Poland (Stark, Micevska and Mycielski, 2009). In the previous chapter, I presented evidence that the same relationship between relative deprivation and migration propensity can also be found in Thailand.

However, the mechanisms underlying the association between relative deprivation and migration propensity are still under-explored in the literature. In this chapter, I direct attention towards a potentially important mediating variable at work: individuals' preferences for risk. More specifically, I argue that while migration can indeed bring rapid social mobility (Jaeger et al., 2010; Stark and Taylor, 1989), individuals also understand the potential "dark side" of migration. Indeed, previous research has pointed out that international labor migration involving low-wage temporary work is particularly risky, as migrants are often unable to navigate the process of obtaining employment contracts and the necessary legal documents without the aid of intermediaries of the 'migration industry' (Fernandez, 2013; Mahmud, 2013). However, often in these transactions, labor brokers take payment upfront, while migrants only recoup their costs at a later date (often upon fulfilling their work contracts). Moreover, intermediaries often have incentives to exploit information asymmetries and migrants' indebtedness, and thereby may betray the trust placed in them. Thus, migration constitutes a risky investment as migrants have to make substantial upfront investments (especially when benchmarked against income levels) which may not eventually bear fruit (Collier, 2013).

Moreover, even in situations in which migrants are not victim to intentional opportunistic behavior, they may still encounter negative experiences due to unforeseen mishaps and simple "bad luck". For example, migrants tend to cluster in sectors such as agriculture and construction, and the high rate of on-the-job accidents in these industries may jeopardize migrants' ability to recoup their expenses and recruitment fees. In addition, migrants are subject to risks in the destination country that do not affect the native population. Their existence depends upon visa renewals and legal work documents, the availability of which may be subject to external policy changes, or even the whims of individual bureaucrats. In each of these cases, an unforeseen event may upend migrants' hopes of success.

These two types of situations map onto the theoretical distinction introduced above between *social risk* and *risk of nature*. A risk of nature occurs when the outcome is determined by random chance, such as in a lottery. In behavioral economics, this type of risk is captured in a simple investment game. On the other hand, a social risk is created when the outcome depends on the actions of another individual, who may or may not act opportunistically. For example, when buying a used car, the buyer must decide whether to trust the salesperson not to sell her a lemon. In the economics and increasingly also in the sociology literature, attitudes towards this type of social risk are measured in

comparing themselves to members of the host community, and consequently the community of origin remains migrants' salient reference group (Czaika and de Haas, 2012)

a two-person trust game (Cook and Cooper, 2003; Cook et al., 2005; Kollock, 1994; Ermisch et al., 2009; Przepiorka and Diekmann, 2013; Diekmann et al., 2014).⁴

Furthermore, research suggests that aspiring migrants are often aware of the risks that they may face (Hernández-Carretero and Carling, 2012).⁵ This may explain why most studies have documented a link between high risk tolerance and the propensity to migrate. For example, Jaeger et al. (2010) show that risk attitudes are a positive, statistically significant and qualitatively important determinant of geographic mobility within Germany. Gibson and McKenzie (2011) find similar results using survey evidence from three Pacific islands and Dustmann et al. (2014) show that, in rural Chinese households, it is the least risk-averse individual within the household who undertakes the migration journey.⁶

While rational choice models commonly assume that “a risk is a risk is a risk” (Bohnet et al., 2008, p. 245), scholars have shown that decision makers care not only about expected outcomes, but also the process by which outcomes are determined (Rabin, 1993). Generally, research has found that people are less willing to run *social risks* as compared to *risks of nature*, a phenomenon which has been termed “betrayal aversion” (Bohnet et al., 2008). Bicchieri (2015) suggests that these situations activate distinct emotional responses: *social risks* trigger moral outrage caused by anger about the violation of a moral rule or a social norm, while *risks of nature* result in empathetic concerns (feelings of sympathy, compassion and tenderness).⁷

This distinction is important because the small amount of research we have on relative deprivation and risk attitudes yields mixed conclusions. On the one hand, some work has suggested that relative deprivation can increase the willingness to take risks of nature (Beckert and Lutter, 2013; Callan et al., 2008; Callan, Sheard and Olson, 2011; Haisley, Mostafa and Loewenstein, 2008). For example, Haisley, Mostafa and Loewenstein (2008) conducted an incentivized field experiment in the United States at a greyhound bus station and found that individuals who are primed to perceive their own income as relatively low are more likely to purchase lottery tickets. Kuziemko et al. (2014) report similar findings from a lab experiment in which participants placed lowest in an income ladder exhibited a greater willingness to take riskier gambles than those on the other rungs. Furthermore, evolutionary psychologists have found experimental evidence that relative status regulates risky

⁴Sociologists have increasingly turned to real trust-life and experimental measures, such as the trust game, and away from self-reported surveys, because of evidence suggesting that surveys often elicit unreliable measures of actual trusting behavior (Freitag and Bauer, 2013; Glaeser et al., 2000).

⁵see Chapter 1 of this dissertation

⁶However, Hao et al. (2014) caution that this association may be due to migrants greater willingness to enter competition in the presence of strategic uncertainty, which they found in a study comparing migrants and non-migrants in China. Their results suggest that migration may be driven more by a stronger belief in one’s ability to succeed in an uncertain and competitive environment than by risk attitudes under state uncertainty.

⁷Of course, in many situations moral outrage and empathetic concerns occur at the same time. However, experimental findings suggest that though there is a correlation between moral outrage and feelings of empathy, there are many instances where individuals are suffering from “risks of nature” but there is no norm violation and thus only feelings of sympathy are evoked.

decision-making particularly for men (Daly, 2001; Ermer, Cosmides and Tooby, 2008) who, after all, make up the majority of temporary labor migrants in most countries, including Thailand.

On the other hand, research employing behavioral trust games has documented that relatively poor individuals are *less likely* to take the social risk of trusting others (Bjornstrom, 2011; Fischer and Torgler, 2006).⁸ For example, using a representative sample of the UK population, Ermisch et al. (2009) find that relatively poor individuals are less likely to trust strangers. Similarly, using income inequality introduced by heterogenous endowments in the lab, Anderson, Mellor and Milyo (2006) and Greiner, Ockenfels and Werner (2012) find that participants in the “relatively poor” condition were less likely to trust.⁹ However, the precise mechanism underlying these results is yet unclear and the literature is murky about the particular mechanisms that explain why those who are relatively poor have lower levels of trust.

Figure 4.1: The Causal Chain: Relative Deprivation, Risk Attitudes, Migration



Hypotheses

Together, this literature paints a complicated picture of how feelings of relative deprivation affect migration propensity (See Figure 4.1). Depending on the type of risk migrants’ perceive or the relative strength of each type of risk combined, relative deprivation can exert seemingly countervailing effects. Therefore, in the remainder of this study, I examine the following hypotheses:

- H1. Relative deprivation *increases* the willingness to take *risks of nature*.
- H2. Relative deprivation *decreases* the willingness to take *social risks*.

⁸The standard trust game is built on insights from game theory that there is a truster and a trustee engaged in an inter-temporal exchange. If the truster places faith in the trustee to do X and the trustee reciprocates by doing X, both players are better off than if the exchange had never taken place. However, the trustee has incentives to abuse the faith placed in him and to renege on the deal, earning himself an even higher payoff but thereby also harming the trustee.

⁹Smith (2011) and Blauw and Smerdon (2014) highlight that future studies on trust and inequality should look beyond the random distribution of endowments because “past experiments suggest that endowment origin affects behaviour” (Smith, 2011, p.56).

Method and Data: A Lab-in-the-Field Experiment

I employ an experimental design to study the link between relative deprivation and risk taking of potential migrants in Thailand. Experimental methods can help us to overcome endogeneity problems which might occur in observational research. For example, using survey methods, we may find a correlation between relative deprivation and risk attitudes, but we cannot be sure of the direction of causality. In fact, people who are more risk seeking may make worse decisions, and as a result become more relatively deprived. Experimental methods can address this “reverse causality” problem by randomly assignment study participants to different income levels. In this way, we can directly manipulate feelings of relative deprivation, which then allows us to estimate the causal impact of such feelings on risk taking behavior. Partially for these reasons, experimental studies have become more popular in sociology (Abascal, 2015; Baldassarri, 2015) and migration research (Ashraf et al., 2014; McKenzie and Yang, 2010).

Setting

This lab-in-the field experiment was conducted at two vocational schools in northern Thailand during the last week of July 2014. Thereby the study contributes to the growing literature in analytical and experimental sociology dedicated to research on micro-mechanisms in explaining social behavior (Abascal, 2015; Baldassarri, 2015). While much of the early behavioral experiments were conducted in a laboratory with convenience samples, mostly undergraduate students in colleges in the United States and Europe, there has been an increasing turn to study diverse populations across the globe by conducting field experiments (e.g. Baldassarri and Grossman, 2013; Barr, 2003; Ermisch and Gambetta, 2010; Henrich et al., 2001, 2010; Herrmann, Thöni and Gächter, 2008; Yamagishi, Cook and Watabe, 1998). I chose this geographical research setting because many of Thailand’s labor migrants come from this area in Northern Thailand.¹⁰ Furthermore, I decided to focus on participants from vocational schools because most of Thailand’s overseas labor migrants have followed this lower-level educational track.¹¹ Therefore, I argue that participants in my experiment are very similar to the general population of interest (actual Thai labor migrants). In fact, I asked participants in a pre-experimental survey about their intention to seek work abroad, and 82% answered that they were “very likely” or “likely” to try to find employment abroad.

Each of the vocational schools had been personally visited by the research team prior to the date of the experiment, and the director of the school had expressed interest in participating in the study and approved the experimental protocol. Prior to the approval by the school directors, the experimental protocol and the design of this study were approved by the Institutional Review Board (IRB) of

¹⁰For example, the migrants I interviewed from the El Dorado Manpower case in Chapter 1 were all from this province.

¹¹In Thailand, students can either choose to go to a secondary school that focuses on an academic track for their last two years, or they can elect to go to a vacation school for two or three years if they want to learn a profession. Most of the students who decide to take the vocational track are usually academically not as strong as those choosing the highschool track. They also usually come from families with a lower socio-economic standing.

the European University Institute. While one of the vocational schools was very rural, and mostly enrolled students from the surrounding farming villages, the the other school was in the province seat of Lampang, and enrolled students from the local urban and semi-urban areas. Both schools trained students in a variety of vocational skills such as auto repair, construction, and agricultural extension.

Participants

The participant pool was restricted to male students in their final year between the ages of 18-19 years. I selected only male students because migration from Thailand is predominantly a male phenomenon (Chantavanich, 1999). None of the students had previous experience in taking part in such behavioral games. Students also had no prior knowledge that they would be paid to participate in the study in order to avoid that only students who were interested in the monetary reward would choose to participate. During the experiments a teacher was always present in the room to ensure that any potential concerns by students would receive immediate attention from a trusted and familiar person.

The data I present in this chapter are drawn from four different experimental sessions (two in each school) involving a total of 88 participants. There were four participants (two from each school) who had difficulties completing the surveys and understanding the games, and whom I therefore exclude from the subsequent analysis. This leaves me with with a sample of 84 participants.

On the day of the experiment, upon arrival in front of the classroom where the experiment took place, participants were given a randomly-drawn ID number and assigned to a corresponding desk. This randomly drawn ID number also determined the assignment to either treatment or control group. Participants undertook all experimental tasks using pen and paper. At the beginning of each session, participants were reminded not to communicate during the session. Unfortunately, because we conducted our experiments in classrooms, we did not have physical dividers between participants. However, we seated participants as far away from each other as possible, and we asked them to make their decisions underneath their desks, to minimize the possibility that they could observe what others were doing. We also announced that decisions and payments would be linked only to participants' ID-numbers, and not to individual names and would be handed out after the game anonymously in envelopes. Participants were asked to sign a consent form specifying these details, and also informing them of their right to discontinue participation at any time. Participants who wished to leave the experiment early could choose to receive a 20 baht show-up fee. In practice, all participants remained until the end of the session.

Experimental Overview

We began each session by reading a short introductory script. Participants were asked to complete a pre- and post- experimental survey, and make choices in a number of tasks, which would determine their total earnings. They were informed that they would be paid anonymously in an envelop at

the end of the session. The experiment was moderated in Thai by the same moderator (male, age 29) to avoid any moderator effects. Furthermore, the moderator was also from Northern Thailand and could thus easily understand and answer questions posed in the Northern dialect. The full oral instructions are shown in Appendix 1.

Participants first completed a pre-experimental survey, which we framed as a real-effort task, and for which they would earn an “income.” This income would be used in the decision tasks, described below. Importantly, we randomly divided participants into two groups: a high income and a low income group. Those in the low income group would receive 20 baht in “income” per game, and those in the high income group would receive 50 baht per game (1 USD = approx. 30 baht). The assignment to either high or low income group was determined even before the real-effort task by participants drawing a random ID/seat number. However, participants only found out to which of the two groups they were assigned after they had completed a non competitive real-effort task, so that there would be no treatment effects biasing the answers to the pre-experimental survey. After completion of the real-effort task, participants put the survey into a large envelop labeled only with their ID number, in which all experimental documents were collected and which remained on their desk until the end of the session. Therefore, we can rule out that participants understood their assignment to either treatment or control condition as a result of their performance in the real-effort survey task.

The initial difference in income is the key experimental manipulation designed to induce feelings of relative deprivation. Since the students were unfamiliar with this type of research, we wanted ensure that they believed that real money was at stake. Therefore, before each of the decision tasks, we distributed their respective income in the form of a real 20 baht or 50 baht bill. The two bills look markedly different. The 20 baht bill is blue, while the 50 baht bill is brown. Another reason for distributing real money is that previous experimental research has shown that behavior “in the lab” is more realistic when participants are presented with real money, as opposed to plastic tokens or images of such, which are often referred to as experimental currency units (Davis and Holt, 1993).

The decision tasks are described in full detail in the following two sections. In brief, the games consisted of a lottery task and trust game, designed to capture both *risks of nature* and *social risks*. A detailed step-by-step overview of the different experimental tasks and their order is shown in Appendix 2. Finally, after making their decisions in both games and being informed about the results, participants completed a post-experimental survey before receiving their payment. A random sample of three participants per session were also requested to stay on for a short debriefing, in which they were asked about their experience and their reasoning during the experiment. In total, the experiment lasted about 1 hour to 1,5 hours, and participants earned an average of 130 Thai baht, or approximately \$4 USD for their time, which is equivalent to four school lunches in the local

context, or approximately half of the daily minimum wage for Thailand, which currently stands at 300 baht.

Results I: Relative Income Differences & Risks of Nature

Procedure

As mentioned above, participants earned either 20 baht or 50 baht for completing the real-effort task, which was a short survey. Incomes were randomly determined depending on whether they had been assigned to an even or odd ID number at the beginning of the session. For example, participant with ID = 3 received 20 baht, while participant with ID = 4 sitting next to him received 50 baht. The show-up fee of 20 baht was the same regardless of ID number but could not be used during the games. Given the arrangement of seat numbers, this procedure ensured that every person received a different amount from his neighbor. Therefore, we were able to avoid that people with the same income size would cluster by sitting next to each other. In addition, we distributed the money publicly: First all of the participants in the “high income” group received their 50 baht bills. Once the distribution of the 50s was completed, we walked through the room and distributed all of the 20s to participants in the “low income” group. We think this public distribution made the income difference even more salient.

Next, participants had to decide whether they wanted to invest the money in a simple lottery game. They were given two differently colored envelopes: one “invest envelop” and one “save envelop.” We explained that they could either put their money into the save envelope and take it home with them at the end of the experiment, or they could put the money in the invest envelop, in which case they may lose it, or they may earn a lot more money.

In particular, we showed participants a shoebox with black and white buttons inside (see Figure 4.2). The box contained the same number of buttons as participants in the room, and 75% of the buttons were black, while the remaining 25% were white. This information was stated orally, and the absolute numbers of black and white buttons was clearly written on a cardboard poster placed prominently in the front of the room.

We told participants that we would draw with replacement one button for each of the participants. If a black button was drawn, the participant lost the money he had placed in the invest envelope. However, if a white button was drawn, then he would earn four times what he invested. For example, if he invested 50 baht, he would gain an additional 150, thus receiving a total of 200 baht for this round. However, participants who decided to place their money in the save envelope would keep their money regardless of what color button is drawn for their ID number.¹²

¹²The color of the buttons was carefully chosen to be as neutral as possible, because colors in Thailand are associated with different days of the week and have astrological meanings. For example, Tuesdays are associated with pink, and

Figure 4.2: Experimental Tools: Shoe Box with Black and White Buttons, Survey and Money

Participants were specifically requested to make their decisions underneath their desks, to ensure that the other participants could not see. Specifically, participants always took both envelopes as well as the money underneath their desks, and then allocated the money to one of them before putting both envelopes back on their desk. Once the participants had put the two envelopes back on the table, we collected both envelopes. This procedure ensured that a controlled environment was maintained.

Next, we handed out another “income,” together with a new set of envelopes, and repeated the entire game a second time. This was done because, in pilot tests, we had found that participants were very curious and excited at the opportunity to “gamble,” and thus tended to “overinvest” in the first game. Therefore, the first round of the lottery game helped participants to fully understand the game and to “satisfy” their initial excitement. In the second round, participants were more thoughtful. As it turns out, the treatment effect is similar in both rounds, so in the analysis below, I pool both decisions. Unfortunately, due to budget restrictions, I was not able to repeat the game more than once.

Importantly, the drawings for both rounds of the lottery game were conducted only after *both investment decisions* had been made, as otherwise the result of the the first lottery decision would potentially influence decisions in subsequent tasks.

Covariate balance between treatment and control groups

government employees will typically all were pink that day. People who are born on Tuesdays traditionally believed that pink is their “lucky color”. White and black are not associated with any day of the week.

Before turning to the experimental results, I first investigate whether the random assignment was successful. In particular, I investigate whether observable “pre-treatment” covariates are balanced between the treatment and control groups. Since I controlled for gender and age by design, here I consider (a) the self-rated willingness to take risks, (b) whether participants who have family members currently working abroad, (c) their intention to migrate overseas for work, (d) their satisfaction with their family’s financial situation, (e) and their beliefs about having a lost wallet returned to them. The full question wordings and answer choices are listed in Appendix 3.

Table 4.1: Covariate Balance: Treatment “Income20” and Control “Income50”

	Overall Sample					Balance Tests		
	Obs.	Mean	Std. Dev.	Min	Max	Income20 Mean	Income50 Mean	Diff-in- Means
WillingnessRisk	84	0.524	0.502	0	1	0.476	0.571	-0.095 (-0.874)
FamilyAbroad	82	0.183	0.389	0	1	0.250	0.119	0.131 (1.533)
IntentionMigrate	84	2.893	0.538	1	4	2.905	2.881	0.024 (0.023)
FinancialSatisfaction	84	3.452	0.962	1	5	3.524	3.381	0.143 (0.651)
ReturnLostWallet	84	2.536	0.648	1	4	2.548	2.524	0.024 (0.284)

Z-statistics reported are in parentheses in the final column. I conducted tests of proportions for dichotomous variables, and Wilcoxon Ranksum tests for multi-category variables. None of the differences are statistically significant at the 5% level.

Table 4.1 reports summary statistics for the sample as a whole, and also breaks down these variables by treatment (Income 20) and control (Income 50) groups. The last column reports how the two groups differ. I find that there are no statistically significant differences between the treatment “Income 20” and control “Income 50” groups, suggesting that randomization was successful.

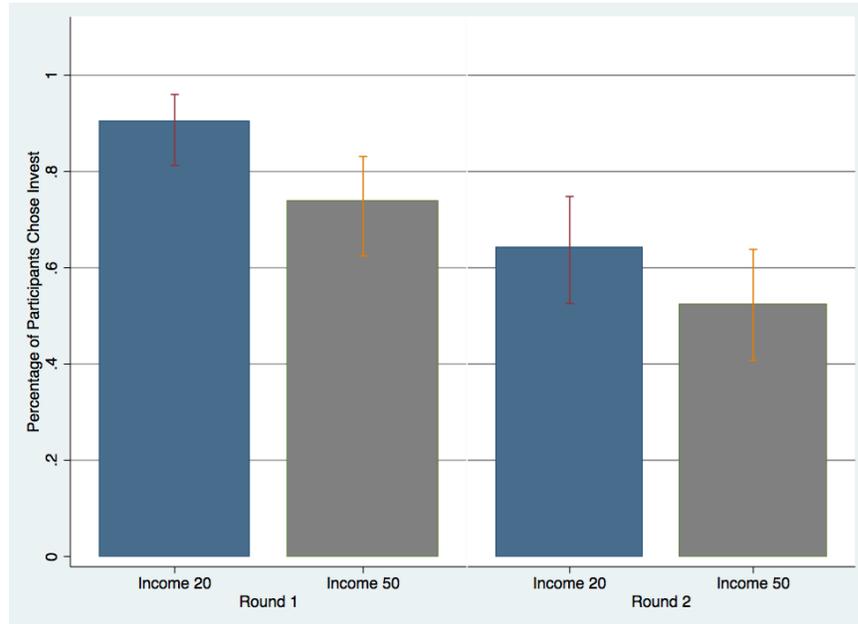
Result 1: Relative deprivation increases individuals’ willingness to take risks of nature.

Figure 4.3 displays the percentage of participants who chose to invest in the two lottery rounds, broken down by treatment (“Income 20”) and control group (“Income 50”).

As the graph shows, regardless of allocation to treatment and control group, more participants decided to invest in the first round compared to the second round. Overall in the first round, 82.1% of participants invested, compared to 58.3% in the second round (Z-test; p-value < 0.001).

More importantly, as Figure 4.3 shows, in both Round 1 and Round 2, those in the “Income 20” group (blue) were more likely to invest in the lottery games than participants in the “Income 50” group (grey). While the difference between the investment of participants in “Income 20” and “Income

Figure 4.3: The Effect of Relative Income on Risk Taking in a Lottery Game By Treatment Group



50” is statistically significant in Round 1, the confidence intervals in Round 2 between treatment and control group are overlapping as shown in Figure 4.3. However, if we pool both rounds, people in “Income 20” invested in 1.55 out of two decisions, whereas people in “Income 50” invested in only 1.26 out of two decisions (Wilcoxon Ranksum test; p-value = 0.079). This difference between the pooled rounds is statistically significant at the 10% level. Moreover, I conduct a number of robustness checks below, in which additional covariates are added to the model that increase the precision of the estimation and thus eat up noise in the error term. Together, I argue that these results provide preliminary evidence for my first hypothesis that being assigned to the low income group (as compared to the high income group) increases individuals’ willingness to take financial risks.

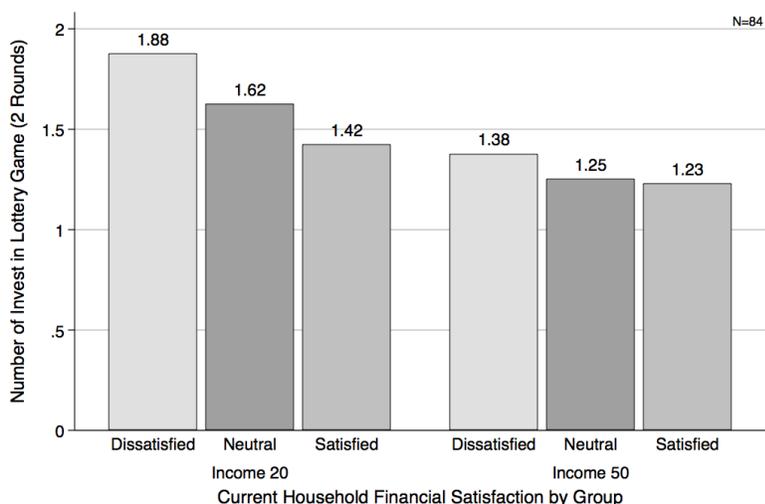
Result 2: Real life financial dissatisfaction increases individuals’ willingness to take risks for those induced to feel relatively “poor”.

Next, I analyze whether real life financial satisfaction also plays a role in the behavior during the experiment. If the income effect translates to outside the lab, then participants who are dissatisfied with their financial situation are more likely to invest in the game than those who either feel “neutral” or “satisfied” with regard to their financial standing. To measure financial satisfaction, I use a survey question asking “*How satisfied are you with your household’s current financial situation?*”. A t-test shows that answers did not differ significantly across the two groups. In fact, the lottery

game probably focused participants' attention on their true feelings about their household's current financial situation. However, to ensure that there is no difference, I present the results below separately for the treatment and control group.

As Figure 4.4 illustrates, I find that participants who are more dissatisfied invest more than those who are "satisfied" with their financial situation. Visually, the effect seems to depend upon treatment assignment. For example in the "Income 20" group: those who were dissatisfied invested on average 1.88 times across the two rounds, while those who were satisfied invested only 1.42 times.

Figure 4.4: The Effect of Household Financial Satisfaction on Risk Attitudes



As shown below, a probit model estimates that for every unit movement across the satisfaction scale (i.e. from "dissatisfied to neutral"), individuals who received 20 baht are 15.75% less likely to invest (p -value = 0.130). Although this result is not statistically significant at conventional level, it is very close. However, the difference for participants in the "Income 50" group is much smaller, and not statistically significant. As I discuss in greater detail below, this differential effect of real-life financial satisfaction on participants' investment rate in the *risks of nature* game suggests that those in the high income group may have become more loss-averse in the game regardless of their real-life financial satisfaction, while those in the low income group invest more, the more dissatisfied they are with their real-life economic situation.

Robustness Checks

To check the robustness of my results, I conducted a number of individual level regressions controlling for possible confounders. Even though the covariates are mostly balanced across treatment and control group as shown in Table 4.1, some of these covariates may be interesting in their own right,

and including them may also increase the precision of my estimates. I run the following probit model:

$$invest_{it} = \alpha + \beta_1 * round_t + \beta_2 * income20_i + \theta * X_i + \epsilon_{it} \quad (4.1)$$

where *invest* represents participant *i*'s affirmative decision to invest in round *t*, *round* is a dichotomous variable denoting either round 1 or 2, *Income20* indicates assignment to the treatment group, *X* represents a vector of individual characteristics, and ϵ represents an error term clustered at the individual level. The estimated marginal probabilities are reported in Table 4.2.

Model (1) shows the treatment effect: those in the lower income group “Income20” are significantly more likely to invest in the lottery game (p-value=0.080). This result is statistically significant at the 10% level. The difference between being in the treatment versus being in the control condition is approximately 15%. Furthermore, the model shows that participants in general were almost 25% less likely to invest in the second round than in the first round (p-value=0.061).

Table 4.2: Probit Regression Estimated Marginal Probabilities for Lottery Game

	(1)	(2)	(3)	(4)	(5)	(6)
Round	-0.247*** (0.061)	-0.259*** (0.064)	-0.256*** (0.065)	-0.249*** (0.062)	-0.248*** (0.061)	-0.248*** (0.061)
Income20	0.152* (0.080)	0.153* (0.081)	0.175** (0.082)	0.339** (0.166)	0.154* (0.079)	0.153* (0.080)
Income Mother		0.085* (0.048)				
Income Father			0.047 (0.029)			
Satisfaction				-0.158** (0.0787)		
Income20 × Satisfaction				0.125 (0.105)		
Risk (Self-Reported)					-0.020 (0.080)	
Game Difficult						0.068 (0.091)
N	168	162	158	168	168	168
Pseudo-r2	0.080	0.100	0.100	0.103	0.080	0.081
Predicted Probability at \bar{X}	0.702	0.704	0.690	0.702	0.702	0.702
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1						

Next, in Models (2) and (3) I control for participants' parental income. Parental income may be positively correlated with the willingness to take financial risks because higher socioeconomic status in real-life functions as a “cushion” that enables participants to be risk-taking in the game. I find that participants with richer parents do tend to invest more, but the relationship is only marginally statistically significant for mother's income (model 2, p-value = 0.082), and falls outside the conventional range of significance for father's income (p-value = 0.11). Most importantly, we see that the inclusion of controls for parental income does not substantively change our estimated treatment effect, suggesting that income in the real world is orthogonal to treatment assignment.

Next, in Model (4), I consider whether the treatment effect may be *moderated* by perceived real life financial satisfaction. Therefore, I include in the model both perceived financial satisfaction as well as an interaction term with the treatment. Recall that financial satisfaction is coded 0 = dissatisfied, 1 = neutral and 2 = satisfied. The estimated coefficients imply that: (i) amongst participants who are dissatisfied (satis = 0, interact = 0), the treatment effect is 33.9% and significant (p-value = 0.057). Moreover, (ii) amongst participants who feel neutral about their financial satisfaction (satis = 1, interact = 1), the treatment effect is $33.9\% - 12.5\% = 21.4\%$, and more significant since there are more neutral people (p-value = 0.025). However, (iii) amongst participants who are satisfied (satis = 2, interact = 2), the treatment effect is $33.9\% - 2 \times 12.5\% = 8.9\%$, and no longer significant (p-value = 0.291). In other words, what we find is that the treatment effect is stronger, the more financially dissatisfied participants feel.

Finally, in Models (5) and (6), I conduct two further robustness checks. In Model (5) I investigate participants' self-reported risk-preference as measured by the question "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?". This is the same question that was introduced to the German Socio-Economic Panel in 2004, and subsequently asked in experimental studies, in which it was found to be a good predictor of actual risk taking behavior (Dohmen et al., 2011; Ermisch et al., 2009; Vieider et al., 2014). However, in my lab-in-the-field experiment in rural Thailand, this general risk question, which was administered in the pre-treatment survey, does not appear to be a good predictor of actual financial risk-taking in this lottery game.¹³ Lastly, in Model (6) I control for participants' understanding of the game, but I find no significant effects, and the substantive results remain the same.

In summary, the experimental results from the investment game provide evidence in support of (H1.) that relative deprivation, as induced by heterogenous endowments in this experiment, increases individuals' willingness to take risks of nature (in terms of financial risks).

Results II: Relative Income Differences & Social Risks

Procedure

As a measure of *social risk*, I implemented a one-shot, simultaneous version of a trust game. In this trust game, participants were partnered with another (anonymous) student who was also present in the classroom and allocated to the same treatment group.¹⁴ This matching was conducted randomly, and the identity of the matched partner was never revealed during or after the experiment.

¹³I also asked a series of domain-specific risk questions about risk taking with regards to health, driving, and gambling. None of the questions were significant predictors of actual behavior (results not shown).

¹⁴Participants were again given an income based on their assignment to the 20 baht or 50 baht group. Those with even ID numbers were matched with each other, and odd ID numbers were matched with each other. The matching was conducted before the experimental ID numbers had been handed out to avoid any unconscious researcher bias.

Participants were told that their income would be pooled with that of their assigned partner in a common pot. Subsequently, they had to make a simple binary decision between (i) sharing or (ii) stealing the pot from the anonymous partner. The four potential outcomes were as follows:

- If participant x and his partner both chose to SHARE, they each received half of the pot.
- However, if participant x chose to SHARE and his partner chose to STEAL, the partner received the entire pot. Participant x received 0.
- Similarly, if participant x chose to STEAL and his partner chose to SHARE, participant x received the entire pot. His partner received 0.
- Finally, if both chose to STEAL, they both received 0.

The payoff structure of the game is depicted in Table 4.3. A similar visual overview with the different choices and outcomes for each of the two players was also always shown to participants on a large cardboard that we put in front of the classroom to help clarify the consequences of their choices.

Table 4.3: Payoffs in the Trust Game

Example payoffs for “Income 50”	Self: SHARE	Self: STEAL
Belief: Other will SHARE	Self = 50 Other = 50	Opportunist Self=50 Other = 0
Belief: Other will STEAL	Self = 0 Other = 50	Sucker Avoider Self = 0 Other = 0

Given that *Other* has the chance to act opportunistically and steal the entire pot, participants’ decisions to share in this game provide a behavioral measure of their willingness to take social risks. The question is: does this willingness differ between high and low income groups?

Result 3: Relative deprivation may significantly decrease individuals’ willingness to take a social risk.

When comparing sharing rates between the two groups, I find that 93% of participants in the high income condition SHARE, compared to only 71% of participants in the low income condition. This difference of 21% in terms of sharing between the treatment and control group is statistically significant at almost exactly the 10% level. The result suggests that participants in the low income condition are actually significantly less willing to take a social risk as I hypothesized (H2.).

However, we should hesitate to take this result at face value because the decision to SHARE could actually reflect a mixture of motives. In particular, as the game is designed, there is no option for participants to simply not share, as not sharing implies stealing the pot (possibly for personal profit,

although there is some chance of obtaining the STEAL-STEAL outcome). Stealing, however, has a negative connotation and imposes a moral cost, especially since other participants are not strangers, but classmates. Thus, another way of interpreting this result is that participants in the poor group were more willing to bear this moral cost, as a way to catch up to their richer peers. This is, in fact, exactly what Ermisch et al. (2009) find in their trust game: that trustworthiness is a luxury that poor people cannot afford. Another way of stating this result is that people in the poor condition may feel more justified not to share with another player.¹⁵

Is there a way to adjudicate between these two different interpretations (i.e. sharing as social risk tolerance vs. sharing as moral cost avoidance)? Here, I bring in evidence from an incentivized belief elicitation task in which participants also took part. Specifically, participants were asked to write down what they thought their partners would do.¹⁶ This task sheds light on the motives of participants who decide to steal in the game. In particular, if a player believes that *Other* shares and he steals, he is behaving opportunistically, meaning that he is trying to make money at the expense of his partner. By contrast, if he believes that *Other* steals and he steals as well, he is behaving defensively - i.e. he simply tries to avoid being the sucker.

In order to falsify the second interpretation - that poor people want to catch up to richer peers and are willing to bear the moral cost to do so - we would have to observe that the percentage of opportunists is the same in both the low income and high income conditions, and that the change in the percentage of people who steal is driven by the number of participants who are “sucker avoiders”. By contrast, if we observe that number of “sucker avoiders” remains the same, while the change in the percentage of participants who steal is driven by an increase in the number of opportunists, then we would find strong evidence in favor of the second interpretation.

In fact, both of these empirical implications can be observed: On the one hand, the percentage of opportunists goes up from 5% in the high income group to 19% in the low income group (a factor of 4). At the same time, the percentage of sucker-avoiders goes up from 2% in the high to 10% in the low income group (a factor of 5). Although these are very small numbers (8 opportunists in the low income group vs. two opportunists in the high income group, and four sucker avoiders in the low

¹⁵Also note that in this game only participants assigned to the same income group were paired as teams. This meant that a “poor” participant would play only with another “poor” participant. The result could of course look very different if “poor” participants and “rich” participants were paired to play together. Moreover, the behavior may also depend on the available information about whether the income was distributed randomly (as in this experiment) or according to observable factors, such as effort or merit. Experimental research suggests that inequality negatively impacts trust, expected trustworthiness and trustworthiness, but only if income is distributed randomly. If income is distributed based on merit or greed, there appears to be no significant differences between high and low inequality (Blauw and Smerdon, 2014).

¹⁶If they anticipated the real behavior of their anonymous partner correctly, they were rewarded with an additional 20 baht paid at the end of the experiment. This monetary reward was meant to provide an additional incentive for participants to carefully think about their expectations of other’s behavior and to minimize the chances that socially desirable answers would be given. Interestingly, the average belief about the expected trustworthiness of the other player (i.e. beliefs about whether the partner will steal) was the same between the low income and high income groups.

income vs. one opportunist in the high income group), and thus we cannot say anything conclusive statistically, these findings suggest that both explanations are playing some role in explaining participants' behavior.

The moral cost interpretation is in line with recent experimental findings showing that while people believe that financial deprivation should not excuse immoral conduct, when they actually feel financially deprived they tend to cheat more for financial gains (Sharma et al., 2014). In other words, the psychological state of financial deprivation makes people more willing to compromise their moral behaviors. Moreover, Sharma et al. (2014) find that financial deprivation leads individuals to judge immoral conduct of deprived actors (themselves and others) as more acceptable, thus mediating the shifts in behavior. Also similarly to my findings, these scholars identify a discrepancy between "people's predicted moral behavior in a context void of social or reputational concerns and their actual behavior" Sharma et al. (p. 99 2014). This result suggests that people are generally not conscious of what scholars have termed "moral hypocrisy" (Barden, Rucker and Petty, 2005; Stone and Fernandez, 2008) or in other words their vulnerability to behavioral inconsistencies invoked by financial deprivation.

While this line of research on the effect of relative financial deprivation on moral decisions suggests that deprived individuals might turn to whichever opportunities to redress inequity, previous research has largely neglected to study how subjective well-being affects morality, human decision-making and the willingness to take social risks. Therefore, future research is needed to cleanly identify the effect of relative deprivation on social risk taking through the first interpretation channel - that poor people are less willing to take a social risk.

Conclusion

What do these experimental results mean for the migration context? I have argued that migration is risky and that it involves two different types of risks: *risks of nature* determined by chance events and *social risks*, in which a migrant has to trust another individual for fulfilling a promise. The migration literature has repeatedly shown in different contexts that relative deprivation leads to more migration. This finding, together with the premise that migration is risky, suggests that the relationship between relative deprivation and migration is mediated by the risk attitudes of prospective migrants. However, the mediation is not straightforward: in particular, based on existing work, I have hypothesized that relative deprivation leads to (H1.) a greater willingness to take risks of nature, but (H2.) a lower willingness to take social risks.

My experimental results offer some support for H1 and H2. Based on a lab-in-the-field experiment with potential migrants in Thailand, I find that participants assigned to the "low" income group are significantly more willing to invest in a risky financial gamble than participants in the "high"

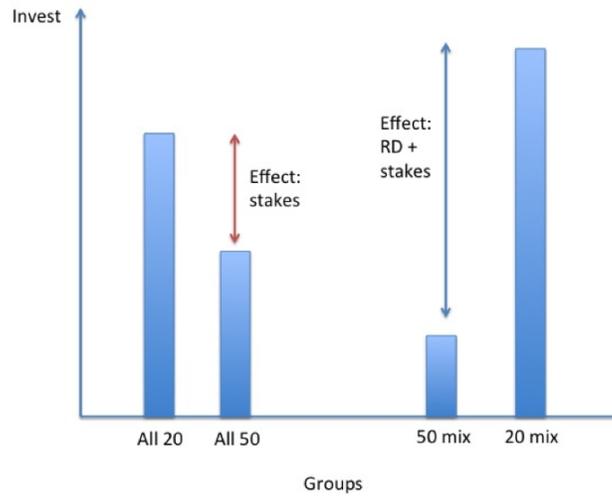
income group. Furthermore, I find evidence for a differential effect of real-life financial dissatisfaction on participants' willingness to take *risks of nature*, suggesting that for those assigned to the "low" income treatment, the more dissatisfied they are, the more likely they are to invest in the lottery game. With regard to the effect of relative financial deprivation on participants' willingness to take *social risks*, the results show that being assigned to a low income group, significantly decreases individuals' likelihood of sharing a common pot of money with an anonymous partner. While this result may be interpreted as poor people showing a lower willingness to take a social risk, it may also simply reflect a greater willingness to bear the moral costs of stealing from the common pot.

Together the experimental findings presented in this study provide some clues about why we observe an overall positive relationship between relative deprivation and the likelihood of migration. More specifically, while feelings of relative financial deprivation increase the positive effect on migration propensity through the risk of nature channel, they may exert only a weak countervailing negative effect through the social risk channel. Therefore, additively, this may contribute to the empirical observation that relative deprivation is positively associated with individual's migration propensity (Bhandari, 2004; Quinn, 2006; Stark and Blackwell, 1991; Stark, Micevska and Mycielski, 2009).

In future research, these results could also be fruitfully extended in several directions. Here, I briefly discuss two potential improvements of the current experimental designs, which could shed further light on the present results.

The first improvement involves a cleaner estimation of the relative deprivation effect on risk-taking. In particular, the current design measuring how relative deprivation induced through income inequality affects risk taking assumes that any difference in behavior between the 20 baht and 50 baht groups arises from social comparison. However, it ignores the fact that the size of the stakes themselves may also have an independent influence on decision-making. Specifically, to take a concrete example: most of us might not hesitate to risk 1 Euro on a coin flip, but very few would do the same if 100 Euro were at stake, even though the odds of winning are the same in both cases. In other words, intuitively individuals become more risk-averse as the stakes increase, and this effect is assumed away in the current experimental design.

Therefore, a future improvement in the experimental design would be the following: In addition to the sessions where participants earning 20 and 50 baht are "mixed" in the same session, I would also conduct two homogenous sessions where *all* individuals earn 20 baht, and *all* individuals earn 50 baht. By comparing the homogenous sessions, we could then estimate a "pure" stakes effect, as shown in the right panel of Figure 4.5. Since we know that the current results reflect a relative-deprivation effect *plus* a stakes effect, a future analysis could take the difference-in-difference between the mixed and homogenous sessions, in order to isolate the *pure* effect of relative deprivation on risk taking.

Figure 4.5: Experimental Design Controlling for Stakes Effect

A second improvement would clarify the ambiguous social risk results in the trust game. Specifically, it may be possible to disentangle the two interpretations discussed earlier (willingness to trust others vs. willingness to steal) by running a one-shot sequential trust game, in which the choice of the first player is between SHARE and NOT SHARE. In this case, not sharing does not involve the moral cost that stealing entails. Furthermore, it would be interesting to also mix participants in the “rich” condition with and participants in the “poor” condition in pairs in addition to mixing within the same income category.¹⁷

A final point concerns the issue of external validity. Here, I have deliberately and exclusively focused on the decision-making of men, and more specifically of adolescent men in rural Thailand. This research design has been carefully chosen because these study participants are most “representative” of low-wage international labor migrants from Thailand more generally, who tend to be young men with lower secondary education. However, future research may also want to replicate this analysis amongst “less representative” - though no less important - population subgroups (e.g. women, middle-aged migrants; specific professions, such as domestic workers, etc.).

¹⁷In my experimental design, I opted for a simultaneous version of the game because (i) I did not have enough participants, and a one-shot sequential game would have involved cutting my sample size in half (since only 50% of the participants would have been assigned to the role of truster), and thus (ii) I was concerned about not having enough statistical power to compare treatment and control groups. However, in hindsight, this may have been the wrong decision as the mixed motives present in the current design prevent me from drawing any firm conclusions.

The present study also has a number of implications for existing migration scholarship. More specifically, my hypothesis that migration is a product of a risk-seeking behavior ostensibly speaks against a mainstream finding in the literature that migration is commonly undertaken by risk-averse households to diversify income sources and mitigate income shocks (Katz and Stark, 1986; Stark and Levhari, 1982; Stark and Taylor, 1991). However, the apparent contradiction is resolved once we understand that different decision-making processes may operate at the household and the individual levels. Indeed, a recent study by Dustmann et al. (2014) finds that although risk-averse households may seek to diversify income sources, it is usually the most risk-loving member of the household who migrates. Thus, this study highlights the importance of conceptually differentiating between the *household* vs. the *individual* levels in our analyses.

At a larger level, my findings speak to a broader development literature on the behavioral effects of poverty and the link between risk attitudes and poverty, which has long interested development economists (Banerjee and Dufló, 2012). This literature has demonstrated that poverty affects the decision-making process along a wide variety of economic domains, often leading poor people to engage in behaviors that seem to perpetuate poverty (e.g. lack of investment in education and health, lack of savings, over-borrowing, etc.). Thus, with regards to risk-taking behavior, scholars have argued that poor people in developing countries are more risk averse (Haushofer and Fehr, 2014), leading to suboptimal outcomes, such as farmers not investing in new technologies (Liu, 2013). However, the correlation between risk preferences and economic well-being has been questioned (Cardenas and Carpenter, 2013), partly because measures of risk preferences in the developing world have usually been specifically designed to pick up risk aversion but not risk-loving behavior (Vieider et al., 2013). However, my results suggest that risk attitudes are not simply a function of objective (absolute) economic conditions; rather subjective economic well-being (i.e. perceptions of relative poverty) can also shape risk attitudes in a meaningful way. My findings are thus in line with more recent empirical research, which suggests that it is the context of poverty and not deviant values particular to poor people that modifies individual decision-making in important ways (Bank, 2014). Therefore, my research contributes to an emerging scholarship in this field that can potentially highlight the potential for new poverty alleviation programs, which could be based on a better understanding of the relationship between poverty, its psychological consequences and their effects on economic choice as Haushofer and Fehr (2014) have highlighted.

Appendix 1: Oral Experimental Instructions

EXPERIMENTAL PROTOCOL:

Relative Deprivation and Risk Taking in Thailand

Step 1 - ID Codes

[1] Before we begin, please read and sign your consent form and put it into the envelope.

Step 2 - Welcome

[2] Welcome. Thank you for agreeing to participate in this research. For **showing up** on time today, you have already earned **20 Thai baht**, which will be paid to you at the end of today's session. You will have the opportunity to earn more money during the course of today's session. In particular, **it is possible to earn a maximum of 520 baht** for your participation in today's research.

[3] This experiment is a study of individual behavior. The instructions are simple. You will simply need to follow the instructions as they are gradually explained to you. The answers you will provide will be anonymous and confidential. The researchers who examine your answers will not be able to match your name to any of the choices you make here today.

[4] During your time here today, you will be asked to make decisions that will affect how much money you will be able to earn.. It is therefore important for the success of the research that you **do not talk to each other** and that you listen to the instructions very carefully. If you have questions during today's session, please raise your hand.

Step 3 – Overview

[5] Today's session consists of a series of tasks. In the first task, you will be asked to answer some questions on a survey, which will take approximately 15 minutes. For this task, you will be paid a salary of **either 60 or 150 baht**. We will tell you more about the salary later.

[6] The other tasks consist of four games, in which you will have the opportunity to earn additional income. The amount that you earn will depend partly on your own choices, partly on the choices of the other participants, and partly on luck. At the end of today's session, you will receive your earnings from the four games plus the 20 baht show-up fee in cash in an envelope. Are there any questions before we begin?

[PAUSE]

[7] Please start the survey now. Make sure to write you ID number (and only your ID number on the top of the page). When you are done, please raise your hand, so we can come and check your survey for completeness.

[**START SURVEY**]

Step 4 – Game 1

[8] Thank you for completing the survey. We will now pay the first portion of your salary. For those of you in **ODD-numbered seats, your salary will be 60 baht, of which you will now receive 20**. For those of you in **EVEN-numbered seats, your salary will be 150 baht, of which you will now receive 50**. You can use this money in the first game. We will pay you the rest of your salary later.

[HAND OUT CASH]

[9] In this first game, you have a **green** envelope, and a **pink** envelope. If you put your salary in the green envelope, you are guaranteed to be able to take it home with you at the end of today's session. However, if you put your money into the pink envelope, you may lose it, but you may also win a lot more money.

[10] What happens if you put your money in the *pink* envelope? I have here **a box of 15 black, and 5 white tokens**. One token will be drawn from the box for each of you.

- If the token drawn for you is **white**, you win **4 times the money in the pink envelope**. For example, if you put in 50 baht, and draw a white token, you will win 200 baht.
- However the token drawn for you is **black**, you will lose all of the money in the *pink* envelope.
- Of course, if you have put your salary in the *green* envelope, then it does not matter which color token is drawn for you: **you will keep your salary**.

Are there any questions?

[11] Now please making your decision, by putting your salary in either the green or the pink envelope. **Please make your decisions underneath the table, and please do not discuss with others what to do**. When you are done, we will come to collect the pink envelope FROM ALL OF YOU. Please keep the green envelope with you.

[COLLECT PINK ENVELOPE]

OK now we will record your answers. We will conduct the drawing at the end of today's session.

Step 5 – Game 2

[12] We will now give you the second portion of your **salary**. Those in **ODD-numbered seats will receive 20 baht**, and those in **EVEN-numbered seats will receive 50 baht**. This money will be used in a **second investment game** which will be **exactly the same** to the game I just explained.

[HAND OUT MONEY]

[13] You have in front of you a yellow envelope. You have to decide whether you want to put this money in the yellow envelope or whether you want to put it into the green envelope. Again, if you put it into the green envelope you are guaranteed to take the money home with you. If you decide to put it into the yellow envelope, you may lose it but you may earn 4 times your salary.

[14] Again, when you make your decisions, please do so underneath the table. **Please do not discuss what to do with your classmates**. When you are done, we will come and collect the yellow envelopes FROM EACH OF YOU. Please keep the green envelope with you. You may make your decisions now.

[COLLECT YELLOW ENVELOPES]

Step 6 – Belief Elicitation Task

[15] OK, you will have a **BONUS opportunity** to earn **50 baht**. There are **20 people** in the room today. Each person will participate in 2 drawings. This means that we will make 40 drawings in total. I have a question for you: **how many white tokens will be shown after all 40 drawings?**

[16] Please write down one (and only one) number from **1 – 40**. Remember that the real box contains 5 white and 15 black tokens. Please write down your answers as well as your ID code on the paper provided. Once you are done, please turn your paper over. **Please do not discuss your decision with other people**. We will come around to collect your answers.

[17] At the end of the today's session, we will compare your guesses to what actually happened in the drawing. If you are correct about the number of white tokens that the drawer will show, you will earn a BONUS 50 baht. Are there any questions?

[COLLECT GUESSES]

Step 7 – Trust game

[18] We have one last game to play. In this game, you must **decide how to split a pot** between yourself and another person.

[19] In the session today, we randomly divided you into two groups of students: students earning 20 baht per game, and students receiving 50 baht per game. For this game, we will randomly match you to a partner **earning the same amount as you**. This means that if you received 50 baht just now, you will be matched to a partner who has also just received 50 baht. **Importantly, you will not know the identity of your partner.**

[20] We will combine your salary with your partner's salary into a **common pot**. For those earning 20 baht, this means that your common pot contains **40 baht**. For those earning 50 baht, this means that your common pot contains **100 baht**.

[21] You must decide whether you would like to **share** this pot with your partner, or else try to **steal** the entire pot.

- If you and your partner **both choose to share**, you will each receive half of the pot.
- However, if **you chose to SHARE** and **your partner chooses to STEAL**, he will receive the entire pot. You will receive 0.
- Similarly, if **you choose to STEAL** and **your partner chooses to SHARE**, you will receive the entire pot. He will receive 0.
- Finally, if you **both choose to steal**, you will both receive 0.

Are there any questions?

[22] Remember, only the experimenters will ever know who your partner is. You will never know the identity of your partner. All you know is that your partner is someone who earns the exact gets the same salary as you in each game.

[23] In front of you, you will see a piece of paper on which you can choose to SHARE or STEAL. Please mark your choice on the paper. **Please do not discuss your decision with other people.**

[24] You will also have a BONUS task: **guess whether your partner will choose to SHARE or STEAL**. If you guess correctly, you will win a bonus of **10 baht**. Please mark your choice on the paper and turn it over. When you are finished, we will come around and collect your decisions.

[COLLECT STEAL_SHARE]

[DO DRAWING]

Step 8 - Post-Experimental Survey

[24] We are almost done with today's session. At this point my colleagues will calculate your final earnings and prepare the payment envelopes. This will take some time. In the meantime, please complete the second questionnaire. Your answers to this questionnaire will remain anonymous and will not affect your earnings in any way, but it is important for this research that you answer truthfully.

[25] Once everyone has completed the questionnaire, please put it into the large envelop with your first questionnaire and bring the envelop to the front of the room. When you give us the questionnaires, we will pay you your earnings for today's session. This includes your show-up fee, your earnings in the games, and another 50 baht if you have guessed correctly in the BONUS task.

[26] If you have any questions about how your final earnings were calculated, we will be happy to provide an explanation at this time.

Step 9 – Exit Interview

[27] Finally, we would like to select some of you for a brief 5-minute interview to learn more about how you liked this research project. If you have been selected randomly for this interview, we will ask you to wait at the time of payment.

[28] Because we are conducting multiple sessions of this research with people from your area, please do not talk about the games today with your friends, so people's decisions will be confidential.

Appendix 2: Experimental Game: Step-by- Step

Step	Task	Description
1	Entry	Participants are randomly assigned ID numbers and desks
2	Survey	Participants take a survey measuring their intention to go abroad, their family's migration experience, and attitudes toward risk and trust. For completing this survey, they earn an income of either 20 or 50 Thai baht.
3	Distribution of income	50% of participants receive 20 baht, the other 50% receive 50 baht based on a random draw of seat numbers.
4	Explanation of lottery game	Oral and visual explanation of the game by the moderator. Time for questions.
5	Decision Stage 1	Participants decide whether to save or invest their income in the game we just described.
6	Decision Stage 2	We give participants a second income equivalent to the first income, and they decide again to either save or invest. (We also implemented a belief elicitation task, which is described in another chapter).
7	Explanation of Trust game	Oral and visual explanation of the game by the moderator. Time for questions.
8	Decision in trust game	Participants decide how to split a pot of money between themselves and a partner. They can either share or steal. They are also asked about their beliefs regarding the action of their assigned partner.
9	Drawing for Lottery games	The drawing for both lottery games is administered publicly.
10	Post-experimental survey	Participants take a short survey measuring socio-demographic characteristics and their understanding of the tasks.
11	Payment	Each participant receives an envelop with their payment linked to their ID number.
12	Exit Interviews	3-5 participants are asked for their voluntary participation in a short interview about their decision-making during the experiment.

Appendix 3: Description and Coding of Main Variables

Table 4.4: Description and Coding of Main Variables

Variable	Question	Coding
WillingnessRisk	Generally speaking, are you a person who is fully willing to take risks or do you try to avoid risks?	0 = I generally try to avoid risks. 1 = I am generally willing to take risks.
FamilyAbroad	Do you have any family members who are currently living abroad?	0 = No 1 = Yes
IntentionMigrate	How likely are you to seek work overseas in the future?	1 = not at all likely 2 = not likely 3 = somewhat likely 4 = very likely
FinancialSatisfaction	How satisfied are you with your household's current financial situation?	1 = not at all satisfied 2 = not satisfied 3 = neutral 4 = satisfied 5 = very satisfied
ReturnLostWallet	Imagine you lost your wallet with 30,000 baht and your name and phone number in it on the main road in the center of your local city, how likely do you think the wallet will be returned to you?	1 = not at all likely 2 = not likely 3 = somewhat likely 4 = very likely
IncomeMother	Please estimate your mother's monthly total income in an average month	1 < 5K 2 = 5k-10k 3 = 10k-15k 4 = 15k-20k 5 = 20k-25k 6 = 25k-30k 7 = 30k-35k
IncomeFather	Please estimate your father's total monthly income in an average month	1 < 5k 2 = 5k-10k 3 = 10k-15k 4 = 15k-20k 5 = 20k-25k 6 = 25k-30k 7 = 30k-35k 8 > 35k
GamesDifficult	Do you think these games were difficult?	0 = not difficult 1 = difficult

Chapter 5

The Fortuna Heuristic

Introduction

In chapters 3 and 4, I considered how relative deprivation may alter the costs and benefits of migration relative to the status quo. In terms of the model laid out in chapter 2, chapters 3 and 4 expand the expected utility model by exploring how the fear of being left behind affects the v parameter. By contrast in the next two chapters, I will examine how the model can also be expanded by individuals' subjective judgments of the probability of encountering negative versus positive experiences - the p parameter. In doing so, I focus in particular on beliefs about personalized luck.

Psychological research on attribution theory has shown that perceptions of luck significantly influence individuals' expectations for success and control (Weiner, Heckhausen and Meyer, 1972). Luck is often conceptualized in these studies as an external and uncontrollable force that strikes at random. However, as Darke and Freedman (1997) have shown, many people believe that luck is rather a stable characteristic of a person. In line with this distinction, Fischhoff (1975) has argued that luck should be understood as a personal attribution (e.g. I am lucky) that may consistently favor some people but not others, whereas chance is a concept describing a property of the environment (André, 2006). Moreover, empirical research has shown that there is considerable cross-cultural variations in the beliefs in luck, and that beliefs in personalized luck are particularly widespread among members of Asian cultures. For example, Darke and Freedman (1997) find that Asian-Americans in the United States have significantly stronger beliefs in personalized luck than non-Asians (Whites, Latinos and African-American).

Often personalized beliefs in luck are connected to superstitious beliefs about luck. For example, according to the Chinese zodiac, individuals born in the year of the Dragon are thought to be

particularly blessed with luck. Economists and demographers have connected these types of beliefs to important decision-making, such as fertility timing and investment choices, and have concluded that irrational beliefs about luck can serve as “a source of positive expectations for the outcome of future events” (Darke and Freedman, 1997, p. 487). In this chapter, I examine how personalized beliefs in luck affects risk-taking, drawing from a large literature on risk and uncertainty which points to the importance of heuristic decision-making and irrational beliefs (e.g. Croson and Sundali, 2005; Darke and Freedman, 1997; Gigerenzer and Gaissmaier, 2011; Kahneman et al., 1982; Sundali and Croson, 2006). In particular, I hypothesize that people - and in this case potential and prospective migrants from Thailand - who believe they themselves are personally lucky will be more willing to take financial risks.

The empirical analysis proceeds in three steps. First, I show that people often do not calculate probabilities rationally. More specifically, I conducted an original behavioral experiment with potential labor migrants - vocational school students who are about to enter the labor market - in northern Thailand. The experiment involves a risky investment game, where the *objective* probabilities and expected outcomes are common knowledge. Behavior in the game is then matched to an incentivized belief elicitation task where participants are asked to state their *subjective* beliefs about the probability of winning. My results show that the vast majority of participants’ subjective beliefs do not match the given objective parameters. Further, subjective beliefs are not only all over the map, but they also predict investment behavior. In other words, the results from this economic experiment indicate that potential migrants in northern Thailand do not make decisions as predicted by the expected utility model.

Secondly, I present evidence that subjective beliefs about probabilities are informed by beliefs about luck. In exit interviews after the completion of the experiment, participants explained their own beliefs and decision making in terms of personalized luckiness. In other words, participants’ choices, as well as their *explanations of their choices*, resonate strongly with the prominent role that beliefs about luck and superstition play in Thai society.¹ In Section 5.5, I provide several examples of how these beliefs operate in the real life contexts such as gambling, child naming conventions, and consumer decision-making. In addition, I show that the subjective beliefs of my experimental participants about the probability of winning the investment game correlate with their responses about their own luckiness, as drawn from a post-experimental survey.

Thirdly, in Section 3.3, I attempt to build a case for external validity of these findings. In particular, I report results from a survey I conducted amongst “real-life” labor migrants seeking to obtain entry to South Korea. I ask respondents to indicate their willingness to accept a hypothetical risky labor migration offer, and also to indicate how “lucky” they believed themselves to be with relation to marriage, life expectancy and the likelihood of surviving various accidents. My results show that

¹I do not claim that Thailand is the only society where superstitious beliefs operate, nor do I want to suggest that superstition is stronger in Thailand than anywhere else. However, the point of this chapter is to highlight the fact that amongst the population of migrants in Thailand, superstitious beliefs play a role.

the willingness to accept the migration offer correlates positively with beliefs in personalized luck as captured by the different survey items.

Furthermore, in Section 5.8, I examine in how far these beliefs in luck may be generalizable beyond the Thai context. I conducted a replication of the experiment with similar participants in Florence, Italy. I find that the relationship between beliefs in personalized luck and guesses is much weaker amongst Italians than amongst Thais. This together with the observed relationship between these guesses and beliefs related to luck suggest that the “*fortuna heuristic*” may be somewhat culturally-bound.

Overall, this paper demonstrates that the expected utility model is not very useful in explaining migration decisions, at least amongst potential and prospective labor migrants from northern Thailand. Instead, Thai migrants seem to apply what I term a “*fortuna heuristic*” to risky choices. By “*heuristic*,” I am referring to the mental “short-cuts” that often guide non-deliberative decision-making (Kahneman et al., 1982). In this particular case, the short-cut seems to involve individuals asking themselves *not* “Is this a risk that is *in general* worth taking?”, but rather “*How lucky am I?*”. This interpretation raises a number of important implications for migration policymaking, but leaves several unanswered questions. For example, how stable are beliefs in personalized luck, and how may personalized luck be changed? I therefore conclude by discussing several avenues for future research.

This study proceeds as follows: In Section 5.2, I discuss the relevant literature on risky decision-making. I then proceed to describe the experimental design, setting and procedure in Section 5.3. In Section 5.4, I present and discuss my experimental results. I then discuss beliefs about luck in the Thai context in Section 5.5 before turning to the survey conducted with prospective migrants in Section 5.6. In Section 5.7, I present the survey results and in Section 5.8, I discuss the replication study conducted in Italy. Lastly, in Section 5.9, I conclude by summing up the overall findings and by spelling out the implications of this study for future research and policymaking.

Literature Review

Although there is no unified theory of decision-making under uncertainty in the social sciences, expected utility theory has provided the dominant paradigm for evaluating how one “should” behave when the outcomes of a choice are unknown. According to this theory, a rational actor chooses the option that maximizes his expected welfare. Moreover, the theory provides us with a mathematical formula for calculating this expectation by assigning probabilities and utilities to all of the possible outcomes associated with each option. Expected welfare can thus be thought of as a “weighted-average” of expected costs and benefits.

However, there are several points at which this theory can break down. First, in reality it is rather uncommon that all alternatives, consequences and probabilities are known, such as in the case of lotteries (Gigerenzer, 2014, p.22). When we face unknown risks or information is incomplete, then scholars no longer speak of risks but of uncertainty, which is examined in a growing body of scholarship (e.g. Knight, 1921; Kahneman et al., 1982; Neth et al., 2014; Williams and Baláz, 2012; Zinn, 2008).

Secondly, even if individuals have all the objective information needed to calculate the expected welfare implications of each choice, they may not apply the mathematical formula suggested by expected utility theory to assess risks. One problem may arise if individuals do not use the available objective information, and instead substitute inaccurate probabilities in making their calculations. Here, we are in the realm of superstition and ritual: for example, Luhmann (2000) discusses how, in the Middle Ages, sea-going merchants believed that they could decrease the chance of a ship being lost through prayer and good works. Similarly, Evans-Pritchard illustrates in his classic story of how culturally-widespread beliefs in supernatural agents are used by the Zande in Central Africa to explain the coincidence of a termite-infested roof collapsing at a particular moment. As Paul Boyer points out,

For the anthropologist, the house caved in because of the termites. For the Zande, it was quite clear that witchcraft was involved. However, the Zande were also aware that the termites were the proximate cause of the incident. But what they wanted to know was why it happened at that particular time, when particular people were gathered in the house. (Boyer, 2001, p. 196)

In both of these cases, although behavior is still *rational* given the decision-maker's beliefs, the real-life probability mapping between a decision and an outcome was "wrong" by objective standards, leading to a deviation from the expected utility model.²

In this sense, the ability to classify accurate and inaccurate beliefs and apply the right probability estimates is a "skill" which must be learned. As Mlodinov discusses, the skill was not developed in Europe until the seventeenth century, and only then in the context of applications to fairly simple games of chance (see also Luhmann, 2000).³ Other work has also suggested that the ability to apply rational decision-making has to be taught (March, 1994; Piaget and Inhelder, 2014), and may depend on underlying cognitive ability (Cokely and Kelley, 2009; Frederick, 2005; Stanovich and West, 2008). In short, we know from a range of literatures that the rational expected utility model may break down in a variety of ways. In the remainder of this paper, I investigate to what extent this model is applied to evaluating high-stake risks by potential labor migrants in rural Thailand.

²A third case can arise if individuals make choices "emotionally" and "in the heat of the moment" which they later come to regret as irrational (Fessler, Pillsworth and Flanson, 2004; Loewenstein et al., 2001; Sjöberg, 2007; Slovic et al., 2002; Slovic and Peters, 2006).

³However, there is a debate about whether individuals can think intuitive in terms of rough probabilities, see (Fontanari et al., 2014).

Method: A lab-in-the-field Experiment on Risk Perceptions

The lab-in-the-field experiment that this chapter draws from is described in full detail in the previous chapter. I therefore do not repeat a discussion of the experimental setting, the participant pool or the procedure of the experiment here.

However, the results presented in this chapter are not discussed previously. In particular, this chapter presents findings from a belief elicitation task, which measured participants' expectations of the lottery outcome by asking them to write down their prediction for the final lottery outcome in advance of the drawings. This belief elicitation task was conducted after the lottery game was explained but before participants made their investment decisions. A step-by-step overview of all tasks of the experiment is provided in Appendix 1.

Experimental Results

Evaluating Probabilities

First, I will present the results from the belief elicitation task. Figure 5.1 below illustrates that less than 1/4 out of all participants (21 out of 88) were able to correctly calculate the probability (which was 25%) of seeing a white button. Moreover, the guesses ranged from 0% to 100%, with a mean of 30% (sd = 19%). This finding shows that the majority of participants did not correctly attach probabilities to the different outcomes of the lottery.

Figure 5.1: Guess: Share of White Buttons

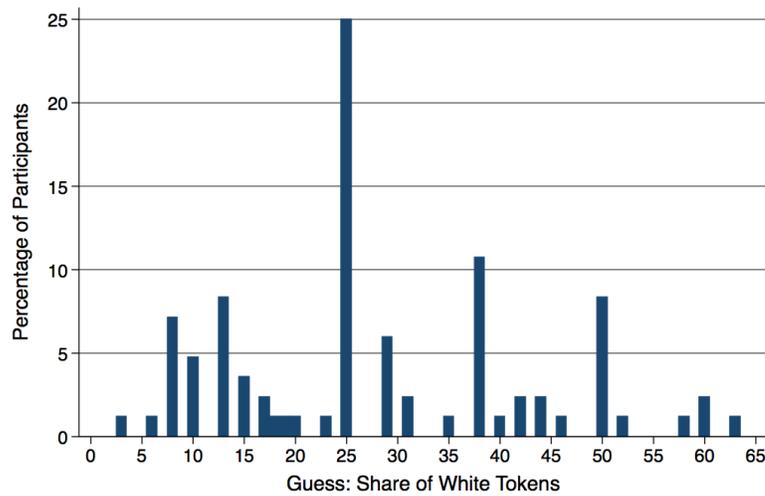


Table 5.1 shows the summary statistics for this variable, as well as the other variables used in the subsequent analysis.

Table 5.1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
<i>Substantive Variables</i>					
Guess: % of white balls	0.279	0.148	0.025	0.625	84
Correct Guess dummy	0.25	0.436	0	1	84
Invest, period 1	0.821	0.385	0	1	84
Invest, period 2	0.583	0.496	0	1	84
<i>Demographic Variables</i>					
Good Student	0.202	0.404	0	1	84
Mother poor	0.464	0.502	0	1	84
Mother average income	0.44	0.499	0	1	84
Mother rich	0.131	0.339	0	1	84
Father poor	0.214	0.413	0	1	84
Father average income	0.452	0.501	0	1	84
Father rich	0.393	0.491	0	1	84
Household economic ranking (Bottom-Top)	2.381	0.759	1	4	84
Risk Aversion	0.524	0.502	0	1	84

What predicts whether participants guess correctly?

What predicts whether someone guesses the correct probability of seeing a white button, which was 25%? Below I report results from individual-level logit models where the dependent variable *Correct* is coded 1 if the respondent guessed exactly 25%, and 0 otherwise.

First, we may expect that participants' overall performance in school would influence their ability to guess correctly. Therefore, good students would be expected to guess better than weak students. In the post-experimental survey, I asked participants to self-rank their performance in school on a five-point scale ranging from "very good" (1) to "very poor" (5). However, no students placed themselves in the "very good" or "very poor" categories. Overall, 75% of participants self-classified themselves as average, 20% as good, and 5% as poor. As shown in Model (1) of Table 5.2, I find, surprisingly, that good students guess no better than bad students.

Second, we may also think that richer participants are better at calculating the correct probability because they may have more experience dealing with money, and hence are better at numbers. In Model (2) I include mother's income which is coded "poor" for a monthly income of 0-5000 Thai baht, "average" for an income of 5001-10000, and "rich" for any amount higher than 10001 Thai baht. Father's income is coded in the same way and included in Model (3). In both models, the residual category are participants who have a mother / or father earning an average income. I find that only participants with rich fathers are statistically less likely to calculate the probability of the

Table 5.2: Explaining the Correct Guess: Probit Models
Coefficients Shown as Marginal Probabilities

	(1)	(2)	(3)	(4)	(5)
Good Student	-0.092 (0.108)				
Mother poor		0.064 (0.097)			
Mother rich		0.041 (0.149)			
Father poor			-0.055 (0.111)		
Father rich			-0.167* (0.092)		
Bottom_Top				0.00 (0.066)	
session24					-0.133* (0.097)
Observations	84	84	84	84	84
Pseudo R-squared	0.007	0.005	0.033	0	0.021
Predicted % Correct	0.250	0.250	0.250	0.250	0.250
Standard errors clustered within 4 experimental sessions					
*** p<0.01, ** p<0.05, * p<0.1					

guess correctly but that otherwise parental income is not significantly correlated with explaining the correct guess.

In Model (4), I also control for another indicator of financial well-being. I asked participants' to rate their position on the national income distribution with the following question: "In every society, there are groups which tend to be towards the top in terms of income and groups which tend to be towards the bottom. Below is a scale that runs from top to bottom (*Bottom-Top*). Where would you put yourself on this scale?" The answer categories on this 5-point answer scale ranged from "very bottom" (1) to "very top" (5). The average respondent positioned himself "below average" (out of 88 participants in total, 16 replied "very bottom", 27 replied "below average" and 44 answered "average". Only one respondent answered "above average" and no one put himself in the "very top").⁴ Again, I find that participants' bottom up ranking is not correlated with providing the correct answer.

However, there is an indicator that predicts whether participants' guess correctly: the tendency to heap or cluster guesses on round numbers. The tendency to favor numbers ending in 5 or 0 has

⁴The same question was used in the International Social Survey Program (ISSP) 1999 survey. In most cases, a 10-point answer scale is used for this question. However, piloting showed that respondents in Thailand had difficulties responding to scales. Therefore, I transformed the answer scale into 5 absolute answers ranging from "very bottom" to "very top". Last accessed on 11 October 2014.

been found in census data amongst low-educated respondents around the world (Lee and Zhang, 2013). In my experiment, in some sessions there were 20 participants, and in some there were 24. In the smaller sessions of 20, there were 5 white buttons (25% of 20), and 5 is a round number that people tend to focus on, whereas in the larger sessions of 24, there were 6 white buttons (25% of 24). Thus, if participants are applying this heuristic, then we should see significantly more correct guesses in the 20-person sessions than in the 24-person sessions. Indeed, this is what we find in Model 5: participants in the 24 persons sessions are significantly less likely to guess correctly (p -value = 0.097). Note that the baseline probability of guessing correctly is only 25%. The coefficient indicates that participants in the 24 persons sessions guessed correctly only around 13% of the time, which is more than a 50% decrease from the baseline. This is further evidence that participants are not calculating probabilities. Instead, some participants who guessed correctly, just did so because they liked the number 5.

The Relationship between the Guess and Investment Behavior

Finally, given that participants are attaching some probability to the different outcomes, even though this probability may be objectively wrong, how does their behavior reflect their probability judgment? In other words, are participants who make higher guesses more likely to invest in the game?

In this section, I estimate a probit model where the dependent variable is the choice to invest in the game in period t , where $t = 1$ or 2 (because the game was played twice). Since each individual makes two decisions, and hence has two observations in the dataset, I include a dummy variable in all models to denote the period t . I also cluster standard errors at the level of the individual participant. The results are reported in Table 5.3.

In Model (1), I control for the game specific details: the period as well as the endowment, and I show that both are statistically significant. With regards to the period, I find that participants are 24% less likely to invest in the second period, suggesting that participants were very excited in the first period, and there is some sort of calming down process when the game was repeated a second time. Participants also told me in the exit interviews about their overexcitement. For example, one participant explained that “In the first game, I just wanted to have fun and try out the game.” However, in the second period, participants took their decisions much more seriously, which is why I designed the experiment with a repeated lottery game. Second, as mentioned above, participants were provided with different initial endowments with which to play the game. I do not focus on the effect of endowment differences in this paper, but it is still important to control for them,⁵ because doing so increases the precision of the estimates. Thus, this variable (Endowment) is also included

⁵Even though the endowment effects are statistically independent of all of the independent variables due to random assignment

in Model (1). I find that those with the lower endowment are on average 15% more likely to invest in the games than those who received the higher endowment (50%)

In Model (2), I include the main explanatory variable: the guess of the percentage of white buttons shown during the games. For ease of interpretation, I standardize this variable. I find that moving from one standard deviation below the mean guess (guess = 10%) to one standard deviation above the mean guess (guess = 50%) is associated with approximately a 24% increased likelihood of investing in the games. To put the effect size into more concrete terms, this is about the same size as the effect of going from period 1 to period 2.

Table 5.3: Relationship between Guess and Investment Decisions

	(1)	(2)	(3)	(4)	(5)
Period2	-0.244*** (0.059)	-0.249*** (0.060)	-0.250*** (0.060)	-0.250*** (0.060)	-0.257*** (0.061)
Endowment Low	0.152* (0.080)	0.178** (0.079)	0.182** (0.079)	0.169** (0.079)	0.193*** (0.080)
Guess (std)		0.923** (0.043)	0.102** (0.045)	0.068** (0.045)	0.080* (0.047)
Bottom_Top			-0.034 (0.053)		
Income Mother				0.040 (0.048)	
Income Father					0.039 (0.027)
Observations	168	168	168	162	158
Pseudo r-squared	0.080	0.110	0.113	0.116	0.121
Log-Likelihood	-94.15	-90.99	-90.76	-87.06	-85.97

Standard errors clustered within individual decisions

*** p<0.01, ** p<0.05, * p<0.1

However, from the previous analysis, we know that economic well-being influences the guesses participants made. I have shown that richer participants make higher guesses. Thus, it may well be that the same economic indicators also affect whether participants invest. On the one hand, richer participants may be more willing to play the game, because they actually do not care as much as those from less well-off backgrounds if they lose. On the other hand, richer participants may also be less willing to play, because they do not care as much about the possibility of earning much more by winning the game. Thus, I add participants self-ranked socio-economic status (Bottom Top) in Model (3) and I find no effect. Subsequently, in Model (4) and (5), I add mother's and father's income separately. I find that neither mother's nor father's income has any effect on whether participants invest in the game.⁶

⁶These results differ slightly from what I find in Table 5.3. The difference is that in that table mother's income was only marginally significant. Here, I find that once I control for the guess, mother's income is not significant though it is still positively signed, which is consistent with what I find before.

Overall, I conclude that participants' probability estimates - though not mathematically "rational" - did influence individual's behavior in the experimental tasks. This conclusion is also supported by participant observation and my exit interviews: First, participants seemed to care about their endowment and were not willing to just give it away (it was not perceived as a windfall probably because the endowment was earned by answering a survey). Secondly, participants specifically told me in the exit interviews that they invested because they thought that they would win, or in the rare case where participants did not invest because they thought that they would lose.

Beliefs in Luck in Thailand

Beliefs in luck and superstition more generally have long been widespread in Thai society. Today, one can find horoscope books inside packets of instant noodles, as well as good-luck amulets next to breath mints, selling in any 7-Eleven convenience store across the country. Furthermore, modern technology has helped to create new ways of divining your fortune. For example, Thailand has a number of call centers with fortune tellers, which callers can reach for 15 baht, or 50 cents a minute to find out their latest horoscope. This fortune-telling industry is no small business but a multimillion-dollar empire built by an entrepreneur who calls himself Mr. Luck (*The New York Times*, "Thais look to the Supernatural," December 28 2010).

Research has shown that beliefs in luck also influence a number of behaviors in Thai society (Ariyabuddhiphongs and Chanchalermporn, 2007). Consider the extremely popular practice of buying local lottery tickets, which involves at least 20 million individuals out of a total population of 65 million who are engaged in illegal gaming alone. In addition, Thailand also operates a bi-monthly government lottery, for which tickets are sold between fruit and vegetable stalls on markets, by walking vendors in restaurants and at the entrance/exit of construction sites where day laborers are paid their wages. Thai lottery players commonly believe that ghosts of individuals who have perished in tragic and painful deaths offer the most useful guidance on winning numbers for the next lottery draw. As a result, most Thai newspapers publish articles listing the license plates numbers of cars involved in deadly accidents. In the belief that they forecast luck, these numbers are then particularly sought after by Thai lottery players (*New York Times*, "Plane Crash? Murders? Time to Play Thai Lottery," Jan 2, 2013).

The choice of Thai nicknames provides another example of the pervasive influence of superstitious beliefs. When a Thai child is born, he or she will be given an official name. While this name is used in all official documents, most Thai also have a given nickname because of the belief that this may confuse bad spirits and stop them from being attracted to the baby. Therefore, these nicknames are not always flattering (e.g. Gob (frog), Gai (chicken) or Ouan (fat)). Beautiful babies are particularly threatened by bad spirits and thus older people may compliment a new-born baby by referring to it

as *nakliat* (ugly) or *ouan* (fat). Therefore, even the widespread convention of providing a child with a (non-flattering) nickname is linked closely to superstitious beliefs about jealous spirits.

Lastly, numerology and colors play an important role in Thailand and are linked to beliefs in luck (Kitiarsa, 2005a). According to an astrological rule, each day of the week is associated with a different color based on the God who protects the day. These colors are also believed to be the lucky color of those born on the day. For example, King Bhumibol was born on Monday (special color yellow), and thus on his birthday Thailand is decorated in yellow each year. Moreover, many Thai also believe that wearing the right color on the right day will bring luck. This belief has even been institutionalized in the uniforms of government employees, whose T-shirt colors change according to the day of the week.

Do beliefs in luckiness predict how participants guess?

Do beliefs in luck play a role in participants' guesses during the experiment? To investigate this possibility, I included a number of questions on the survey which measure feelings of luck. In particular, respondents were asked to indicate how likely they would be to:

1. *Marry a wealthy woman*
2. *Avoid getting sick in the next year*
3. *Survive a car crash*
4. *Live to 80 years old.*

From these four items, I used factor analysis to create an aggregate "luckiness" score. The pairwise correlation between this luckiness score and participants' guess is 0.25, and significant at the 5 percent level. In fact, moving from one standard deviation below the mean to one standard deviation above the mean on the luckiness scale is associated with a 7% increase in the guess. This is a substantively meaningful result, given that the "average" student expects to see a white button about 30% of the time. In other words, it appears that believing in his own good luck increases an individual's assessment of the probability of seeing a white button.

Lessons Outside the Lab: Survey Evidence

The experimental results show that vocational students in Northern Thailand do not use probabilistic reasoning when evaluating risks of chance. Instead, individuals reveal that they are subject to bounded rationality (Simon, 1982) and apply experience-based problem solving strategies for quick and efficient decision-making, known as "heuristics" (Kahneman et al., 1982; Gigerenzer and Todd,

1999). Heuristics are “rules of thumb” that decisionmakers commonly employ to choose “fast and frugal” between decision options in a variety of contexts when decision makers are without complete information (Artinger et al., 2014; Gigerenzer and Todd, 1999; Neth et al., 2014; Todd and Gigerenzer, 2012).

Tversky and Kahneman (1973) popularized the understanding of heuristics as misapplied cognitive processes that give rise to so-called irrational cognitive biases (defined as violations of rational choice as dictated by expected utility theory). Other scholars have pointed out that heuristics can be better understood as products of adaptive evolutionary processes that solve problems that would have been recurrent over human ecological and evolutionary history (Hutchinson and Gigerenzer, 2005; Todd and Gigerenzer, 2012), namely that in most real-world situations, there is uncertainty about the decision outcomes (Knight, 1921). In either way, the experiment shows that potential migrants in rural Thailand seem to apply what I call a “fortuna heuristic”: if they believe in being lucky, they are more likely to take risky choices because they expect to win a risky financial gamble.

In this section, I attempt to go beyond the experimental setting involving potential migrants by examining the stated preferences and beliefs of *prospective* labor migrants. These prospective migrants be have already made the decision to migrate to South Korea and have invested in their journey abroad by taking preparatory language courses for the obligatory language exam. Of course, there may also be individuals in the sample who might still change their mind and not pursue migration to South Korea or who may fail the language exam and consequently would not be eligible for any job offers. However, I believe that this sample is in general representative for labor migrants from Northern Thailand.

I conducted a paper and pencil survey with 205 *prospective* labor migrants in July 2014 in the same province of Northern Thailand (Lampang). The survey took place in three Korean language schools, where respondents were preparing for a language exam, which is required for successful job placement in South Korea.⁷ These language schools only teach prospective labor migrants in preparation for the language exam and, thanks to the request of the local labor minister, all three schools agreed to participate in the survey.

The survey included approximately 30 questions about individuals’ past migration experiences, their migration intentions, questions about attitudes towards risk and trust, and a range of socioeconomic and demographic indicators. In line with previous research on the gender composition of Thai migrants (McDougall, 2011), 80% of Korean school respondents were male (N=161), which confirms my justification for focusing the experimental part on the decision-making of men. Since the experimental data pertain only to male decision-making, I also restrict the subsequent survey analysis to males. Table 5.4 provides the summary statistics of the respondents, who were between the ages

⁷The exam is administered twice a year. In total 2000 people will sit each of the exams and only about 400-500 per exam will pass. Those who pass will then have the chance to apply for a job in Korea and for which they then will be interviewed as well.

of 18 and 38 (on average 25). The majority of men were single (68%) and without children (70%). Moreover, about half the respondents had attained a high school or post-secondary education.

Table 5.4: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
<i>Dependent Variable:</i>					
Accepting Risky Migration Offer	0.323	0.295	0	1	161
<i>Demographics:</i>					
Previous Migration Experience	0.245	0.432	0	1	163
Knowing Someone Abroad	0.696	0.462	0	1	161
High Educational Attainment	0.456	0.500	0	1	160
Employment Status	0.337	0.474	0	1	163
Single	0.681	0.468	0	1	163
Children	0.301	0.460	0	1	163
<i>Explanatory Variables:</i>					
Feeling of luckiness	0.429	0.497	0	1	163
Financial Satisfaction	0.889	0.841	0	2	162
Knowledge of Negative Migration Experience	0.358	0.481	0	1	162

All respondents were male, from provinces in Northern Thailand and between the age of 18 and 38.

Respondents perceived temporary labor migration for men of their age cohort as a very common phenomenon: 60% believed that “most” or “almost all” men of their age group from Lampang would seek temporary work abroad. This suggests that northern Thailand has “a culture of migration,” (Massey et al., 1993) where migration has become part of an accepted and common path toward economic well-being. Although 70% of the respondents knew someone personally who was currently living abroad, the majority of respondents (75%) in this sample were first-time migrants. For the minority with previous migration experience, the most common destination countries had been East Asian countries, such as Taiwan, Japan, and Singapore.

The survey respondents were all prospective migrants to South Korea, a country with a positive image in terms of hosting Thai labor migrants. However, I was interested in finding out whether Thai migrants would accept a *risky* offer for work abroad. I therefore included the following hypothetical migration offer in the survey:

Assume that you have been approached with the following offer by a private recruiter: A three-year contract to work in the construction sector in Saudi Arabia. You will be paid a monthly wage of several thousand baht and receive free accommodation and meals. However, you will first have to pay a recruitment fee of 100,000 baht. How likely are you to accept this job offer?

I chose Saudi Arabia as the destination country for two reasons. First, respondents would be very unlikely to have previously migrated there, due to a bilateral dispute between Thailand and Saudi

Arabia that resulted in a ban on Thai workers.⁸ Thus, we can expect that responses to the vignette would not be colored by migrants' past experiences.

Second, I designed the scenario such that the offer would be perceived negatively by respondents. The vignette features Saudi Arabia which nowadays has a negative image as destination country for labor migrants in Thailand, as evidenced by popular sayings and music hits that tell the stories of poor Thai workers being cheated by brokers and job placement agencies (Kitiarsa, 2014). To reinforce this negative association, the scenario also depicts a job in the construction sector because this sector, despite employing many Thai migrants, is widely perceived to involve "dirty, dangerous and difficult" work. Moreover, the recruitment fee of 100,000 Thai baht is very high and above what the Thai government legally permits, signaling to labor migrants that it might not be an official offer. Finally, the promise of a high salary and the ambiguity of the living conditions should alert prospective migrants that accepting this offer is risky.

Survey Results

Overall, 70% of the survey respondents answered that they would not be likely to accept this offer, which is a significantly high number, given that the respondents were already in the process of making preparations to go abroad for work. This indicates that the framing of the vignette had the intended effect: respondents perceived the offer as involving substantial risks.

To further check that the answers to this hypothetical scenario are meaningful, I conducted some manipulation checks. First, I would expect that those likely to accept the offer would be more trusting of foreigners than those who said they were unlikely to accept such an offer. I find confirmation of my hypothesis: those who are more likely to accept the offer are more trusting of foreigners in general (correlation coefficient=-0.171, p-value=0.032).

Second, I anticipate that people who have personal knowledge about negative migration experiences would be less likely to accept the hypothetical offer. In order to measure knowledge of negative migration experiences, I first presented respondents with the story of an unfortunate migrant,⁹ and then asked them whether they knew someone who had encountered a similar situation. As expected, I find a negative association between knowing someone with a negative migration experience and the likelihood of accepting the risky hypothetical offer, although the correlation is not statistically significant at conventional levels.

⁸Until 1989, Saudi Arabia was actually a very popular destination for migrant workers from Thailand. This trend ended when a migrant worker allegedly stole valuable jewels from a Saudi prince, and the Saudi government consequently banned the most Thai migrant workers.

⁹The scenario was based on an actual migration experience of several hundreds of people from this region who migrated for temporary work in the agricultural sector to the USA, but were deceived and became victims of "human trafficking for labor exploitation"

However, overall, it seems that respondents were genuinely considering this prompt as they would a real and meaningful job offer. My participant observations during the survey, during which most respondents carefully read and answered question by question, also provide me with the impression that respondents took the survey seriously.

Returning to the main research question, my experimental results suggest that individuals who believe that they are lucky would be more willing to accept this risky migration prospect, since they are less likely to believe that they will encounter negative events. In the survey, I use the following vignette to measure feelings of luckiness:

Suppose that while walking on Lampang Mae Tha Road¹⁰ in the city center of Lampang you lose your wallet with 30,000 Thai baht inside.¹¹ A stranger finds your wallet. Your wallet also includes your ID with your name, address and mobile number.

According to you, what do you think is the probability the stranger will return the money to you?

Overall, about 40% of respondents believed that they would likely have their lost wallet with the money returned to them by a stranger.

One may have concerns that the survey question used here to measure feelings of luck - the perceived likelihood that a lost wallet is judged to be returned - actually captures something different than feelings of luck, such as for example generalized trust in strangers. This may be especially problematic because trust and positive attitudes are likely to explain whether one would take on the risk of migration. However, I think this criticism does not apply in this case for two reasons. First, in a qualitative sense when I asked my Thai research assistants about how Thai people understand this question, they told me that it was understood as an indicator of how lucky people believed themselves to be, and not a measure of a general trustworthiness of society. Secondly, this claim is supported by quantitative evidence from other items in the survey. More specifically, I asked respondents to rate whether they trusted their neighbors, people from their own region, people from other regions and foreigners.¹² A Pearson's correlation was run to assess the relationship between the indicator of feelings of luck (wallet question) and the trust questions for the 161 respondents. As Table 5.5 shows, the correlations between the judgment of receiving back the wallet and trust in others (neighbors, foreigners, etc.) were generally weak and not statistically significant. In summary, it seems that the wallet question is not picking up generalized trust.

How do feelings of luck correlate with a willingness to accept the hypothetical risky migration offer? Figure 5.2 shows that the more fortunate respondents believe themselves to be, the more likely they are to accept the offer. In fact, while 37% of respondents who feel lucky would "definitely" or "probably" accept the offer, only 25% of those who feel unlucky answered the same way. By

¹⁰Note: this is a central road downtown

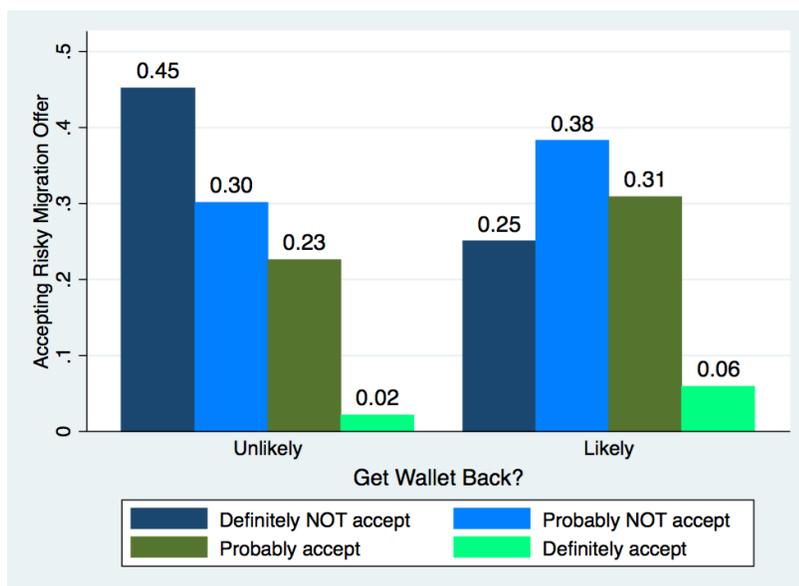
¹¹This is approximately 1000 EUR or several months' income for someone in rural Thailand.

¹²The 4-point scale provided answers ranging from "trust completely" to "do not trust at all".

Table 5.5: Correlation between wallet and trust questions

Survey Question	correlation coefficient	p-value	N
Trust in neighbors	-0.061	0.44	161
Trust in people from own region	-0.120	0.13	161
Trust in people from other regions	-0.076	0.34	161
Trust in foreigners	-0.121	0.13	161

contrast, 45% of people who felt unlucky stated that they would “definitely NOT accept” the offer, as compared to only 25% amongst people who felt that they were likely to receive their wallet back.

Figure 5.2: Acceptance of Risky Offer by Feelings of Luckiness

To test the statistical significance of this pattern, I run a number of OLS models where accepting the hypothetical migration offer is the DV. The results are reported in Table 5.6.

In Model (1), I evaluate my main argument that people who believe themselves to be lucky are more willing to take risks by accepting the hypothetical migration offer in Saudi Arabia. I find a statistically significant relationship (at the 5% level) between the luck item (wallet question) and the acceptance of the risky migration offer.

In Model (2), I add a control for the level of education. It may be the case that respondents who are more highly educated feel more confident about going abroad. In addition, they may also have weaker beliefs in personalized luck, as education dispels superstitious thinking. However, as shown

Table 5.6: Accepting a Risky Migration Offer: Linear Probability Models

	(1)	(2)	(3)	(4)
Luckiness: return of wallet	0.120** (0.0463)	0.125*** (0.0469)	0.115** (0.0461)	0.113** (0.0477)
Education		-0.010 (0.021)		
Previous Migration Experience			0.039 (0.058)	
Financial Satisfaction				0.044 (0.027)
Constant	0.272*** (0.0297)	0.303*** (0.0735)	0.265*** (0.0313)	0.234*** (0.0335)
Observations	161	158	161	160
R-squared	0.041	0.044	0.044	0.059

Robust standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

in Model (2), education is not significant in the regression, and controlling for education does not alter the coefficient on the main effect.

Next, I check for the possibility that respondents with previous migration experiences feel themselves to be lucky because people have to try hard to go abroad. There are several obstacles along the way, so the migration experience itself could be taken as a sign of good fortune. Furthermore, individuals who have migration experience may be more willing to accept the hypothetical risky migration offer, because they are more familiar with migration in general and they feel more able to seek help in case of negative encounters. In Model (3), I therefore include a control for previous migration experience but I find that previous migration experience is not significant, and it does not change the coefficient on my main explanatory variable: luckiness.

Finally, I test a second alternative hypothesis: those from wealthier families may feel luckier. Again, family wealth can be taken as a sign that fortune has smiled upon the individual. Moreover, individuals from wealthy families may also be more willing to accept the offer, perhaps because they feel that they would be able to afford the high recruitment fee mentioned in the vignette. In Model (4), I include a control for financial satisfaction as a proxy for family wealth. I find that financial satisfaction is not significant in predicting the willingness to accept the risky prospect (although it is correctly signed). In addition, feelings of luckiness remain significant, and the coefficient of luckiness remains unaffected.

The Fortuna Heuristic beyond Thailand?

In order to examine whether my findings are “culturally” unique to Thailand, I conducted a small replication with a similar group of participants in two vocational schools in Florence, Italy in winter 2014. More specifically, the experiments involved Italian males between 18 and 19 years of age at (a) an agricultural extension school and (b) a culinary vocational school.¹³ These locations were chosen because they were likely to enroll students with roughly the same level and type of education as my Thai benchmarks. The experiments followed the same protocols as in Thailand with sessions of 24 students. Each session lasted approximately one hour, and participants earned on average 11 EUR.

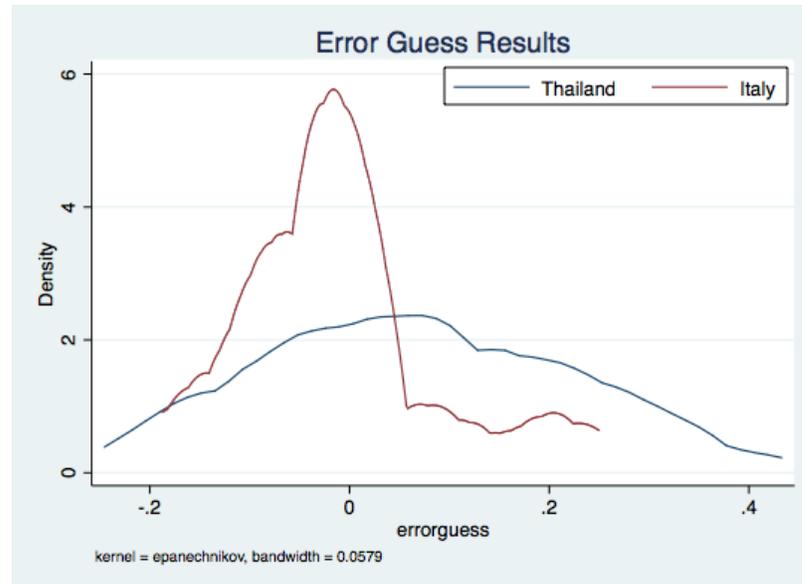
First, I was interested in whether Italians would be more “objective” when estimating probabilities than their Thai counterparts. I therefore examined this question using the belief elicitation task asking participants to “guess” the number of white buttons that would be drawn per session of 24 students. Again, my measure of error is constructed as (guess - 12), where 12 is the “true” expected value given a session of size 24, with two draws per participant with replacement.

Figure 5.3 shows the distribution of error in guesses by country. Zero on the x-axis means that participants guessed the expected value correctly. As the graph indicates the mean of error guesses for Italians (red) is closer to zero than the mean of error guesses for Thai (blue) participants. Overall, it appears that my Italian participants guessed much more “objectively” than my Thai participants. Moreover, as the graph displays, the distribution of guesses around the correct value is also much narrower in Italy than in Thailand.

Table 5.7 presents statistical tests of the main result. First, Panel A considers the percentage of people who guessed that exactly 6 white buttons will be drawn. This means that each of the two countries are displayed in the columns, as well as their difference. The standard errors and p-values are estimated using logit models that allow me to cluster standard errors by session.

Row (1) shows that although Italians tended to guess more correctly than Thai, this difference is not statistically significant at conventional levels. However, keep in mind that the number of “correct” guesses in Thailand may be inflated artificially because two sessions contained only 20 students (compared to 24 in all other sessions). In these sessions, the correct guess is 10 (25% 40 buttons in total). Yet, 10 is also a heaping number, meaning that people who have no idea what the answer is, are also more likely to guess 10. Thus, we may have more correct answers in Thailand than we should due to participants employing a heaping heuristic. To correct for this, I restrict the Thai sample and compare only those sessions with 24 students. I find that now, the difference between Thais and Italians in terms of the correct guesses is larger (difference goes from 0.07 to 0.13) and statistically significant (Row 2)

¹³All participants were Italian citizens with Italian names; immigrants were excluded because of concerns that they may have “culturally” different risk attitudes and beliefs about risk taking.

Figure 5.3: Comparing Thai and Italians in the Belief Elicitation Task

Next, we might also be worried that the number of correct guesses in both countries is deflated by the fact that, even though students know the correct answer is 12 (or 10), they might want to add a bit of noise to their response. For example, in my exit interviews in Italy, a participant said “I know the expected value is 12” but I just guessed 11 to account for some inaccuracy.” To correct for this problem, I created a “fuzzy” indicator, which takes value 1 if the guess is within a 5% window ($\pm 2.5\%$) of the actual correct number. I then repeat the statistical tests with all sessions, as well as only sessions with 24 participants. The results using the “fuzzy” dependent variable are shown in Panel B of Table 5.7. Here as well, I find statistically significant cross-national differences in the ability to estimate “objective” probabilities.

Next, I examine the extent to which Italians’ guesses are related to their beliefs about personalized luck. To measure beliefs about personalized luck, I used the same four questions as before:

How likely are you to succeed in

1. Marry a wealthy woman
2. Avoid getting sick in the next year
3. Survive a car crash
4. Live to 80 years old.

Again, these questions were asked in a survey that was administered before the games were explained and carried out. We can therefore rule out that answers to these questions would be influenced by participants’ experience during the experimental tasks. I then created an aggregate luck variable using factor analysis. The pairwise correlation between luck and guess 0.19, which is not significant

Table 5.7: Cross-Country Differences in Correct Guesses

		Italy	Thailand	Diff-in-means (s.e. clustered)	<i>p</i> -value
<i>Panel A: Guess = 6</i>					
(1)	All Sessions	0.313	0.250	0.063 (0.063)	0.323
(2)	Sessions of 24	0.313	0.191	0.121 (0.055)	0.019**
<i>Panel B: "Fuzzy" Correct Guesses</i>					
(3)	All Sessions	0.396	0.250	0.146 (0.044)	0.002***
(4)	Sessions of 24	0.396	0.191	0.204 (0.027)	0.000***

Standard errors clustered within sessions
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

at conventional levels (p -value = 0.28). In other words, the the relationship between beliefs in personalized luck and guesses is much weaker amongst Italians than amongst Thais. Together, the analysis of the distribution of guesses, in combination with the observed relationship between these guesses and beliefs related to luck, support the idea that the “fortuna heuristic” is more of a cultural phenomenon, which happens to be more prevalent in Thai society.

Conclusion

This chapter set out to examine how potential and prospective migrants make decisions under risk in Thailand. In a lab-in-the-field experiment with vocational students, I find that potential migrants’ beliefs about the probability of winning are positive predictors of their investment decisions. However, many of these beliefs themselves are objectively inaccurate. Instead, participants’ beliefs of the probability of winning seem to correspond to their beliefs about personal luckiness. Building of these experimental results, I conducted a survey with prospective migrants, in which I find that beliefs in luck correlate positively with respondents’ willingness to accept a hypothetical risky migration offer. Overall, I argue that migrants appear to apply what I have termed the “fortuna heuristic” in risky decision-making.

One question deriving from this chapter is whether beliefs in personalized luck are also present beyond the Thai context. Risk perceptions and attitudes may be transmitted by socialization and culture, and thus we may find differences in the applicability of the “fortuna heuristic” across populations (Darke and Freedman, 1997). For example, Darke and Freedman (1997) find cultural variation in beliefs about good luck among Asian-Americans and non-Asians in the USA, a result which is in line with previous research that suggests that superstition and beliefs in luck play a

more important and perhaps slightly different role in Eastern than in Western cultures (Ohtsuka and Ohtsuka, 2010; Weber and Hsee, 1998). In a small replication experiment in Italy, I find that amongst participants who were not calculating probabilities in the belief elicitation task, the “fortuna heuristic” is much weaker than in Thailand: those who consider themselves lucky are statistically *not* more likely to overstate the chances of winning in the investment game. These Italian results suggest that the “fortuna heuristic” may be a cultural feature specific to the Thai context.

The present findings have a number of implications for future research and policy-making: Further research should validate these results by examining whether real-life migrants apply the “fortuna heuristics” when deciding to go abroad. Moreover, future work should examine whether and how beliefs in personal luck can change, and how they interact with more temporary notions of luck (e.g. luck of the moment). Lastly, scholars may want to find causal evidence for this relationship between individuals’ beliefs in luck and their greater willingness to accept risks. One way of testing causality would be to replicate the experimental design in Thailand on different days of the week, and use the weekday of birth (which is considered “your lucky day”) as an exogenous treatment.

This chapter may also point to some useful lessons for policy-makers. The findings suggest that advocacy and information campaigns about the risks of migration should be sensitive to individuals’ beliefs in luck. In particular, individuals who believe that they have good fortune may not care about the *objective* risks in the migration process (i.e. “three in ten people attempting to cross this border illegally have died last year”), if they believe that they themselves will not be one of the unlucky three. This is not just a hypothetical problem. Indeed, migrants trying to cross the Mediterranean sea from North Africa to Europe, or crossing the desert from Mexico to the U.S., often know that previous migrants have died on these dangerous journeys. However, despite knowledge of the potential risks, many migrants may believe that they themselves will survive such dangerous migration journeys because they are bestowed with good luck. This example illustrates that policy-makers need to be sensitive to individuals’ understandings about luck in their communication of migration risks.

Appendix 1: Experimental Overview: With Belief Elicitation

Step	Task	Description
1	Entry	Participants are randomly assigned ID numbers and desks.
2	Survey	Participants take a survey measuring their intention to go abroad, their family's migration experience, and attitudes toward risk and trust. For completing this survey, they earn an income.
3	Distribution of income.	
4	Explanation of lottery game	Oral and visual explanation of the game by the moderator. Time for questions.
5	Belief Elicitation Task (Guess)	Participants are asked to write down how many white buttons they expect to see in total drawn during the game?
6	Decision Stage 1	Participants decide whether to save or invest their income in the game we just described.
7	Decision Stage 2	We give participants a second income equivalent to the first income, and they decide again to either save or invest.
8	Drawing for Lottery games	The drawing for both lottery games is administered publicly.
9	Post-experimental survey	Participants take a short survey measuring socio-demographic characteristics and their understanding of the tasks.
10	Payment	Each participant receives an envelop with their payment linked to their ID number.
11	Exit Interviews	3-5 participants are asked for their voluntary participation in a short interview about their decision-making during the experiment.

Appendix 2: Survey Questionnaire

Date:	Time:	Location:	Class Room:
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Gender: What is your gender? Male Female

Age: What is your age? _____

Q1a. Were you born in Thailand? 1. Yes 2. No

Q1b. In which country (and province) were you born? _____

Q2. What is the highest level of education you have completed?	Q3. Are you currently...
No formal education	Married
Incomplete primary	Living together as married
Complete primary	Divorced
Incomplete secondary technical	Separated
Complete secondary technical	Widowed
Incomplete secondary university prep	Single
Complete secondary university prep	Q4. How many children do you have? _____
Some university-level, no degree	
University education, with degree	

Q5: Are you currently employed?	If yes: what is your occupation? _____
(a) Yes	If no: why not? _____
(b) No	

Q1. Do you intend to work abroad in the future?	(a) Yes	(b) No
Q10a. People go abroad for many reasons. For each of the reasons below, please indicate its importance in your decision to migrate	Very Important	Somewhat Important
(1) Make more money that possible in Thailand	Somewhat Unimportant	Not at all Important
(2) Want to perform different type of work world	Very Important	Somewhat Important
(3) Desire to see the example of friends	Somewhat Unimportant	Not at all Important
(4) Following the example of friends	Very Important	Somewhat Important
(5) Family put pressure on me	Somewhat Unimportant	Not at all Important
Q10b. How important do you rate the following factors in deciding not to migrate?	Very Important	Somewhat Important
(1) Afraid not earn enough money	Somewhat Unimportant	Not at all Important
(2) Do not want to be away from family	Very Important	Somewhat Important
(3) Have a good job that I would otherwise lose	Somewhat Unimportant	Not at all Important
(4) Afraid of being taken advantage of	Very Important	Somewhat Important
(5) do not like the type of work that I would have to perform	Somewhat Unimportant	Not at all Important

Q11: Imagine you have been offered a job abroad. How important would you find each of the following factors in deciding whether to accept this job offer?

	Very Important	Somewhat Important	Somewhat Unimportant	Not at all important
(1) Whether it is manual work				
(2) high salary level				
(3) good working conditions				
(4) good living conditions				
(5) previous job sector experience				
(6) whether I like working in the sector				

Q12: If you intend to work abroad, please rate your willingness to perform the following types of work?

	Definitely	Probably	Probably Not	Definitely Not
(2) Restaurant / shop				
(3) Agricultural work				
(4) Cleaning business				
(5) Building and construction				
(6) Factory				
(8) Office work				

Q13: Have you ever worked abroad for a significant period of time?

(a) Yes	If yes: please list all of the countries you have previously worked in:
(b) No (skip to Q18)	

Q14: At the moment of your (last) departure, what was your financial situation like?

Very Bad	Bad	Average	Good	Very good
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Q15: Did members of your family help you with migrating? Financially, by paying for the journey?

	Yes	No
Q16: Did you know anyone personally from Thailand who was already in the country of destination at the time of your departure?	Yes	No
Q17: Did you leave for this country with an official work permit or visa?	Yes	No

Q18: Did you complete your contract abroad?

(1) Yes	If no, please give reason:
(2) No, left voluntarily	
(3) No, left involuntarily	

Q18: Among men in Lampang between 20 and 40 years of age, what percentage would you say have worked abroad?

Almost no one	Few	Some	Most	Almost all
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	Yes
Q19. Did any member of your household ever work abroad?	No

Q20. Let me describe a situation to you:

Let me describe a situation to you: Nut is a rural farmer from northern Thailand. He has a wife and three children. One day, a local labor recruiter comes to his village and offers Nut a full-time job for three years in the agricultural sector in a far away country. This job would pay Nut a total of 900,000 baht. However, as a recruitment fee, the labor recruiter asking that Nut pay 300,000 baht up front, or about one year of his future earnings.

Nut decides to accept the offer. To pay the recruitment fee, he borrows money from relatives and mortgages his family land. However, once abroad, he finds out that he can only work part time, and he was laid off after the first year. Nut cannot earn the salary he was promised, and he will not be able to pay back the loan he has taken out.

How much do you agree with each of the following statements:

	Completely agree	Agree	Neither agree nor disagree	Disagree	Completely disagree
(1) Nut falls sick and thus, becomes unable to continue to work.					
(2) The company had a cash flow problem and was unable to pay Nut.					
(3) The company failed to renew a work visa for Nut.					
(4) The company closed after a year and despite the initial contract, they did not pay Nut because they knew he would not take them before court.					
(5) The greedy labor recruiter wanted to extract a high commission for a job that did not exist as described.					

Q21. To what extent do you feel this situation may happen to the following people?

	Definitely	Likely	Unlikely	Definitely Not
(1) Someone from Lamphang				
(2) Friend				
(3) Family Member				
(4) Yourself				

Q22: Have you heard that something like described above has happened to people whom you know (or yourself)?

	If yes, to whom?:
(a) Yes	
(b) No	

Q23. Generally speaking, are you a person who is fully willing to take risks or do you try to avoid taking risks?

(a) I am generally willing to take risks	(b) I generally to avoid taking risks
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Q24. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?

(a) Most people can be trusted	(b) Need to be very careful
--------------------------------	-----------------------------

Q25. I would like to ask you how much you trust people from various groups. How much trust do you have in:

	Trust completely	Trust somewhat	Do not trust very much	Do not trust at all
(1) Relatives				
(2) Friends				
(3) Neighbors				
(4) People from region in Thailand				
(5) People from other regions				
(6) Foreigners				

Q26. Suppose that while walking on Lampang Mae Tha Rd. in the city center of Lampang you lose your wallet with 30,000 Thai baht inside. A stranger finds your wallet. Your wallet also includes your ID with your name, address and mobile number. According to you, what do you think is the probability the stranger will return the money to you?

Very Unlikely	Unlikely	Likely	Very Likely
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Q27: How satisfied are you with the current financial situation of your household?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
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Q28. During the past 12 months, has the economic situation of your household...

Improved	Stayed the same	Worsened
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Q29: How would you compare the current economic situation of your household to the economic situation of your neighbors?

Our Household is Better off	We are about the same	Our HH is worse off
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Q31: Does your household own any of the following items?

TV	Air Con	Refrigerator	Motorcycle	Car	Washing Machine	Computer
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Q32: How much money have you spent on lottery tickets in the past month? _____

Q33. How would much do you agree with this statement? In the long run, hard work usually brings a better life		Q34. How would much do you agree with this statement? Hard work doesn't generally bring success—it's more a matter of luck and connections	
Completely Agree	Agree	Neither agree nor disagree	Disagree
Completely disagree	Disagree	Neither agree nor disagree	Completely disagree

Q35. Please indicate your agreement with each of the following statements:

Family success is more important than individual success	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Family success should be encouraged even if individual goals suffer					
People in lower positions should not disagree with					

Q36. How Important is religion in your life?

Very Important	Rather Important	Not Very Important	Not at all Important
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Chapter 6

The Year of the Horse Effect

1

Introduction

To what extent do superstitious beliefs shape migration behavior? The literature on migration decision-making has focused largely on models of rational actors who are driven by income disparities and other economic motivations (e.g. Massey et al., 1993; Sjaastad, 1960; Stark and Blackwell, 1991; Todaro, 1969). Much less attention has been paid to the role of non-monetary motivations - such as the desire for an urban life style or the thirst for adventure in shaping migration choices (e.g. De Jong, 2000; De Haas, 2009; Schewel, 2015; Skeldon, 1977). In this paper, we investigate the influence of culturally-bound superstitious beliefs on interprovincial migration in Vietnam.

More specifically, our paper examines how beliefs based on the Vietnamese zodiac influence migration behavior. The paper is motivated by a growing scholarship in economics and demography on the effects of zodiac-based beliefs on a variety of important life choices, ranging from birth-timing motivations (Yip, Lee and Cheung, 2002) to property purchasing decisions (Fortin, Hill and Huang, 2014). These findings suggest that people, particularly in many Asian cultures, believe in the auspiciousness of undertaking certain actions timed according to the zodiac. This last empirical chapter takes my findings on luck and risk-taking one step further by examining whether zodiac-based beliefs about auspiciousness might shape real-life migration decisions, since these are, after all risky.

¹This chapter is written in the “plural” voice - we - because it is a slightly different version of a co-authored article written with Nan Zhang (EUI).

The culture of zodiac astrology in Vietnam provides a unique opportunity to study the causal effects of superstitious beliefs on migration outcomes. In Vietnamese astrology, individuals are assigned different character traits based on the particular zodiac year in which they were born. Although each year in the 12-year animal cycle is associated with a number of traits, it is commonly believed that individuals born in the Year of the Horse are endowed with characteristics that are particularly conducive to migration success, such as being adventurous, forward-looking and better able to accept uncertainty. In this study, we examine whether such beliefs actually lead to a higher likelihood of migration, as measured in the Vietnamese population census.

The empirical strategy taken in this chapter rests upon the assumption that individuals who are born in the Year of the Horse are, on average, *the same* as individuals who are born in adjacent years, except that this former group is believed to have characteristics that support migration success. Thus, by comparing the migration rate amongst Horse Year individuals to similar individuals born in non-Horse years, we leverage a natural experiment to estimate the causal impact of superstitious beliefs on migration outcomes.

Our results are mixed. On the one hand, we find a significant positive change in migration to rapidly growing urban areas for both men and women born between February 1954 and January 1955, which coincides with a Horse Year. Interestingly, this was a particularly auspicious year in the zodiac cycle, in which the characteristics associated with Horses were thought to lead more strongly to success, and was thus called the Year of the *Golden Horse*. Moreover, this pattern is replicated in two census waves conducted 10 years apart (1989 and 1999), which suggests that the results are not driven by macro-economic developments that are specific to the time period in which migration was recorded. We also report results from additional analyses that help us to rule out alternative interpretations for why we may observe this spike in migration rates. On the other hand, our analyses also indicate that this effect does not extend to individuals born in “regular” horse years. We discuss some possible explanations for this difference, and outline some avenues for future research to resolve this puzzle.

Our study makes several important contributions. First, we add to the literature on the individual-level determinants of migration. From a micro-perspective, most scholars have focused on economic incentives in explaining individual decisions to migrate (e.g. De Haas, 2010; Harris and Todaro, 1970; Massey et al., 1993; Sjaastad, 1962; Stark and Blackwell, 1991; Todaro, 1969). However, beliefs and norms can also shape both (a) the value that individuals attach to different choices, and (b) the cognitive mechanisms they employ to decide between different options. We add to this general line of research by demonstrating the influence of culturally-specific astrological beliefs on migration outcomes.

Secondly, this study also contributes to the growing scholarship on superstitious beliefs. As mentioned above, demographers and economists have studied the effect of superstitious beliefs on a range of behaviors, from family planning to consumer choices (e.g. Anderson et al., 2015; Antipov

and Pokryshevskaya, 2015; Lee and Paik, 2006; Goodkind, 1995; Hirshleifer, Jian and Zhang, 2014; Pokryshevskaya, Antipov et al., 2015; Tanaka and Iwasa, 2012). We expand this literature by focusing on a previously unexplored realm of social behavior: migration.

Related Literature and Hypotheses

Superstitious Beliefs and Behavioral Outcomes

In focusing on superstitions, we do not argue that individuals are fundamentally irrational, or that their behavior is erratic and non-predictable. Rather, we believe that human beings are purposeful actors who have goals in mind, and whose behavior is geared towards the realization of preferred outcomes. However, we also acknowledge substantial uncertainty in the mapping between behaviors and outcomes: for example, if I migrate to a new community in search of work, will I find a good job, or will I be left destitute and stranded, far away from friends and family? Superstitions help individuals to navigate this intrinsic uncertainty by highlighting the attractiveness of some actions over others. As Hirshleifer, Jian and Zhang (2014, p. 2) note, superstitions are “an important part of how people make sense of randomness and form strategies for dealing with risk.”

Throughout history and even into modern times, superstitious beliefs have played a prominent role in numerous important life decisions. For example, in Ancient Rome, important political decisions ranging from the appointment of magistrates to the commencement of military campaigns were made based on tidings from *Fortuna*, the Goddess of Luck. Similarly, Chinese emperors regularly held costly and time-consuming ceremonies to pray for rain, and decide on the days of planting and harvest. And even today, professional stock traders and mahjong gamblers often wear lucky clothing (e.g. red underwear) or follow luck-inducing rituals to improve their chances (Burger and Lynn, 2005; Pravichai and Ariyabuddhiphongs, 2015).

In the context of migration, previous studies have documented the ubiquity of superstitious beliefs in influencing when, where and how aspiring migrants decide to undertake their journeys abroad (Hagan, 2008; Portes and Rumbaut, 2006; Levitt, 2003). For example, Hagan and Ebaugh (2003) describe the role of pentecostal pastors in Guatemala as migration “advisors,” while religious guides (*marabouts*) in Senegal provide migrants with a range of services, from spiritual protection, to suggesting appropriate departure dates, to scanning passenger lists for problematic individuals with whom contact should be avoided (Hernández-Carretero and Carling, 2012). Similarly, in his ethnography of Mexican farmworkers in California’s Central Valley, Holmes (2013, p. 1) notes that, amongst the few items migrants carry with them on their desert crossing into the US, is usually “a plastic bag with coyote fur and pine sap [called a *suerte*, meaning ‘luck’] made by a Triqui healer for protection.” Similar folk beliefs can also be found as part of some of the major religions: For example, in Christianity, patron saint of travelers, Saint Christopher, is believed to be a powerful figure protecting

seafarers, drivers and others on the move. As a consequence, many Christians around the world wear a Saint Christopher necklace when they go on a trip. Building on these findings, our study investigates how astrological beliefs, which are linked to the zodiac, influence migration outcomes in Vietnam.

Background on Chinese Zodiac and the Year of the Horse

Astrological beliefs are widespread across many Asian societies and have been shown to significantly influence decisions such as fertility timing (Aso, 1978; Do and Phung, 2006; Goodkind, 1995, 1996; Kaku and Matsumoto, 1975; Kurosu, 1992; Yip, Lee and Cheung, 2002), sex preferences for children (Lee and Paik, 2006), financial decisions (Antipov and Pokryshevskaya, 2015; Hirshleifer, Jian and Zhang, 2014), and partner choices (Tanaka and Iwasa, 2012). In Vietnam there is a long tradition of using the Chinese lunar calendar to assess personal qualities and fortunes,² and before making important decisions, people commonly first turn to their family fortune-teller for advice.

The Chinese lunar calendar operates on a 12-year cycle. Each year is represented by a zodiac animal: Rat, Water Buffalo, Tiger, Cat, Dragon, Snake, Horse, Goat, Monkey, Rooster, Dog, and Pig.³ It is generally believed that people born in a particular zodiac year are destined to have specific personality traits or characteristics. For example, probably the most well-known and admired zodiac animal is the dragon (the only mystical animal out of the 12), and individuals born in this year are thought to be more intelligent, stronger and more likely to flourish than other birth cohorts.

Importantly, in the context of our study in Vietnam, the year of the horse is associated with strength, energy, and the tendency to embrace and easily adapt to change. Moreover, there are many proverbs in Vietnamese, in which the horse is associated with traveling, as it used to be the means of transportation for the rich. However, the characteristics of an individual depend upon not only one's zodiac animal, but also upon *the particular elemental state* the animal is in. More specifically, in Vietnamese cosmology, each zodiac animal can exist in five elemental states: Metal, Wood, Fire, Water, Earth. Thus, the zodiac calendar is characterized by a 60-year cycle of animal-elemental pairs. Of these pairs animal-elemental pairs, Wood-Horse is thought to be especially conducive to migration success. This pairing (birth year 1954) is commonly referred to as the *year of the Golden Horse*, and the horse's normal qualities are magnified in this year.

²Vietnamese astrology has its roots in Chinese astrology and, with a few exceptions, uses the same zodiac cycle of animal names. Notable differences include the "Ox" in the Chinese calendar, which is "Water Buffalo" in the Vietnamese calendar. Similarly, "Rabbit" in the Chinese calendar is replaced by "Cat" in the Vietnamese zodiac.

³Table 6.3 in the Appendix shows how the zodiac animals correspond to the Western calendar.

Context: Internal Migration and the Economic Opening in Vietnam

Our main empirical analyses focus on migration in Vietnam during the late 1980s (1984-1989). This period coincided with major macro-economic developments, as the country transitioned from a centrally-planned model towards a market economy (Vuong et al., 2011). In 1986, following several years of agricultural and industrial stagnation, hyper-inflation, mounting foreign debts and declining living standards, the Vietnamese National Congress adopted an economic reform package (*Doi Moi*) which liberalized substantial portions of the planned economy. As a result, Vietnam experienced rapid growth averaging 7% per year (much of which was due to export-oriented manufacturing), accompanied by impressive poverty reduction. However, this growing prosperity was not evenly distributed across the country, as the northern regions (with the exception of Hanoi) fell behind much of the south (Phan and Coxhead, 2010).

These economic developments also had important implications for migration within Vietnam. Prior to 1986, population movement was greatly restricted, organized by the government, and it involved mainly the resettlement of persons into newly developing rural areas (Djamba, Goldstein and Goldstein, 1999). However, after *Doi Moi*, migration restrictions were loosened, and individuals began to move to the new urban centers of manufacturing that had sprung up in response to the influx of foreign capital and direct investment (Agergaard and Thao, 2011; Hoang, 2011; Lucas, 1997; Pham and Hill, 2008; Phan and Coxhead, 2010).⁴

This discussion suggests that, to understand the effect of astrological beliefs on migration patterns, we should consider migration to urban and rural areas separately. More specifically, we believe that those who are (or believe themselves to be) forward-looking and ambitious would be mainly drawn to the new opportunities springing up in urban areas, where much of the foreign investment, entrepreneurship, industrial zones and economic development was taking place. By contrast, migration to rural areas may be driven by alternative motivations (such as to take care of elderly family members), and are therefore unlikely to implicate the characteristics and personal qualities associated with the year of the horse.

Data and Identification Strategy

In this study, we use census data from Vietnam. To date, there are three Vietnamese censuses available: from 1989, 1999 and 2009. The analysis in this paper will mostly draw from data from the 1989 national census. A 5% stratified random sample of this census (comprising approximately 2.6

⁴Migration flows to the north were further weakened by the fact that, even after 1986, Hanoi continued to restrict in-migration through administrative measures (West, 1996).

million individual records) was extracted from the Minnesota Population Center's Integrated Public Use Microdata Series⁵ and analyzed.

We construct our indicator of migration as follows: first, the census lists each individual's province of residence (Vietnam was divided into 44 provinces during this period) in April of 1989. The census also contains a question capturing the individual's province of residence on 1 April 1984 (5 years prior).⁶ For our purposes, migration is coded 1 if the individual reported living in a different province 5 years ago. Therefore, the migration variable measures interprovincial migration in Vietnam from 1984 to 1989. Overall, the internal migration rate for the Vietnamese population captured in the 1989 census was about 5% (approximately 6% for men, and 4% for women).⁷

In addition, the census records the year and month of birth of every individual using the Western calendar.⁸ However, the Chinese lunar calendar, which is used to determine one's zodiac sign, does not perfectly line up with the Western calendar. Instead, the lunar New Year usually falls in late January or early February of the Western calendar. Therefore, to more closely approximate the Chinese lunar year, we define anyone born between 1 February - 31 January of the following year according to the Western calendar as belonging to the same zodiac birth year. While this operationalization provides only an approximate coding of the zodiac year, it is most accurate coding we can manage given that the exact day of birth was not recorded in the census.

In order to estimate the effect of being born in the year of the horse on migration propensity, we must first define a meaningful migration window. In particular, setting aside the effect of any superstitious beliefs and other exogenous determinants of the migration rate, the likelihood of migrating in any particular year can be modeled as a function of one's age. At one end of the age distribution, children and adolescents are unlikely to migrate independently (because they remain under the care of their parents), and to the extent that children and adolescents do move across provincial lines between 1984 and 1989, this is unlikely to reflect their own individual decision-making, but rather that of the household. At the other end of the age distribution, elderly people are also unlikely to migrate as they have already settled down, and may no longer be actively searching for work. In fact, Le Thi Kim Anh, Vu et al. (2012) find that, in Vietnam during this period, most migrants are between 20 and 40 years old. Because of the construction of our migration variable (migration is defined with respect to movement 5 years prior), we consider a slightly different migration window encompassing individuals aged 25 - 56 (born between 1933 and 1964).

⁵Available at IPUMS International: <https://www.ipums.org>.

⁶The census also recorded international migration. However, the number of respondents in the 1989 census who had lived overseas was too small to conduct any meaningful analysis: only 0.1 percent of our 1989 sample reported living abroad as of 1984.

⁷However, as (?) explain these estimates of interprovincial migration rates exclude a number of short-term migration patterns, such as temporary migrants, circular migration or others who move without registration. Therefore, the number of actual internal migration in Vietnam may have been higher than the census numbers.

⁸Appendix 6.5 shows the overall distribution of the birth years according to the Western calendar recorded in the 1989 census.

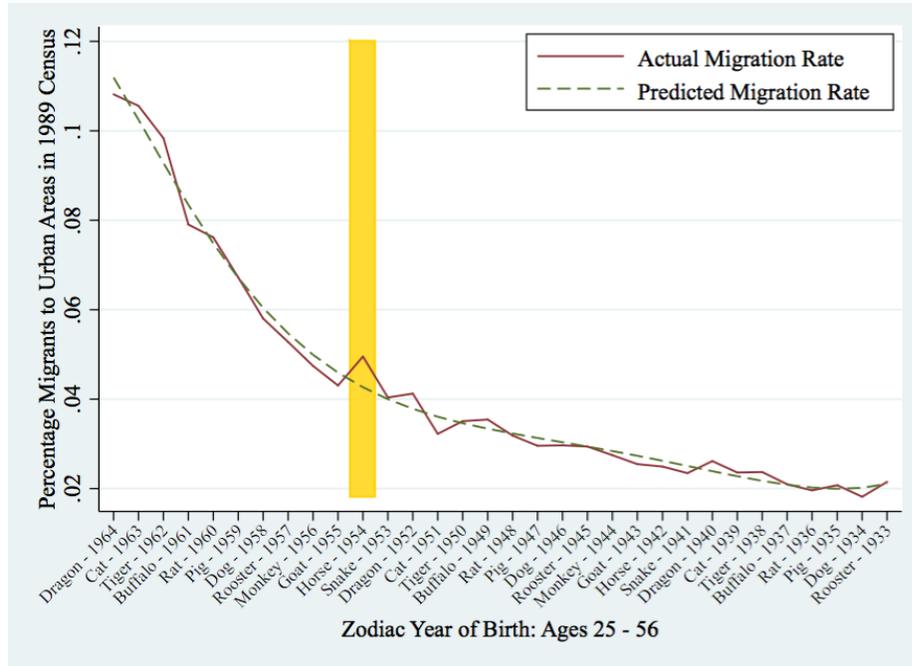
Our identification strategy estimates an overall migration trendline as a function of age, and then tests whether individuals born in the year of the horse are significantly more likely to migrate than individuals born in adjacent years. This strategy rests upon the assumption that individuals born in the year of the horse are, on average, the same as individuals born in neighboring years, except that the first group believes that they are destined to be successful migrants. Thus, a comparison of migration rates between those born in the year of the horse and the overall trendline yields an estimate of the causal effect of superstitious beliefs on migration propensity.

Within our defined migration window, the year of the horse appears twice: between February 1942 to January 1943, and February 1954 to January 1955. We note that these latter dates also coincide with the year of the *Golden Horse*. As explained above, the year of the Golden Horse only occurs every 60 years and is said to be particularly auspicious. We thus explore whether (a) there is a general year of the horse effect and (b) whether there is a specific year of the golden horse effect related to those born in 1954-1955.

In addition, we hypothesize that the year of the horse effect should largely manifest in migration to urban areas. By contrast, because migration to rural areas was not associated with new economic opportunities and uncertainty about the migration prospects, superstitious beliefs linked to of the horse should have little effect on migration to rural areas. The Vietnamese census designates urban areas to include all cities and provincial towns. In addition, district (sub-provincial) towns are considered urban if they function as administrative or industrial centers of the district, have more than 2000 inhabitants, and over half of the labor force works outside agriculture. Therefore, the subsequent analysis will focus on migration to the urban areas.

Results and Discussion

The main result of migration to the urban areas as captured in the 1989 Vietnamese census by zodiac year of birth is presented in Figure 6.1. The x-axis lists the zodiac year of birth for people aged 25 to 56 in 1989, and the y-axis shows the percentage of migrants amongst people born in each zodiac year (with associated 95% confidence intervals). The golden vertical bar indicates the year of the golden horse (birth year 1954). Overall, the graph shows that there is a declining trend in the migration propensity as individuals age. We also see that there appears to be a spike in migration rates corresponding to individuals born in the year of the golden horse in 1954, but little evidence of a similar jump for individuals born in the 1942 year of the horse. However, we note that individuals born in this latter year are already in an age category where migration propensity seem to fade (the flat part of the curve), and thus it may be difficult to observe any meaningful differences in propensity associated to particular birth-years. Therefore, we restrict our attention to the year of the golden horse for now, and we will return to examining other years of the horse effect at the end of this section.

Figure 6.1: Migration to Urban Areas in the 1989 Census by Zodiac Year of Birth

To what extent can we attribute the spike in migration rates amongst those born in the year of the golden horse to superstitious beliefs? Might there be other demographic characteristics unique to people born in the year of the horse that drive migration through alternative channels? To address these questions, we examine the extent to which individuals born in the golden year of the horse are different from those born in adjacent years in terms of gender, education, marital status, employment status, and urban residence. The results are displayed in Table 6.1. In particular, the table compares people born in the year of the golden horse to people born in the two years before and after (i.e. approx. 1952 - 1953 and 1955-1966 in the Western calendar), as well as associated z-scores calculated from Schlag's z-tests. Notice that with approximately 170,000 observations, many of the differences are statistically significant. However, the substantive differences are very small, typically less than 1%. This gives us greater confidence that people born in the year of the horse are, on average, very similar to those born in the years around them, except that they are (perceived to be) endowed with attributes linked to migration success.

In Table 6.2, we display regression results that further support these preliminary conclusions. In these regressions, we estimate the following probit model for the probability of having migrated between 1984-1989:

$$Migrate_i = \beta_0 + \beta_1 AGE_i + \beta_2 Horse_i + \beta_3 X_i + \epsilon_i$$

Table 6.1: Demographic Characteristics in the Year of the Golden Horse and Neighboring Years

	Golden Horse	+/- 2 years	Diff-in-means	z-score
Male (%)	47.96	46.61	1.35	-4.58
Urban Resident (%)	43.71	44.64	-0.93	3.16
<i>Education</i>				
Incomplete Primary	35.45	35.58	-0.12	0.43
Complete Primary	46.34	45.25	1.09	-3.69
Complete Secondary	14.02	14.56	-0.54	2.59
Complete University	3.97	4.39	-0.43	3.57
<i>Marital Status</i>				
Single	7.56	7.70	-0.14	0.89
Married	88.27	88.11	0.16	-0.82
<i>Employment Status</i>				
Unemployed	10.04	10.74	-0.71	3.89
White Collar Employment	11.03	11.48	-0.45	2.39
Num. obs	36,389	132,666		

where the dependent variable $Migrate_i$ takes value 1 if the individuals has migrated provinces in the last 5 years, AGE represents a 5th - order polynomial modeling the baseline trend migration propensity as a function of age,⁹ $Horse_i$ is a dummy variable denoting individuals born in the year of the golden horse (1954), X_i represents a vector of demographic characteristics including marital status (single vs. married), level of education (primary, secondary or university education), employment status (unemployed vs. employed) and type of employment (white-collar vs. blue-collar jobs),¹⁰ and ϵ_i is an individual error term clustered within primary sampling units.

⁹As we show Figure 6.6 in the Appendix, this functional form provides a good fit for the data.

¹⁰White collar jobs coded as tourism, science, education, art and culture, social services and sport, government jobs and other jobs without production. The residual category are blue-color jobs which are defined as: industrial, building, agriculture, forestry, transport, communication, business or other production.

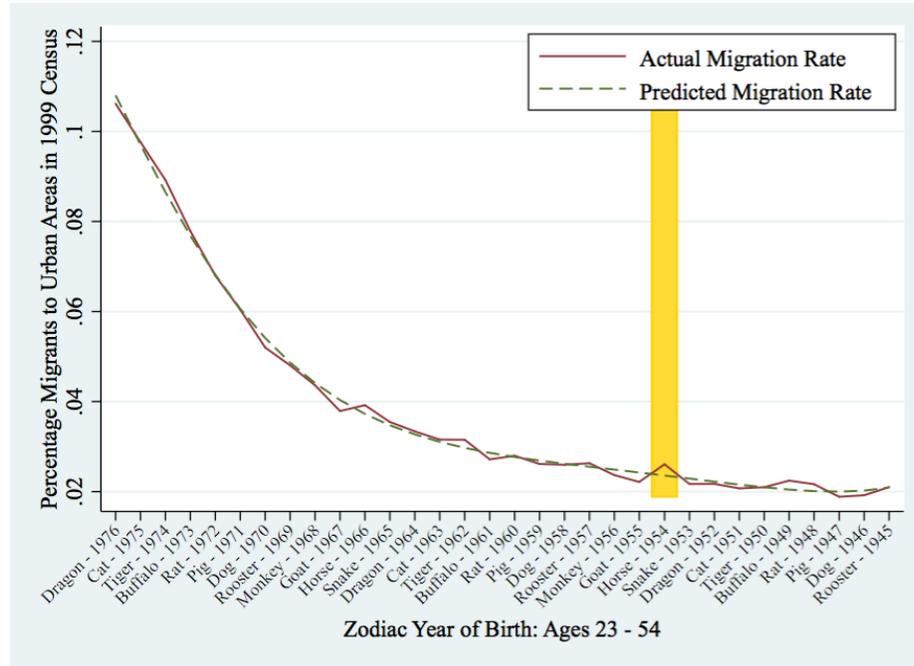
The first four columns of the Table show results from the 1989 census. Models (1) and (2) show the main effect of being born in the year of the horse on the propensity to have migrated to urban areas for men (M) and women (F) separately. We see that, even controlling for demographic variables, the year of the horse dummy for people born in 1954 is statistically significant at the 5% level for both men and women. The substantive effect (slightly less than a full percentage point) size is meaningful, compared to the baseline migration rate of around five percent. We also observe that educational attainment and being jobless is, in general associated with higher migration propensity, while the effect of being single is only statistically significant for men. However, we do not find a year of the horse effect for people born in 1942, thus aged 42-45 during the time period capturing migration in the 1989 census. Next, in models (3) and (4) we focus on migration to rural areas for men and women separately. We find that there is no statistically significant effect for either for men or women born in any of the years of the horse. Comparing migration to urban areas (models 1 and 2) to migration to rural areas (models 3 and 4), the results confirm our discussion of the importance of the migration context where economic aspirations drive movement mainly from rural to urban areas.

As a robustness check of the 1989 results, we also consider additional data from the 1999 census.¹¹ The inclusion of this additional census wave allows us to observe migration again for individuals born in the golden horse year at a later stage of their life (between 1994-1999). The results from the 1999 census are displayed in Figure 6.2. First, we observe that the year of the golden horse effect appears again in the 1999 census, even though individuals in this cohort are now significantly older (approx. 45 years old), and thus less likely to have migrated in the past five years due to their older age. Models (5) through (8) of Table 6.2 confirm the statistical significance of these impressions: we find statistically significant effects at the 5% level for men born in 1954 who migrated to the urban areas (but not to rural areas). With regards to women, we find similar patterns, but results are only significant at the 10% level. These results, which echo the 1989 findings, provide additional evidence in support of a “year of the golden horse” effect on migration propensity to urban areas.

Using the 1999 census, we can also examine whether migration rates are higher amongst another horse cohort: namely, those born in 1966. In doing so, we will shed light on the question of whether there is a general “year of the horse effect,” or whether superstitious beliefs affect migration propensity only in the “golden” year. In addition, the 1966 cohort is of prime migration age (around 30 years old). Therefore, if we do not find any effect here, it is less likely that the null finding is the result of being in the flat part of the migration-age curve (as was likely the case with regards to the 1942 cohort above).

Figure 6.2 shows little evidence of a jump in migration rates associated with the 1966 horse year. Models (5) through (80) of Table 6.2 show that, although this birth year is associated with a positive jump from the trend line, the difference is not statistically significant. This result, combined with

¹¹Microdata from both censuses are available through IPUMS. The 1999 census is a 3% sample of the complete census records.

Figure 6.2: Migration to Urban Areas in the 1999 Census by Zodiac Year

the null finding with respect to the 1942 cohort, suggests that superstitious beliefs are specific to the year of the Golden Horse. In other words, our data do not provide evidence for a more general year of the horse effect.

Next, we present some additional evidence in support of the interpretation that the spike in migration rates for individuals born in the year of the golden horse is driven by superstitious beliefs. In particular, readers may be concerned that some unobserved variable X correlated with being born in the year of the golden horse is also responsible for increasing migration rates some 30-35 years later. Therefore, to support our argument that the results are driven by superstitious beliefs (and *not* by unobservable variable X), we present two additional pieces of evidence.

First, the most reasonable candidate for an unobservable X that may influence migration propensity is parents' investment in the "human capital" of their children. More specifically, Do and Phung (2006) has argued that parents may endow children born in lucky zodiac years with more favorable financial, psychological or emotional conditions that lead to greater human development (better education and health). Such higher human capital may also lead to higher migration propensity down the road. Under this alternative interpretation, the year of the golden horse effect may be a result of *parents'* superstitious beliefs, which may have resulted in greater human capital investment, rather than the beliefs held by actual migrants that they themselves are endowed with favorable characteristics.

We do not believe that parents' investment decisions are driving the current migration results. If this alternative interpretation were true, then we should expect that individuals born in the year of the golden horse would have higher levels of educational attainment than individuals born in neighboring years. However, as shown in Table 6.1, we find that, if anything, individuals born in the year of the golden horse are *less well educated* than the comparison group. And given that higher education is correlated with greater migration propensity, this results further strengthens our argument that it is not human capital investment which is driving higher migration rates amongst the year of the golden horse cohort.

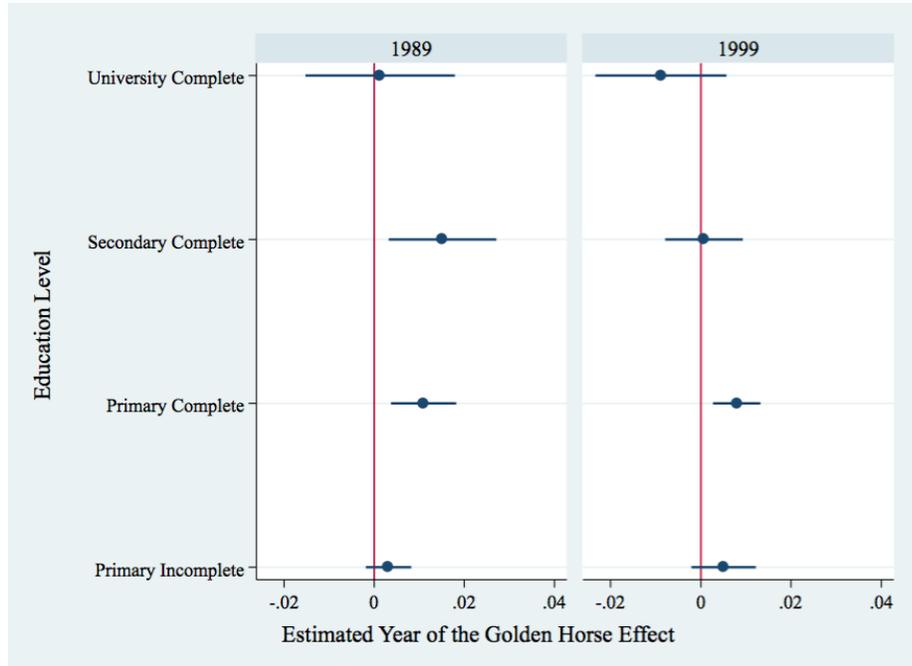
Secondly, we test an implication of our argument that it is the superstitious beliefs of individual migrant which drive migration decisions. Our test focuses on how the estimated year of the horse effect varies by education level. More specifically, we expect that, on the one hand, increased educational attainment should correspond to a weakening of superstitious beliefs, as education is a principal means by which individuals learn more "rational" modes of thinking. On the other hand, the ability to *act upon* one's superstitious beliefs increases with education (Almond et al., 2015).¹²

Taken together, the combination of these two forces implies that we should observe a *curvilinear* relationship between education levels and the strength of the year of the horse effect. At low levels of education, individuals born in the year of the horse may not have the know-how or resources at hand to act upon their migration intentions.¹³ At medium levels of education, we should observe a larger effect, as people have both the superstitiously-driven intention to migrate, plus the means to act upon their beliefs. Finally, at the highest levels of education, people have the greatest agency, but they also have weaker superstitious beliefs, and thus we should observe again a small year of the horse effect.

In fact, this curvilinear pattern of treatment effects is exactly what we find. Figure 6.3 displays the migration propensity for individuals born in the year of the golden horse and adjacent years, broken down by level of education. We see that the "year of the horse" effect with respect to migration to all urban areas is particularly pronounced for individuals who have completed primary or secondary schooling ($\beta_2 = 0.0118$ for primary completed, p-value < 0.001 ; $\beta_2 = 0.0146$ for secondary completed, p-value = 0.006). By contrast, we observe no statistically significant effects amongst people with either incomplete primary ($\beta_2 = 0.003$, p-value = 0.170) or university education ($\beta_2 = 0.002$, p-value = 0.795). These results, which are fully consistent with our interpretation of a year of the horse

¹²For example, Almond et al. (2015) demonstrates that educated mothers in California are able to structure their childbearing (with regards to labor induction or scheduled Cesarean section) to avoid giving birth on unlucky days (i.e. Friday, the 13th). Moreover, Chinese-American births in California occur disproportionately often on days ending in 8 (a very good number in Chinese, because it rhymes with "fortune"), and are less common on the 4th, 14th and 24th of each month (4 is a number associated with death in Chinese).

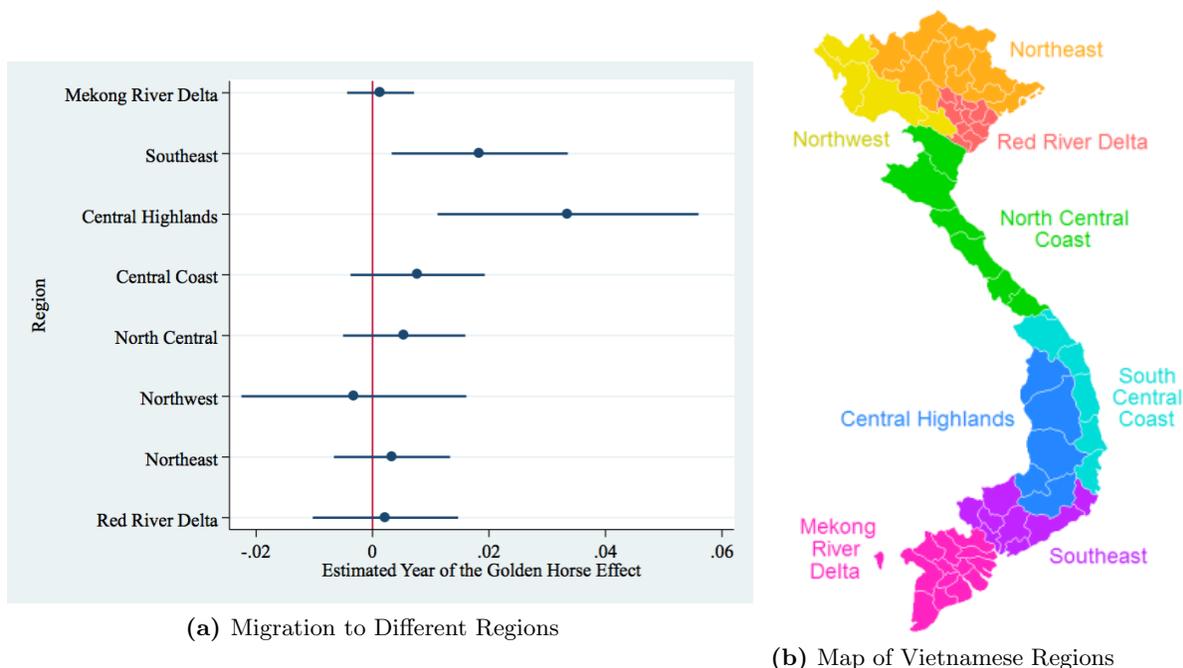
¹³There is a substantial migration literature supporting this point that the "poorest of the poor" often do not have the means to migrate (De Haas, 2010; Nyberg-Sørensen, Hear and Engberg-Pedersen, 2002; Skeldon, 2002).

Figure 6.3: Migration to Urban Areas by Education Level in the 1989 and 1999 Census

effect, lend further support to our argument that superstitious beliefs can indeed drive migration behavior.

Lastly, we examine migration flows to each of the eight large geographic regions of Vietnam (Red River Delta, Northeast, Northwest, North Central, Central Coast, Central Highlands, Southeast, and Mekong River Delta), shown in Figure 6.4b. As discussed above, migration based on zodiac beliefs should concentrate in regions experiencing the highest rates of economic development. For this time period, these are the Southeast region (which includes Ho Chi Minh City), and the Central Highlands, which was declared a “new economic area” for resettlement. Migration flows to urban areas within each region are displayed in Figure 6.4a, and for ease of visualization, we display migration rates within a 5-year window around the year of the golden horse. We see that, as predicted, the discontinuous jumps we observed above are driven by migration to the Central Highlands and the Southeast regions. By contrast, there is very little evidence of a year of the horse effect within the other regions and there is much lower migration to the urban areas in these regions overall.

In sum, we show that Vietnamese born in 1954, the year of the golden horse, are more likely to have migrated in both 1989 and 1999, compared to those born in the adjacent years. While this effect exists for both men and women, and is driven by migration to urban areas, especially to rapidly developing areas in the south of Vietnam. We also present evidence that these results are not driven by differential human capital investment, and that it is driven by a combination (a) strength of

Figure 6.4: Regional Migration to Urban Areas in 1989 Census

superstitious beliefs, and (b) the ability to act upon those beliefs amongst the “golden year” cohort. However, we find no evidence of a general year of the horse effect, as the migration propensity for those born in 1942 and 1966 is not significantly higher than baseline.

Conclusion

This study examines the effect of culturally widespread beliefs in the Chinese zodiac on migration behavior in Vietnam. We exploit a natural experiment in which individuals born in the year of the horse are regarded as particularly forward-looking and prone to venturing out into the unknown. We relate this superstition to a model of migration decision-making comparing those born in the year of the horse with similar individuals born in adjacent zodiac years. Using data from the 1989 national census, this paper finds evidence for a year of the Golden Horse effect for men and women born between 1954-1955. Moreover, in line with our prediction, the Golden Horse effect is particularly strong for migration to urban areas in the south of Vietnam that were undergoing rapid economic development in the late 1980s.

However, our analyses of subsequent census waves from 1999 reveals that individuals born into a “normal” year of the horse do not demonstrate an increased migration propensity.¹⁴ Therefore, the census data used here suggests that there is no general year of the horse effect in Vietnam. Thus, the question remains: to what extent do superstitious beliefs about the “year of the golden horse” differ from beliefs about people born in the regular year of the horse? Are golden horse beliefs simply much stronger than regular horse beliefs?

The 1990s were also the first years when overseas Vietnamese labor migration became popular. Thus, it is also possible that there was a sort of substitution effect, in which year of the horse individuals were now seeking opportunities abroad rather than jobs in the urban centers, and consequently were no longer captured in the census definition of inter-regional migration that we employ. We hope to conduct future qualitative research on astrological beliefs in Vietnam, which would help shed light on this question.¹⁵

Overall, these results add to a growing body of evidence highlighting the importance of superstitious beliefs on important behavioral outcomes (e.g. for fertility timing (Aso, 1978; Goodkind, 1995, 1996; Kaku and Matsumoto, 1975; Kurosu, 1992; Yip, Lee and Cheung, 2002), sex preferences (Lee and Paik, 2006), financial decision-making (Antipov and Pokryshevskaya, 2015; Hirshleifer, Jian and Zhang, 2014; Pokryshevskaya, Antipov et al., 2015), partner choice (Tanaka and Iwasa, 2012)). While social scientists have paid increasing attention to the role of beliefs and expectations in shaping individual behavior, the focus has largely been on empirical expectations (e.g. what I expect others do to).

By contrast, in this paper we highlight the importance of beliefs that are *not* empirically verifiable. The study of such “faith-based” beliefs not only has a long tradition in social science, dating back to Weber’s “Protestant Ethic,” but also opens up new avenues for research. For example, since faith-based beliefs are resistant to empirical falsification, they may be more “sticky” (Fudenberg and Levine, 2006). Thus, the contrast between empirical and faith-based beliefs can help shed light on the role of verification in belief change.

In addition, there is evidence that individuals are increasingly acquiring the agency to be able to act more effectively on their faith-based beliefs. For example, Goodkind (1991) shows that Chinese superstitions associated with the year dragon has been around for millennia, but it was only since the late 1970s that we witness spikes in birthrates corresponding to this year in Chinese communities around the world. Is this trend the result of the growing available of technologies facilitating fertility

¹⁴We also conducted a similar analysis for the 2009 census data and obtain similar null-results for a year of the horse effect.

¹⁵We have designed a survey and circulated among a number of Vietnamese fortune tellers to better understand the particular characteristics and differences associated with different zodiacs. The fortune tellers confirmed that the 1954-55 year was a particularly “lucky” horse year (and the 1966 year a particularly unlucky horse year) because how it coincided with the other element. However, they also noted that not just the year of the birth but the year of important life choice (in this case migration) in combination with the zodiac are important for determining how “fortunate” the action is. However, the census data only records migration within a 5 year time period and not the exact year of migration.

timing, or have tastes for having “astrologically endowed” children changed with modernization? Future research might explore these questions to shed light on the interactions between technological advances and evolving preferences regarding long-standing superstitions.

Appendix

Figure 6.5: Year of Birth of Individuals recorded in the 1989 Vietnamese Census

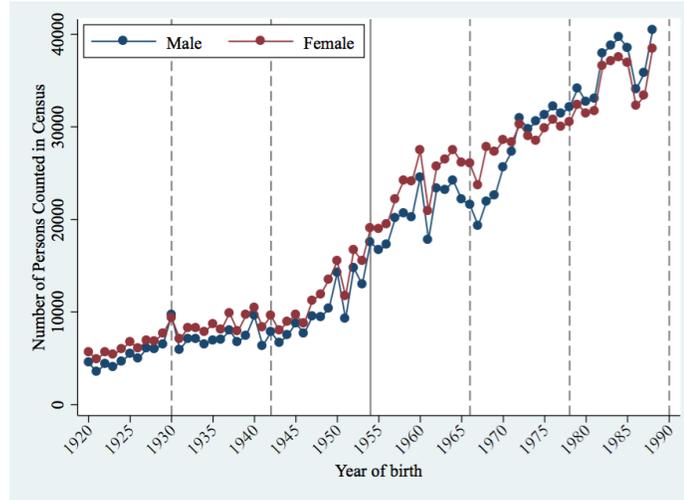


Figure 6.6: Determining Polynomial Order for Probit Regression

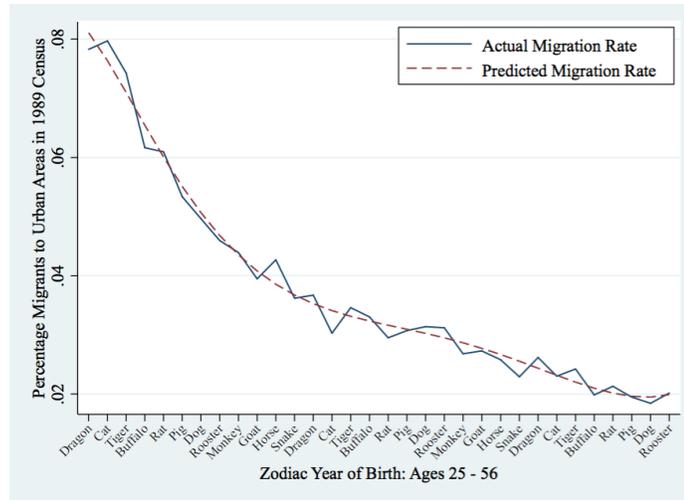


Table 6.3: Vietnamese Zodiac Calendar

Start of the Lunar Year	Associated Animal	Start of the Lunar Year	Associated Animal
5-Feb-24	Rat	28-Jan-60	Rat
24-Jan-25	Water Buffalo	15-Feb-61	Water Buffalo
13-Feb-26	Tiger	5-Feb-62	Tiger
2-Feb-27	Cat	25-Jan-63	Cat
23-Feb-28	Dragon	13-Feb-64	Dragon
10-Feb-29	Snake	2-Feb-65	Snake
30-Jan-30	Horse	21-Jan-66	Horse
17-Feb-31	Goat	9-Feb-67	Goat
6-Feb-32	Monkey	30-Jan-68	Monkey
26-Jan-33	Rooster	17-Feb-69	Rooster
14-Feb-34	Dog	6-Feb-70	Dog
4-Feb-35	Pig	27-Jan-71	Pig
24-Jan-36	Rat	15-Feb-72	Rat
11-Feb-37	Water Buffalo	3-Feb-73	Water Buffalo
31-Jan-38	Tiger	23-Jan-74	Tiger
19-Feb-39	Cat	11-Feb-75	Cat
8-Feb-40	Dragon	31-Jan-76	Dragon
27-Jan-41	Snake	18-Feb-77	Snake
15-Feb-42	Horse	7-Feb-78	Horse
5-Feb-43	Goat	28-Jan-79	Goat
25-Jan-44	Monkey	16-Feb-80	Monkey
13-Feb-45	Rooster	5-Feb-81	Rooster
2-Feb-46	Dog	25-Jan-82	Dog
22-Jan-47	Pig	13-Feb-83	Pig
10-Feb-48	Rat	2-Feb-84	Rat
29-Jan-49	Water Buffalo	20-Feb-85	Water Buffalo
17-Feb-50	Tiger	9-Feb-86	Tiger
6-Feb-51	Cat	29-Jan-87	Cat
27-Jan-52	Dragon	17-Feb-88	Dragon
14-Feb-53	Snake	6-Feb-89	Snake
3-Feb-54	Horse	27-Jan-90	Horse
24-Jan-55	Goat	15-Feb-91	Goat
12-Feb-56	Monkey	4-Feb-92	Monkey
31-Jan-57	Rooster	23-Jan-93	Rooster
18-Feb-58	Dog	10-Feb-94	Dog
8-Feb-59	Pig	31-Jan-95	Pig
		19-Feb-96	Rat
		7-Feb-97	Water Buffalo
		28-Jan-98	Tiger
		16-Feb-99	Cat
		5-Feb-00	Dragon
		24-Jan-01	Snake
		12-Feb-02	Horse
		1-Feb-03	Goat
		22-Jan-04	Monkey
		9-Feb-05	Rooster
		29-Jan-06	Dog
		18-Feb-07	Pig

Conclusion

Summary of Question and Research Findings

I started this PhD project because I was interested in the question of why migrants trusted labor brokers and other migration intermediaries. To me, it seemed like migration, which is often very dependent on these intermediaries, was an extremely risky choice. At the center of the migration “contract” is essentially an inter-temporal exchange: migrants pay large upfront costs today, against the promise of a job and higher salaries tomorrow. But in the presence of weak to non-existent legal enforcement, how can migrants be sure that brokers will not renege on their promise? Without some form of credible commitment on the part of labor brokers, why are so many migrants willing to take such large risks, even going so far as to mortgage their homes? How do labor brokers signal their trustworthiness to prospective migrants?

These sets of questions motivated my initial forays into the field. However, I quickly found that within the Thai migrant population with whom I was working, the question of trustworthiness was simply part of a larger question of risk-taking. This realization led to a shift in the focus of my research, from labor brokers as *trustees*, to the population of prospective migrants as *trusters*. In addition, in the course of my initial fieldwork, other themes emerged relating to individuals’ aspirations for a better life (which are closely linked to their feeling of being left behind), as well as to the strong role of beliefs in luck in individual decision-making. I became interested in combining these themes with my original research question about the risks in the migration process, and it was through this combination that the seeds of the present work took root.

At the core of this dissertation is the question of how individuals understand and evaluate risks when making migration decisions. In addressing this question, my work moves beyond the traditional theories in the migration literature, which have focused largely on economic motivations, transnational networks, the role of migration industries, and the specific historical context in shaping who migrates, when and why (e.g. Castles, Miller and Ammendola, 2005; De Haas, 2011; Faist, 2000; Massey et al., 1999). Instead, this dissertation engages with new ideas and research findings from

analytical sociology, social psychology, behavioral economics and other decision sciences. Specifically, I argue that the basic expected utility paradigm at the heart of many micro-level migration models is incomplete, and that we also ought to account for the role of social preferences, cognitive biases and cultural beliefs as in shaping mobility choices. To empirically examine these factors, I have used multiple methodological tools including (1) original ethnographic fieldwork amongst Thai migrants in Los Angeles, USA, (2) a survey and a lab-in-the-field experiment with prospective migrants in northern Thailand, and (3) a natural experiment leveraging individual-level census records documenting migration experiences within Vietnam. By studying individuals who have already migrated, as well as aspiring and prospective migrants, this dissertation takes into account and tries to address selection effects, which are typically passed over in the migration literature (for similar critiques, see e.g. Arango, 2000; Carling, 2002; Czaika, 2015; Kley, 2011; Koikkalainen and Kyle, 2015; Schewel, 2015).

The dissertation is based on five empirical chapters. In Chapter 1, I start from the endpoint of a migration journey, and show how risky the migration process can be. I present results from my fieldwork in Los Angeles and Thailand illustrating that the risks of migration are real and that migrants were aware of potential risks at the moment of their pre-migration decision-making. This fieldwork also helped me to develop hypotheses and to interpret the empirical results of the quantitative and experimental data that I use in other chapters. Furthermore, the chapter also presents data from a survey with prospective labor migrants from the same region in Thailand, illustrating that prospective migrants in the pre-decisional phase distinguish between two types of risks: *risks of nature*, which can be thought of as the result of happenstance or “bad luck,” and *social risks*, which refer to misfortune caused by the opportunistic behavior of other individuals.

In Chapter 2, I introduce the theoretical framework of the thesis, and focus on two ways in which the expected-utility model of migration decision-making can be usefully expanded. The first expansion is to reconsider the role of social preferences in shaping how aspiring migrants value potential outcomes. When individuals experience feelings of relative deprivation - the fear of falling behind in relation to their comparison group - they place more value on achieving social mobility, leading to a greater willingness to migrate for any given level of risk. Using observational data from the Townsend Thai project, Chapter 3 empirically investigates this relationship. Importantly, the Townsend data includes a subjective self-assessment of relative deprivation and clearly shows that even controlling for absolute levels of household income, households which rank themselves as relatively deprived are significantly more likely to have a family member who migrated for work.

However, by design, survey data can only show statistical associations, and not causation. Therefore in Chapter 4, I employ an incentivized lab-in-the-field experiment to test whether this relationship operates by increasing the willingness to accept risks among relatively deprived individuals. My experimental designs distinguish between the two types of risks previously identified: *risks of nature* and *social risks*. I find that, amongst aspiring migrants from rural Thailand, relative deprivation

significantly increases individuals' willingness to take risks determined by chance. However, my findings also indicate that relative deprivation may decrease individuals' propensity to take social risks (i.e. to trust another person). Together, the results suggest that the positive relationship between relative deprivation and migration propensity may operate primarily through the risk-as-chance channel. The chapter concludes by outlining several possible extensions of the experimental design to more cleanly estimate the effect of relative deprivation on different types of risk-taking.

The second theoretical expansion I propose, considers how biased beliefs and superstition - and more specifically a belief that one is lucky - can influence individuals' calculation of probabilities in the classical expected-utility model. As part of the lab-in-the-field experiment, I implemented a belief elicitation task that measures how participants estimate their chances of success in a lottery task. My results presented in Chapter 5 show that most individuals do not weigh probabilities objectively, but rather rely on their perceptions of personal luck - or what I term the "fortuna heuristic" - when determining their own chances of success in a risky financial endeavor. As a measure of external validity, I also substantiate these results in a survey with prospective migrants in Thailand, in which I find that those who felt personally lucky were more willing to accept a hypothetical risky migration offer. Furthermore, I present evidence from a replication study in Italy, in which I find that beliefs in luck are less widespread than in Thailand, which suggests that the fortuna heuristic may be a culturally-bounded phenomenon.

Finally, in Chapter 6, I examine culturally-bounded superstitions as one origin of beliefs in luck. In particular, in Vietnam, such beliefs are frequently tied to the Chinese zodiac, and it is commonly believed that those who are born in the year of the horse are forward-looking and prone to venturing out into the unknown. As a consequence, individuals who believe that they are blessed with such traits may actually be more willing to migrate. Using micro-data from the Vietnamese population census, I find mixed evidence of this. While there is no proof of a general year of the horse effect, the effect exists for those born in the year of the "golden horse," and is especially strong with regard to migration flows to rapidly developing urban areas. In sum, this final empirical chapter illustrates the importance of culturally-bounded non-rational belief systems in shaping migration decisions.

Overall, the dissertation illustrates that social preferences, biased beliefs and superstition are important, but so far largely neglected, factors influencing individuals' willingness to take financial risks in the migration process. My results also suggest important linkages between migration choices and individuals' understandings and perceptions of risks, and call for further theoretical elaboration of the relationships between migration, risk perceptions and risk-taking behavior.

Through a detailed study of decision-making regarding migration risks in a developing country context, this dissertation aims to provide theoretical and empirical insights that are relevant for many origin countries in the world. In particular, I believe that my results with respect to relative deprivation can generalize to contexts beyond Thailand. This is because the social mechanism at play - the desire for status - is basic to human psychology. Of course, this mechanism has to be

activated by an unequal social structure, but societies characterized by economic inequality are the norm than the exception around the world. Besides the forces of increasing globalization and heavily concentrated economic development may only be deepening these structural divides. Instead, my results with respect to beliefs about personalized luck may not generalize to other countries outside the region, as my Italian replication suggests that such beliefs may be culturally bounded. However, alternative beliefs and superstitions may be present in other societies, and the general mechanism linking luck and risk-taking may still hold across a broad grouping of countries.

Furthermore, the findings of this dissertation have the potential to contribute to public policy debate and policy formulation. In the larger context of Europe's current migration inflows, several national governments have tried to discourage prospective migrants by taking out newspaper advertisements highlighting downsides of migration.¹⁶ Setting aside whether we agree with such policy goals, my dissertation can speak to the question of whether these policies are likely to be effective. In particular, my research suggests that beliefs in luck can weaken such information interventions: people may discount information about how hard it is to get asylum if they think that they themselves will be amongst the lucky few who succeed. At the extreme, if such beliefs in personalized luck are strong, then information about the "average" migrant having a hard time should exert no influence on the migration choices.

Second, some governments in Europe and North-America have argued that it is more effective to use development aid as a substitute for open borders. This line of reasoning is based on the idea that if we improve living conditions in the poor origin countries, fewer people from these poor countries will want to leave. However, my results examining the role of subjective well-being and feelings of relative deprivation suggest that we should pay attention to how aid affects not only the average GDP levels in developing countries, but also the distribution of income. If foreign aid and other policies increase average GDP, but also increase inequality within countries (or regions), this could actually lead to greater numbers of out-migration as more people resort to migration as a tool to "catch up" economically. Again, my goal is not to ask whether aid policies aimed at discouraging mobility are normatively desirable, but rather to question only whether such policies are likely to be effective. In summary, I believe that the results presented in this dissertation can help policymakers to think through the full implications of their interventions using a more accurate description of the motivations driving individuals' migration decisions.

Clearly, these policy implications demonstrate that migration is an important phenomenon touching the lives of many people around the globe in both origin and destination countries. However, to understand migration outcomes, we must first understand how migrants make decisions. For too long, the field has been the domain of economists focusing on income differences as the primary driver of migration choices. Sociologists can contribute to a better understanding of migration dynamics by highlighting the important social, cultural and cognitive forces also at play in the

¹⁶For example, the Danish government purchased advertising space in a major newspaper in Lebanon in the summer of 2015 to communicate their tightened immigration restrictions.

migration decision-making phase. My hope is that this dissertation can make some modest steps in this direction, thereby opening the door for further future scholarship.

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