

Get Rich or Die Tryin'

Perceived Earnings, Perceived Mortality Rate
and the Value of a Statistical Life of Potential Work-Migrants
from Nepal

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Abstract

Do potential migrants have accurate information about the risks and returns of migrating abroad? And, given the information they have, what is their revealed willingness to trade risks for higher earnings? To answer these questions, this paper sets up and analyzes a randomized field experiment among 3,319 potential work migrants from Nepal to Malaysia and the Persian Gulf countries. The experiment provides them with information on wages and mortality incidences in their choice destination, and tracks their migration decision three months later. The findings show that potential migrants severely overestimate their mortality rate abroad, and that information on mortality incidences

lowers this expectation. Potential migrants without prior foreign migration experience also overestimate their earnings potential abroad, and information on earnings lowers this expectation. Using exogenous variation in expectations for the inexperienced potential migrants generated by the experiment, the study estimates migration elasticities of 0.7 in expected earnings and 0.5 in expected mortality. The experiment allows the calculation of the trade-off the inexperienced potential migrants make between earnings and mortality risk, and hence their value of a statistical life. The estimates range from US\$0.28 million to US\$0.54 million, which is a reasonable range for a poor population.

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Get rich or die tryin': Perceived earnings, perceived mortality rate and the value of a statistical life of potential work-migrants from Nepal

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1 Introduction

The number of workers moving across international borders for work is increasing. By 2013, international migrants accounted for over 12 percent of the total population in the global North, over six times the share in 1990 (UNDESA, 2015). The 2011 Gallup poll estimates that more than 1 billion people want to migrate abroad for temporary work (Esipova, Ray, and Publiese, 2011). Anecdotes and media reports abound on the risks these migrants are undertaking in search of a better life for themselves or their families. For example, more than 3,770 migrants died in the Mediterranean Sea in 2015 on their way to Europe (International Organization for Migration, 2015). In 2014, about 445 people died while trying to cross the US-Mexico border (Carroll, 2015). A high death toll is not the plight only of those who try to migrate illegally or who are forced to move. *The Guardian* reports that almost 1,000 workers, all of whom were legal migrants from Nepal, India and Bangladesh, died in Qatar in 2012 and 2013 (Gibson, 2014).

The intense desire to migrate despite the risks has led policymakers to be concerned that potential migrants may have unrealistic expectations about migration. In countries like Nepal, where more than 7 percent of adult, working-age males leave the country for work abroad in a given year, there is great concern that they make the decision recklessly.¹

Policymakers and academics often have contradictory views on whether the level of observed migration is higher or lower than optimal. Policymakers believe that most potential migrants are misinformed – in particular, that they expect to earn more than they actually do upon migration and underestimate the risks of working abroad. Many policymakers also believe that potential migrants, knowingly or unknowingly, are trading off risks at unreasonably low prices to the extent that their experience is often termed exploitative.² Put together, these notions suggest that the observed rate of migration is higher than is optimal and that accurate information would lower the level.

Academic studies, on the other hand, find migration to be profitable and hugely beneficial for the marginal migrant and his or her family (see Bryan, Chowdhury, and Mobarak, 2014; McKenzie, Stillman, and Gibson, 2010, for a few examples). These studies suggest that the level of migration is suboptimal and that increased migration would be welfare improving. If anything, potential migrants’ beliefs about earnings and risks are pessimistic, which suppresses migration (as briefly suggested in Bryan, Chowdhury, and Mobarak, 2014). Alternatively, many academic studies assume that individuals are fully informed and have rational expectations about the conditions at their destinations, and attribute low levels of migration to high costs, monetary and otherwise (see Kennan and Walker, 2011; Morten and Oliveira, 2014; Morten, 2013; Shenoy, 2015, for example). This literature argues that the costs, most of which are fixed, keep migration sub-optimally low and give rise to a large spatial disparity in earnings.

In this paper, I investigate whether misinformation causes suboptimal levels of migration in the context of the migration of Nepali workers to Malaysia and the Persian Gulf countries. Given the concerns on the part of policymakers, I focus on how potential migrants’ beliefs on earnings and the mortality rate abroad, and the tradeoff between these two factors – the value of a statistical life (VSL) – affect migration.

Using data collected for this study, I find that potential migrants are indeed misinformed about potential earnings and mortality risk, but not always in a way that policymakers expect. Consistent with the widely held notions described above, inexperienced potential migrants, meaning those who have never before migrated abroad for work, overestimate their earning potential. Compared to experienced migrants – those who are better informed as they have migrated abroad for work before – they expect to earn 26 percent more. I argue that this estimate is a lower bound on the extent of misinformation as the pool of experienced migrants in my sample is likely to be selected from the higher end of the actual earnings distribution. This suggests that, even in a context where 15 percent of the households have a current migrant in one of these destinations, potential migrants can still be misinformed about

¹An extreme example of the opinion of many policymakers is the following quote from an expert on Nepali migration: “They go without asking questions. They are not ready to listen. They just want to go. They never even bother to ask how much they will earn.” (Pattison, 2013a). Though this statement may be an exaggeration, the view that potential migrants lack information or are misinformed is widely held.

²Migrants working at high-risk jobs for low wages has been dubbed a form of modern-day slavery. Several newspaper articles and commissioned research reports express this view (see Deen, 2013; The Asia Foundation, 2013, and other news articles quoted elsewhere in the paper).

their earning potential abroad. However, contrary to popular belief, potential migrants also overestimate their mortality risk abroad. The median inexperienced potential migrant expects the mortality rate to be 7 times the actual mortality rate they face, and the median experienced potential migrant expects the mortality rate to be 4 times the actual average rate. Misinformation at the mean is even larger at 13 and 21 times the actual rate for the experienced and inexperienced potential migrants, respectively.

This two-sided misinformation implies that migration decisions are being made inefficiently, and that potential migrants would make different choices with accurate information. Whether these inefficiencies cause the aggregate migration level to be too high or too low depends upon two things: the elasticity of migration with respect to expected earnings abroad and the elasticity of migration with respect to expected mortality rate abroad. These two elasticities will also pin down the VSL, which will elucidate whether potential work migrants are making a reasonable trade-off with the information that they have.

To estimate these elasticities and the VSL, I conducted a randomized controlled trial that provides information and observes changes in expectations and subsequent migration decisions. Among 3,319 potential migrants who came to Kathmandu to apply for a passport in January 2015, I randomly provided information on earnings and/or mortality incidences of Nepali workers in their destination of choice. The earnings information treatments provided information on the average contractual wages reported to the official authority of Nepal by two cohorts of migrants. The mortality incidence information treatments consisted of death tolls of Nepali migrants from some pre-determined districts in Nepal. To avoid deception, I gave individuals information from different districts with high and low numbers of deaths. Death information was cross-randomized with wage information.

The informational interventions changed the earnings and mortality rate expectations of potential migrants, particularly of those who were likely to be misinformed. To measure the effect of information on their expectations, I elicited their beliefs on earnings upon migration and on the mortality risk to be faced while abroad. The information treatment on deaths, particularly the ‘low’ death information, lowered their expected mortality rate by 20 percent relative to the expectation of those who did not receive any information (control group). The effect was larger for inexperienced potential migrants, at 30 percent relative to the expectation of the control group. Information on earnings also lowered earnings expectations for the inexperienced potential migrants: compared to the control group, those who received earnings information expected to earn 8 percent less. However, for the experienced, providing wage information had no effect. This is not surprising, as the experienced migrants had better information about their earning potential abroad.

Moreover, these changes in expectations led to changes in migration decisions. Three months after the interventions, inexperienced potential migrants provided with ‘low’ death information were 7 percentage points more likely to have migrated, and those provided with wage information were 6 percentage points less likely to have migrated. The effects are about 30 percent of the migration rates observed in the group that did not receive any information. This finding has the clear policy implication that a simple and well-targeted informational intervention can change perceptions as well as the actual migration decisions of potential migrants.

Using the experimental setup, I estimate a binary choice model of the migration decisions of inexperienced potential migrants with randomized information assignments as instruments for mortality risks and earnings from migration.³ Under the assumption that the information treatments did not change unobserved amenities associated with migration (which I discuss in the main text), the estimated coefficients imply an earnings elasticity of migration of 0.7 and an elasticity of migration with respect to expected mortality rate of 0.5. The (negative) ratio of coefficients on mortality rate and earnings gives the implicit value of a statistical life (VSL) as revealed by their decision to migrate. These coefficients imply a VSL of \$0.28 million to \$0.54 million (\$0.97m - \$1.85m in PPP). These estimates are lower compared to the estimates for the US (Viscusi and Aldy, 2003), but these differences can be accounted for by differences in earnings. In both cases, the estimates of VSL are 100 to 300 times the median household income.⁴ This suggests that, given the level of information that potential migrants have, the tradeoff they are willing to make does not appear to be unreasonably low. Furthermore, this level of VSL and the estimated

³Since the information treatments did not change earnings expectations of experienced potential migrants, this strategy would not work for this group.

⁴In per-capita terms, the estimate for Nepal would be higher given the larger household sizes.

earnings and mortality elasticities of migration suggest that misinformation along these two dimensions has indeed lowered migration overall. This result is driven by the fact that misinformation on mortality rate dwarfs misinformation on earnings, whereas the migration response to changes in these expectations are roughly the same.

These findings raise the question of how such a large level of misinformation on mortality rate can persist despite high migration flows. To investigate this, I infer the change in the perceived mortality rate for potential migrants following an actual death of a migrant. I take the migration response to an actual migrant death from my other work ([Shrestha, 2017](#)), and use the estimated earnings elasticity and the VSL to translate the migration response into an induced change in beliefs on mortality rate. This exercise suggests that potential migrants update their beliefs on mortality rate by a considerable amount following death events. Additionally, the response is greater when there have been more migrant deaths in the recent past. As explored in [Shrestha \(2017\)](#), these patterns are inconsistent with models of rational learning. Models of learning fallacy, such as the law of ‘small’ numbers, combined with some heuristic decision rules may explain the observed high levels of overestimation as well as the sensitivity to recent information about migrant deaths (see [Rabin, 2002](#); [Tversky and Kahneman, 1971, 1973](#); [Kahneman and Tversky, 1974](#), for related literature). Therefore, a fallacious belief-formation process, which leads to high overestimation of mortality rate abroad among potential migrants, has kept migration levels lower than optimal in this context.

Apart from providing an important insight into how beliefs can affect migration, this paper makes a methodological contribution to the literature estimating the VSL from revealed preferences. Thus far, much of the empirical literature has taken the route of estimating the wage hedonic regression (see [Thaler and Rosen \(1976\)](#) for a theoretical foundation, and [Viscusi and Aldy, 2003](#) and [Cropper, Hammitt, and Robinson, 2011](#) for reviews). One key issue with this literature is that in many settings, mortality risks are correlated with unobserved determinants of wages confounding identification (see [Ashenfelter, 2006](#); [Ashenfelter and Greenstone, 2004a](#), for critiques). In this study, the use of randomized treatments as instruments effectively solves the omitted variables and endogeneity problem. Further, by directly measuring individual perceptions on earnings and mortality risk, I overcome the bias resulting from measurement error of the risks or the issue of decision-makers being unaware of the true risks (see [Black and Kniesner, 2003](#), for effects of biases from measurement errors).⁵ To the best of my knowledge, this is the first study to estimate the VSL using exogenous variations in perceived risks and rewards generated from a randomized experiment.⁶

This paper also contributes to the relatively scant literature seeking to quantify the extent of misinformation on earnings in context of international migration. [McKenzie, Gibson, and Stillman \(2013\)](#) and [Seshan and Zubrickas \(2015\)](#) find that those who do not migrate, including family members, have different expectations about earnings abroad. However, contrary to the current study, these studies find that potential migrants and their family members underestimate the potential earnings from migration. In a context similar to these studies, [Beam \(2015\)](#) finds that attending a job fair increases expectations of earnings abroad, but does not induce them to take any actions towards migrating abroad. This study also adds to the literature on the effectiveness of providing information on improving outcomes for migrants. [Shrestha and Yang \(2015\)](#) find that informing Filipino maids working in Singapore about the legal processes for changing jobs improves their working conditions and, for those with worse job characteristics, facilitates job transition. On the other hand, [Bryan, Chowdhury, and Mobarak \(2014\)](#) find that providing job related information in the context of seasonal migration within Bangladesh has absolutely no effect on migration or other outcomes. To the best of my knowledge, there are no other rigorous studies that quantify the extent of misinformation on risks associated with migration.

This paper builds on and adapts the literature on eliciting probabilistic expectations in developing

⁵Though I elicit subjective perceptions on earnings and wages, it is different from the strand of literature that estimates VSL by eliciting subjective willingness to pay directly. See [Cropper, Hammitt, and Robinson \(2011\)](#) for a review of this literature.

⁶This paper is closest in approach to [Greenstone, Ryan, and Yankovich \(2014\)](#) and [Leòn and Miguel \(2017\)](#) who use a discrete-choice framework to study re-enlistment decisions of US soldiers and transportation choices of travelers to the Sierra Leone airport, respectively. While the institutional settings in their respective contexts drive identification in these studies, the identification of this study comes from the randomized assignment of information treatments. See Section 6 for a detailed discussion.

countries to the current context. Many studies in developing countries have used some variant of the elicitation methodology developed in [Manski \(2004\)](#) and [Dominitz and Manski \(1997\)](#) and have adapted it to diverse contexts (see [Attanasio, 2009](#); [Delavande, Giné, and McKenzie, 2011](#), for recent reviews). Specifically, this study adapts the approach used in [Attanasio and Kaufmann \(2009\)](#) to elicit the range of subject beliefs, and the approaches used in [Dizon-Ross \(2014\)](#) and [Delavande and Kohler \(2009\)](#) to elicit a coarse measure of the entire probability distribution of the subjects' beliefs. While the latter studies elicit probability density function (pdf) of beliefs within a pre-determined and wide range of values, I allow for the range of values to be determined by the range of beliefs of the respondents themselves. This allows for a more precise estimate of the p.d.f. of their beliefs. As far as I know, in a developing country context, [McKenzie, Gibson, and Stillman \(2013\)](#) remains the only other study to elicit subjective expectations of potential earnings from migration abroad, and [Delavande and Kohler \(2009\)](#) is the only other study to elicit subjective expectations on mortality rate.

Finally, this paper relates to a growing literature on the effectiveness of targeted information in ameliorating information failure. Some examples of studies where information interventions have proven to be quite successful include [Jensen \(2010\)](#), [Nguyen \(2008\)](#), and [Dinkelman and Martínez A \(2014\)](#) on improving schooling; [Dizon-Ross \(2014\)](#) on parental investment in the schooling of their children; [Duflo and Saez \(2003\)](#) on better planning for retirement; [De Mel, McKenzie, and Woodruff \(2011\)](#) on better access to credit; [Dupas \(2011a\)](#) and [Godlonton, Munthali, and Thornton \(2015\)](#) on safer sexual behaviors; [Madajewicz, Pfaff, Van Geen, Graziano, Hussein, Momotaj, Sylvi, and Ahsan \(2007\)](#) on choices of safe drinking water; and [Shrestha and Yang \(2015\)](#) on improving job satisfaction among migrant workers. This study shows another context where providing credible information can be a powerful policy tool to enable potential migrants to make informed decisions.⁷

The rest of the paper is organized as follows: Section 2 describes the context and the study setting, Section 3 outlines the intervention design and empirical strategy, Section 4 discusses the effect of the interventions on perceptions, Section 5 describes the follow-up survey and presents the effect of the interventions on migration and other outcomes, Section 6 outlines the methodology for VSL estimation and presents the results, Section 7 uses the VSL and the elasticity estimates to understand the large extent of misinformation on mortality risks, and Section 8 concludes.

2 Context and study setting

With remittances from abroad comprising almost a third of the national GDP, international migration for work is tremendously important for Nepal. In this section, I first describe the national context of migration to Malaysia and the Persian Gulf countries. I then describe the context specific to this study and compare the study sample with the population of migrants in the country along a few observable characteristics.

2.1 Context

In recent years, Nepal has been one of the biggest suppliers of low-skill labor to Malaysia and the Persian Gulf countries. This phenomenon, however, is quite recent. As Appendix Table A.1 shows, historic migrant-to-population ratio hovered slightly above 3 percent and was driven mostly by migration to India, with which Nepal maintains an open border. However, between 2001 and 2011, the share of non-India migrants exploded six-fold with only a small change in the share of India migrants. The rising Maoist conflict in the early 2000s and the economic instability during the conflict and in years following the end of that conflict are often cited as key reasons behind this surge. However, in [Shrestha \(2016\)](#), I find that migration flows to non-India destinations are more responsive to shocks in the destination economies than to incomes at the origin. This suggests that the booming demand for low-skill labor in Malaysia and the Persian Gulf countries in the 2000s is key in attracting many Nepali workers.

⁷Providing information may not be sufficient to change behaviors in other contexts (see [Bryan, Chowdhury, and Mobarak, 2014](#), for instance), especially when other constraints are more binding. In addition, the content of the information, its manner of presentation, the identity of the information provider, and the identity of the recipient may matter in determining the effectiveness of providing information (see [Dupas, 2011b](#), for a review of the role of information in the context of health).

By 2011, one out of every four households had an international work migrant and almost a fifth (18 percent) had a migrant in destinations outside India. More than a fifth (22 percent) of Nepal’s male working-age population (15-45) is abroad, mostly for work. This surge has been driven by work-related migration to these primary destinations: Malaysia, Qatar, Saudi Arabia, and the United Arab Emirates. This type of migration is typically temporary with each episode lasting 2-3 years.⁸ In many of the countries, especially in the Persian Gulf, a work visa is tied to specific employment with a specific employer.⁹ It is rare that such migrants eventually end up permanently residing in the destination countries.

The outflow of Nepali workers to these countries has continued to increase in recent years. Appendix Figure A.1 shows the numbers of work permits granted by the Department of Foreign Employment (DoFE) for Nepali workers seeking employment abroad.¹⁰ In 2013 alone, the share of males acquiring work permits was about 7 percent of the adult working-age population in the country. As a result, remittance income as a share of national GDP increased from a mere 2.4 percent in 2001 to about 29 percent in 2013 (The World Bank).

The process of finding jobs in these destination countries is heavily intermediated. Potential migrants typically contact (or are contacted by) independent local agents who link them to recruitment firms, popularly known as “manpower companies”, in Kathmandu. These local agents are typically fellow villagers with good contacts in the manpower companies who recruit people for foreign employment from their own or neighboring villages. In addition, most local agents also help potential migrants obtain passports and other related travel documents. The manpower companies receive job vacancies from firms (or employment agencies) abroad. They are responsible for screening (if at all) and matching individuals with job openings, processing contracts, obtaining necessary clearances from the DoFE, obtaining medical clearances, arranging for travel, visa and other related tasks. Both local agents and the manpower companies receive a commission, which potential workers pay prior to departure. It is unclear what fraction of the total costs of intermediation is borne by the employer, the employee, and what portions of the service charge go to the local agents and the manpower companies.¹¹

With a large share of the adult male population working mostly in a handful of destination countries, one might expect that information about the risks and rewards of migration would flow back home. Information, especially about earnings abroad, would be expected to flow well among potential work migrants though information about mortality rate, due to its rare occurrence, may be harder to learn. The potential migrants could even use the social network of current migrants to find work abroad (as in Munshi, 2003).

However, there is a growing sense among policymakers that potential migrants do not have proper information about the rewards of migration. Anecdotes abound on how migrants discover the true nature of their jobs to their frustration and dissatisfaction only upon arrival at their destination. Since the intermediaries are paid only when people migrate, they have financial incentives to distort the information they provide, drawing potential migrants abroad. Though migrants need contracts from employers to receive clearances prior to migration, recruitment agents and agencies commonly acknowledge that many of these contracts are not honored (the potential migrants may or may not be aware of this). Further, a large share of the potential migrant earnings comes from over-time compensation, which may not be explicitly mentioned in the contracts that workers receive. Because of these varied and biased sources of information, and because of somewhat fraudulent paperwork practices, potential migrants are often misinformed about their potential earnings.

Similarly, policymakers and journalists alike are of the opinion that potential migrants are submitting

⁸The modal migration duration to the Persian Gulf countries is 2 years and to Malaysia is 3 years.

⁹Naidu, Nyarko, and Wang (2014) study the impact of relaxing such a constraint in Saudi Arabia.

¹⁰The Government of Nepal has allowed private recruitment of workers to certain countries since the mid 90s upon clearance from the Ministry of Labor. The Department of Foreign Employment was established in December 2008 to handle the increased flow of migrant workers to these destinations. The DoFE numbers presented here exclude work migrants to India and to other developed countries.

¹¹Though the Government of Nepal has agreements with some countries that employers, not potential workers, must pay the cost of migration (including travel costs and intermediation fees), the agreements do not seem to hold in practice. The amounts potential work migrants expect to pay is, in reality, higher than the cost of travel and reasonable levels of intermediation fees.

themselves to high risk of mortality by migrating to these countries. In recent years, national and international media have given considerable attention to the numbers of Nepali workers who die abroad, and to the exploitative conditions they work under. (see [Pattisson, 2013b](#), and several ensuing articles in *The Guardian*, for instance). With a distinctly humanitarian perspective, they portray the system, as a ‘modern-day slavery’. This focus could give potential migrants a misleading impression of mortality rates, as the stocks of Nepali migrants in these countries are rarely included in these reports. Further, deaths of men of the same age group in Nepal rarely receive media or policy attention unless they are a result of some horrific accident. Such biases in reporting could make it much harder for potential migrants to be accurately informed about the underlying death rates from migration abroad.

All of this culminates in a belief among policymakers that potential migrants, knowingly or unknowingly, are trading high risks at unreasonably low prices. However, policymakers’ beliefs are, after all, beliefs – not often fully guided by rigorous evidence. For instance, there is no evidence on potential migrants’ actual beliefs on mortality rate and whether they actually respond to media coverage of deaths. The higher death tolls could, in fact, simply reflect increased migration to those destinations as a result of increased opportunities abroad.

2.2 Study setting and sample

The baseline survey for this study and the experiment was conducted at the Department of Passport (DoP) in Kathmandu in January, 2015. Though Nepali citizens can obtain a new passport from the office of the Chief District Officer in their respective district headquarters at a cost of US \$50, it takes almost 3 months to receive a passport. On the other hand, if they apply for their passports at the DoP in Kathmandu, they can opt for the ‘fast-track’ option and obtain their passport within a week at a cost of US \$100. Many potential migrants, who are often guided by local agents, use this expedited service to obtain their passports. DoP officials estimated that during the period of the study, an average of 2,500 individuals applied for passports every day. However, not everyone who has a passport will eventually migrate.¹² In fact, many of the study subjects mentioned that they were not sure whether they would eventually go for foreign employment and were applying for passports just to have the option of going abroad.

For this study, passport applicants who just finished submitting their applications were approached and screened for eligibility for the study. Any male applicant who expressed an intention of working in Malaysia or the Persian Gulf countries was eligible. Enumerators explained the purpose of this study, and those who consented to be interviewed were taken to a designated section on the premises of DoP for the full interview.¹³ At this stage, the passport applicants were told that the purpose of the study was to find out how well informed potential migrants were about work migration abroad, and to see how information affected their migration decision. They were not told the exact nature of the information treatment.

The DoP office is a busy environment, yet the study was conducted in an area reserved exclusively for the study, free from outside interference. The DoP restricts non-applicants from entering the premises of the office, due to the volume of applicants, so no family members, friends, or local recruitment agents interfered with the interviews.¹⁴

Between January 4, 2015 and February 3, 2015, we interviewed 3,319 eligible potential migrants. Though the study was conducted in the DoP in Kathmandu, it appears to be representative of the population of current migrants in the country (Appendix Table [A.2](#)). The average potential migrant in the study sample is 27.6 years of age and has 7.5 years of schooling, quite similar to the age and schooling of current migrants in the 2011 census (top panel, columns 1 and 2). It is important to note that the study sample is predominantly low-skilled. Only 15 percent of the sample had completed more than 10 years of

¹²The estimates of the number of Nepali leaving the country hovers around 1,000 to 2,000 per day, many of whom may have old passports.

¹³Due to the large volume of people submitting their applications, the enumerators could not systematically keep a record of how many people they approached in a day. Though the office accepted applications from 8:00 AM until 4:00 PM, most eligible applicants chose the morning hours. On most days, the eligible applicants stopped coming in by 2:00 PM.

¹⁴The DoP made an exception for this study by letting the enumerators inside the premises and allowing them to conduct the interviews.

schooling, and only 2 percent had any college education. The study sample is predominantly rural and participants are equally likely to be from the southern plains (Terai) as from the hills and mountains – again, similar to the distribution of migrants in the census (second panel, columns 1 and 2). Compared to the migrants in the census, the study sample is slightly more likely to be from the mid-western and far-western regions. However, this difference could reflect a change in the actual trend as migration has become more ubiquitous in 2014 than it was in 2011. Similarly, the distribution of migrants looks similar across Malaysia and the Gulf countries in both the samples (third panel, columns 1 and 2).

There are three distinct groups of potential migrants in the study sample. There are 1,411 “inexperienced” potential migrants who have not yet migrated abroad for foreign employment. Of the remainder, 1,341 are “experienced” potential migrants, those who have migrated abroad for work abroad, but do not have an existing employment contract abroad. That is, these individuals have to search for employment again. The remaining 567 potential migrants are “on leave” from their work abroad. That is, they have an existing employment contract abroad and do not have to look for work. They are back in Nepal on a holiday and must renew their passports. For the remainder of the paper, I will use this classification unless explicitly noted otherwise.

The average inexperienced potential migrant is younger and slightly more educated than the experienced one, is 6.4 years younger and has 0.7 more years of schooling (Appendix Table A.2, columns 3 and 4). The difference in schooling is likely to represent the national cohort trend in schooling more than anything else. The geographic distribution of these two groups is quite similar, except that the inexperienced are more likely to be from mid-western and far-western regions than are the experienced ones – again possibly reflecting a geographic trend as migration became more ubiquitous over the years. In terms of destination choices, the inexperienced are more likely to want to go to Malaysia than the experienced.

3 Survey design and empirical strategy

The first part of this section describes the nature of the information provided, along with the experimental design. I then describe the process by which expectations on earnings and mortality were measured. The second part of this section discusses balance checks, and the third part presents the empirical specification.

3.1 Design of the informational intervention

Each of the eligible male subjects who consented to be interviewed was asked questions on basic demographics, location and previous migration experience. They were also asked to name the destination country they were most likely to go to. They were given some information relevant to their chosen destination. The information was provided verbally by the enumerators as well as in the form of a card that the respondents could keep for the duration of the interview. The precise content of the information depended upon a random number generator built into the data-collection devices.

There were three types of information that could be provided to the individuals: basic information, wage information, and death information. When individuals were selected to receive either the wage or the death information, they could get either the ‘high’ variant of the information or the ‘low’ variant. I picked two different information treatment arms because there was no pre-existing information on the beliefs of potential migrants. Providing two different information treatments would ensure that at least one of them would serve as new information to the potential migrants. Since deliberate misinformation was already a concern in this context, I chose not to deceive them. For the wage information, the only source of information available was the wage reports made by previous cohorts of migrants to the DoFE in their application to receive the permit for employment abroad. Therefore, two different years were chosen to generate the ‘high’ and the ‘low’ variant of the wage information, and the year the information was pertinent to was stated clearly when providing the information. For the death information treatment arms, I provided information on the death toll from a reference district. I varied the reference district to generate the ‘high’ and ‘low’ variants. Death toll was provided instead of death rates to emulate the kind of information they would see in reality. Further, providing respondents with numbers prevents them

from repeating the same rates when they were asked about their mortality beliefs later in the survey.

The following lays out the precise wording and the content of the information treatments:

1. Basic information: This information was provided to everybody. This contained information on the number of people leaving Nepal for work in the subject’s destination of choice. For example:

Every month, XXXX people from Nepal leave for work in DEST

2. Wage information: A randomly chosen third of the respondents did not receive any information on wages. Another third received the ‘high’ variant with information for 2013, net earnings of \$5,700, whereas the remainder received the ‘low’ variant with information for 2010, net earnings of \$3,000, using the exchange rate at the time of the survey. However, simply adjusting the ‘low’ 2010 numbers for the observed exchange rate increase of 30 percent and yearly inflation rate of 10 percent, would bring the estimate quite close to the ‘high’ 2013 numbers. As the year of the statistic was clearly mentioned in the information provided to them, many seemed to have accounted for the changes themselves. Therefore, the manipulation within the two groups is not too large. In any case, the exact wording of the information was:

In YYYY, migrants to DEST earned NRs. EEEE only in a month

3. Death information: As with the wage information treatment, a randomly chosen third of the respondents received no information on deaths, another third received the ‘high’ variant and the remainder received the ‘low’ variant. The information provided was the number of deaths of Nepali migrants in their chosen destination from some pre-determined district. For the ‘high’ variant, the district was chosen from the top 25th percentile of the mortality distribution in the country, whereas for the ‘low’ variant, the district was chosen from the bottom 25th percentile.¹⁵ If the national migrant stock in the destination countries was evenly distributed throughout all the districts, the ‘high’ death information translated to an annual mortality rate of 1.9 per 1000 migrants and the ‘low’ death information translated to a mortality rate of 0.5 per 1000 migrants. The exact wording of the information was:

Last year, NN individuals from DIST, one of Nepal’s 75 districts, died in DEST

A built-in random number generator determined what wage and death information (if any) would be provided to each of the respondents. The assignment of wage information treatments was independent of the assignment of death information treatments. Figure 1 shows two examples of the cards shown to respondents. On the left is an example of the card shown to a respondent intending to migrate to Malaysia for work and who is chosen to receive a ‘high’ wage information and a ‘low’ death information. On the right is an example of the card shown to a respondent intending to migrate to Qatar for work and who is chosen to receive the ‘high’ death information and no wage information. The full set of information provided is shown in Appendix Table A.3. Table 1 shows the breakdown of the sample by randomization group.

3.2 Eliciting beliefs on earnings and mortality rate

After the cards were shown to the respondents, they were asked questions designed to elicit their beliefs on earnings and mortality upon migration.¹⁶ As discussed in the Introduction, the approach and questions

¹⁵Only 1.4 percent of the candidates that received any death information were from the same district as the reference district. 6.8 percent were from a neighboring district of the reference district.

¹⁶During the pilot, I tried a variant of the questionnaire that elicited expectations both before and after the information intervention. The elicitation of expectations constituted the bulk of the questionnaire, and therefore respondents resorted to anchoring their answers when the same question was asked after the information intervention. Hence, I decided to elicit expectation only once in the survey after the information intervention. Consequently, I compare expectations across people of different groups.

derive from the probabilistic expectations elicitation method of [Manski \(2004\)](#) and [Dominitz and Manski \(1997\)](#) adapted to eliciting subjective probability with visual aids in developing countries. At first, the respondents were asked to mention a range of possible monthly earnings from migration:

If you worked in this job, what is the min/max earnings that you will make in a month?

When enumerators entered the range in their data-collection devices, the software uniformly divided the range into five categories. Enumerators then asked a more detailed question to elicit the entire probability distribution of their beliefs across the five categories spanning the range of their expected earnings. The script for the question to elicit the probability density function was:

Now I will give you 10 tokens to allocate to the 5 categories in the range that you mentioned. You should allocate more tokens to categories that you think are more likely and fewer tokens to categories that you think are less likely. That is, if you think that a particular category is extremely unlikely, you should put zero tokens. Similarly, if you think that a particular category is certain, you should put all the tokens in that category. If you think all of the categories are equally likely, you should put equal number of tokens in all of them. There are no right and wrong answers here, so you should place tokens according to your expectation about your earnings abroad. Note that each token represents a 1 in 10 chance of that category being likely.

This process of using tokens is similar to that of using beans by [Delavande and Kohler \(2009\)](#) to elicit subjective probability distribution on mortality.

To elicit the range of their beliefs on mortality rates abroad, the following leading question was asked:

Suppose that 1000 people just like you went to [DEST] for foreign employment for 2 years. Remember that these individuals are of the same age, health status, education, work experience and have all other characteristics as you do. Suppose all of them work in the same job. Now think about the working conditions and various risks they would face during their foreign employment. Many people will be fine but some get unlucky and get into accidents, get sick or even die. You may have heard about such deaths yourself. Taking all this into account, of the 1000 people that migrate for foreign employment, at least (most) how many will die within 2 years upon migrating to [DEST]?

The data-collection devices again automatically divided the range uniformly into five categories based on the range of expected mortality.¹⁷ Enumerators then asked the subjects to distribute the ten tokens across the five categories based on their beliefs, using a script very similar to the one described above. Enumerators were trained extensively on the scripts and were instructed to be patient with the respondents. They were instructed to repeat the script as well as give additional explanations if the respondents seemed unclear on what was being asked.

To minimize any confusion among respondents, a few confirmatory follow-up questions were added to ensure that the question captured their true beliefs. For instance, if someone answered “50” to the first question, a follow-up question would confirm whether they mean 1 out of 20 individuals would die. If, in response to the follow-up question, the respondent felt that his initial answer was not in line with his beliefs, he would reconcile his estimate.

3.3 Balance

Individuals in the initial survey were randomly assigned to various treatment groups based on a random number generator built into the software of the data-collection devices. Based on the random number, an appropriate intervention message would appear on the screens, which the enumerators would read out to the subjects after giving them the corresponding information cards. A few characteristics of the respondents were collected prior to randomization: their age, years of schooling, prior migration experience, location and their intended destination. I check for balance by comparing means for each of these

¹⁷In cases where respondents gave a range less than 5, they were asked to place tokens in the integer values that they mention. For instance, if they mentioned 1 and 4 as their range, they were asked to place token in categories: 1, 2, 3, and 4.

characteristics between any two arms of each type of intervention. The results show that randomization balances these characteristics across treatment cells.¹⁸

Since most of my analysis focuses on subgroups of inexperienced and experienced migrants, I also check for balance within these subgroups. Within each subgroups, the joint test across all outcomes fails to reject equality across the treatment arms at conventional levels.¹⁹

3.4 Empirical specification

The randomized nature of the intervention implies that the basic empirical specification to estimate the effect of the programs is quite straightforward. I estimate

$$y_i = \delta_1 \text{DeathLo}_i + \delta_2 \text{DeathHi}_i + \alpha_1 \text{WageLo}_i + \alpha_2 \text{WageHi}_i + X_i \beta + \varepsilon_i \quad (1)$$

where y_i is the outcome for individual i , DeathLo_i , DeathHi_i , WageLo_i and WageHi_i are indicators of whether individual i receives any of these treatments. X_i are a set of controls which includes full set of interactions between education categories, age categories and location, indicators for the chosen destination, and enumerator fixed effects. ε_i represents the error term, and I allow arbitrary correlation across individuals at the date of initial survey \times enumerators level. The standard errors remain quantitatively similar with alternative clustering specifications.

4 Does providing information affect perceptions?

Using data from the control group (which does not receive any information on wages or deaths), the first part of this section establishes that potential migrants are indeed misinformed about earnings and mortality risks of migration. To do so, I only use the data on the subjects that did not receive any informational intervention. In the second part of this section, I estimate the impact of the informational treatment on perceptions about mortality and earnings.

4.1 Descriptive evidence on the extent of misinformation

Misinformation in expected earnings

Misinformation about earnings abroad may persist even in cases where a large share of the population is a migrant. As discussed earlier, local agents and recruitment companies have an incentive to exaggerate earnings information to induce potential migrants to go. Moreover, previous migrants may also provide biased information. They may lie about their earnings to their social network if they fear social taxation, or feel pressure to maintain any social prestige they gain from having migrated abroad (as in [McKenzie, Gibson, and Stillman, 2013](#), [Seshan and Zubrickas, 2015](#), and [Sayad, Macey, and Bourdieu, 2004](#)). This has fueled concern among policymakers that potential migrants may overestimate their earning potential abroad.

However, systematic evidence on the degree of such misinformation is rare. To date, there are no credible surveys of migrants in the destination countries to determine the actual earnings of Nepali migrants.²⁰ Further, the government does not have a way to track actual earnings abroad. The Department of Foreign Employment only receives reports of contractual earnings from potential migrants when they apply for permits to work abroad, and even this data is not publicly available. In this section, I use the survey data I collected to compare potential migrants' expectations with a few benchmarks to establish that potential migrants are misinformed on their earning potential.

¹⁸The joint tests across all comparisons have a p-value of 0.65 for comparisons within death information treatment arms and 0.48 for comparisons within wage information treatment arms. Detailed results available on request.

¹⁹Results available upon request.

²⁰The closest to this approach is the Nepal Migration Survey of 2009 conducted by the [The World Bank \(2011\)](#), which asked household members about the earnings of the foreign migrants. It also asked the returnees the actual earnings they made during their migration episode. Other than the fact that this data was collected almost six years ago, it also suffers from reporting biases of the household members, and reflects the misinformation within the household as highlighted in [Seshan and Zubrickas \(2015\)](#).

An inexperienced potential migrant expects to earn more than the experienced ones (those who have migrated before).²¹ On average, an inexperienced potential migrant expects to earn \$12,300 (net) from one migration episode, which is 26 percent more than the expectation of those who have migrated before (Figure 2). This pattern holds for most of the distributions of earnings expectations. Above the 20th percentile, each quantile of expected earnings of inexperienced potential migrants is higher than the corresponding quantile for those who have migrated before. For instance, the median inexperienced potential migrant expects to earn 23 percent more compared to the median migrant with prior migration experience, and the extent of the discrepancy remains about the same even at the 95th percentile.

It is quite striking that the inexperienced migrants expect to earn more than those with greater experience and arguably better training. However, the sample of experienced migrants in this study is non-random: it only includes those who want to migrate again. If good experience in migration makes them more likely to migrate again (as in Bryan, Chowdhury, and Mobarak, 2014), then the extent of misinformation presented here is likely to be a lower-bound estimate of the actual gap in information. If experienced migrants migrate for lower earnings abroad because their outside option of staying home is much worse, then the extent of misinformation here is likely to be an upper bound. In the current context, however, the former channel is more likely to be predominant.²²

The expectations of potential migrants are also much higher compared to the information provided to them. As Figure 2 shows, only 15 percent of the inexperienced potential migrants and 10 percent of those who have migrated before expect to earn less than the ‘high’ information provided of \$5,700. Virtually no one expects to make less than the ‘low’ information provided of \$3,000. However, the official figures may not reflect the actual earnings of migrants abroad as it does not include over-time pay, which is often a large share of a migrant worker’s compensation abroad.

In any case, these comparisons, though not perfect, are suggestive of large information gaps between the earnings expectations of the inexperienced potential migrants and the actual earnings they are likely to accrue once abroad. The actual extent of misinformation for inexperienced potential work migrants is likely to be bigger than 26 percent but smaller than that suggested by the comparison with the official figure.

Misinformation on expected mortality rate

Contrary to the popular notion, potential migrants seem to overestimate their mortality rate abroad by a large factor. The average expected two-year mortality rate of inexperienced migrant is 28 per 1000, which is 68 percent higher than the expectations of those who have migrated before. Figure 3 shows that not just the mean, but every quantile of expected mortality rate of inexperienced potential migrants is higher than the corresponding quantile for those who have prior migration experience. For instance, the median expected mortality rate for the experienced is 10 per thousand, whereas it is 5.8 for those who have migrated before. However, these expectations are much higher compared to the actual mortality rate faced by the migrants once abroad. The deaths data from the Foreign Employment Promotion Board, the authoritative data source for mortality of Nepali workers abroad, and migration data from the Census and the Department of Foreign Employment show that the two-year mortality rate of Nepali workers in these destination countries is 1.3 per thousand.²³ Only 3 percent of inexperienced potential migrants and 11 percent of those who have migrated before expect the mortality rate to be lower than what it actually is. The overestimation at the mean is 21 times the actual figure for the inexperienced ones and 13 times for those who have migrated previously. The extent of overestimation is smaller at the median, but still 8 and 4 times the actual rate for both inexperienced and experienced (those who have

²¹Note the change in definition of experienced migrants for this part. For this part, experienced also includes those who are back on vacation and have an existing employment contract abroad.

²²In the data collected by The World Bank (2011), returnees who earned more are more likely to express a desire to migrate again in the near future. Those who earned above the median during their foreign-migration experience are 18 percent more likely to express a desire to migrate again.

²³To put this number in perspective, the mortality rate of average Nepali men with the same age distribution as the sample is 4.7 per 1000 for a two-year period. The mortality rate of average US men with the same age distribution as the sample is 2.85 per 1000 for a two-year period. Note that this information on relative risks was not provided to the potential migrants.

migrated before), respectively.²⁴

The difference between the actual and reported mortality rates raises the question of whether the reports are errors in the reporting of their underlying beliefs or a truthful reporting of their mistaken beliefs. Reporting of the beliefs could be wrong because, despite measures taken during the interview process, subjects may not be able to articulate very small probabilities well (though they say the risk is 5 per 1000, it may be the same for them as 5 per 900, for instance). On the other hand, beliefs could be inaccurate because of biases in information sources as discussed above or because of the way potential migrants form beliefs. For most of the paper, I treat the reported beliefs as a true reporting of their (biased) beliefs, and I return to address this issue in Section 7 with evidence which is consistent with this.

4.2 Impact of information on beliefs

In this section, I discuss the effect of information on the beliefs about earnings and mortality risk. To the extent that potential migrants (especially the inexperienced ones) overestimate their mortality risks and earning potential, information, when effective, would lower their perceived mortality risks and earning potential.²⁵

Effect on perception of mortality risks

As expected, Table 2 shows that the ‘low’ death information lowers potential migrants’ perceived mortality risk of migration by 4 per thousand which is 20 percent of the control group mean (column 1). The effect with the controls (column 2) is only slightly larger. Other information treatments do not seem to alter the perceived mortality rate of migration by a substantive amount. For inexperienced potential migrants, providing the ‘low’ death information lowers their perceived mortality risk of migration by 7.4 per thousand, which is 27 percent of the control group mean (column 3). Adding controls (column 4) slightly increases this point estimate. The ‘high’ death information lowers expected mortality rate by 1.8 per thousand (3.9 with control), but the effect is not very precise (columns 3 and 4). These effects are consistent with the fact that potential migrants, especially the inexperienced, overestimate their expected mortality rate relative to the truth as well as relative to the information provided to them.²⁶

Furthermore, the ‘low’ death information treatment also lowers the perceived mortality risk of the experienced by 2.2 per thousand (3 with controls), which is 13 percent (17 with controls) of the control group mean (columns 5 and 6). These effects, though large, are estimated imprecisely. The ‘high’ death information treatment has an imprecisely estimated positive effect on expected mortality rate for this group. This could be because the experienced group has a prior much higher compared to the inexperienced group.

Effect on perceptions of earnings

As can be expected from the direction of misinformation, Table 3 shows that the information interventions reduced the expected net earnings for the inexperienced potential migrants.²⁷ The ‘high’ wage information

²⁴The finding that (young) adults overestimate their mortality expectation is not uncommon. Delavande and Kohler (2009) find that males aged under 40 in rural Malawi have median mortality expectations that are over 6 times the true mortality rate with higher bias for younger cohorts. Similarly, Fischhoff, Parker, de Bruin, Downs, Palmgren, Dawes, and Manski (2000) find that adolescents aged 15-16 in the US overestimate their mortality rate by a factor of 33 even after excluding the “50 percent” responses.

²⁵A simple Bayesian learning model with normally distributed priors and signals can guide the empirical analysis of the impact of information treatments. A slightly detailed and specific discussion in light of such a model is available upon request.

²⁶I also find that the inexperienced potential migrants update more drastically when the reference district happens to be their own or a neighboring one, suggesting that potential migrants consider signals from their own or neighboring districts as more precise. In fact, among those provided ‘low’ death information from a reference district that happens to be their own or a neighboring district, the average expected mortality rate for those is only 15 per 1000, almost half of the control group mean. But since there are only 30 individuals in this group, I do not conduct further analysis using this variation.

²⁷The net earnings from migration is their expected monthly earnings multiplied by the modal duration of a migration episode to their chosen destination after subtracting the expected fees of migrating abroad to that destination. All the

reduced the expected net earnings by \$1,100, which is 8 percent of the control group mean (column 3). The ‘low’ wage information reduced expected earnings by \$860, only slightly smaller than the effect of the ‘high’ wage information treatment. As discussed in Section 3.1, the information treatments differed in terms of the year of the statistic, but were similar after the numbers were adjusted for the inflation and the increase in exchange rate of the destination countries. Therefore, it is not surprising that the effects of these information treatments are also quite similar. In fact, this suggests that inexperienced potential migrants are quite sophisticated in the way they treat the wage information treatment.

Neither of the wage information treatments had any effect on the earnings expectation of the experienced potential migrants (Table 3, columns 5 and 6). The estimated effects are both small and statistically indistinguishable from zero. The lack of effect for the experienced potential migrants is expected as they have better source of information about their earnings potential.

5 Does information affect migration and other outcomes?

The initial survey in January 2015 collected phone numbers for the respondent, his wife and a family member (when available). These subjects were contacted again in April 2015 through a telephone survey. The primary purpose of the telephone survey was to determine the migration status of the initial respondent. Upon contact and consent, enumerators administered a short survey, collecting information on migration-related details, job search efforts, and debt and asset positions. The first part of this section describes the follow-up survey protocols and discusses attrition. The second part discusses the effect of information on migration choices and robustness to various definitions of migration. The last part of this section describes the impact of informational interventions on other outcomes measured during the follow-up survey.

5.1 Follow-up survey and attrition

Follow-up survey and protocol

These April 2015 follow-up telephone surveys were conducted from the data collection firm’s office under close supervision of two supervisors. Enumerators were given specific SIM cards to be used during the office hours for the purposes of the follow-up survey. A protocol was developed to reach out to as many initial respondents (or their family members) as possible. Enumerators would first call the initial respondent’s phone number followed by the wife’s and the family member’s phone number if the former could not be contacted. If anyone picked up the phone, enumerators confirmed the identity of the initial respondent or their family members and made sure that they were talking about the correct initial respondent. Then enumerators noted the migration status of the initial respondent: if he was available, they administered the follow-up survey to him; if he had already migrated, they administered it to the telephone respondent (usually the wife, siblings or parents). In case the initial respondent was known to be in the country, enumerators made up to three attempts to administer the follow-up survey to him, before resorting to the telephone respondent.

If no one could be contacted on any of the phone numbers, then the enumerators would try the set of phone numbers again at another time or day. Enumerators attempted to call each set of numbers for six days with at least one attempt every day before giving up on contacting the subjects. If the telephone respondents were busy at the time of the call, enumerators made an appointment with them and contacted them at a time of their choosing. This protocol was designed to ensure that the subjects, or their family members, were contacted whenever possible and the failure to contact them either meant that the telephone numbers provided were either wrong or that the subjects had already migrated.

effects of the interventions are concentrated in expected monthly earnings with no effect in expected fees (monetary costs) to migrate. The results are almost identical if the analysis is repeated on the (gross) earnings from migration. I use net earnings simply for ease of interpretation.

Attrition

Following this protocol, the enumerators were able to conduct detailed follow-up survey with 2,799 initial respondents (or their family members) between March 26 and April 24, 2015.²⁸ This represents 84 percent of the overall sample, 85 percent of the inexperienced potential migrants, 86 percent of the experienced potential migrants, and only 78 percent for those who had an existing contract abroad and were back only on a leave. Since the main outcome of interest of the study is migration, attrition from the survey is also potentially an outcome to the extent that I am less likely to obtain information about a migrant.

I consider three separate measures of attrition. The first, Attrition-F, considers whether the full follow-up survey was conducted or not. The second, Attrition-M, considers whether it was possible to determine the migration status of the initial respondent. This measure differs from the first measure when enumerators were able to determine the migration status of the individuals but were not able to conduct the full follow-up interview. The attrition rate, according to this measure, is 13 percent for the overall sample, 12 percent each for the samples of inexperienced and experienced potential migrants. Among the 13 percent of the subjects with unknown migration status, it is possible to know about the attempted calls to the numbers provided by them. The phones of many in this group were switched off or not in operation, but for a few, the numbers provided were wrong (confirmed either by the telephone operator or by the person who answered the phone). In very few cases, the respondents refused to identify themselves or provide any information on the study subjects. Hence, my third measure of attrition (Attrition-W) indicates confirmed wrong numbers or refusal to interview. According to this measure, the attrition rate is about 3 percent in the overall sample as well as the subgroups.

The first measure of attrition, Attrition-F, is correlated with the information treatments. As the top panel of Table 4 shows, this measure of attrition is higher for death information treatments (marginally significant) and lower for wage information treatments (columns 1 and 2). For the inexperienced potential migrants, the ‘high’ wage information reduces this measure of attrition by 4 percentage points, significant at 10 percent level (columns 3 and 4). For the experienced potential migrants, the ‘low’ death information increases attrition by 6 percentage points (column 5).

The second measure of attrition, Attrition-M, is also correlated with information treatments. As the second panel of Table 4 shows, this measure of attrition matches the correlation pattern observed for Attrition-F. For the overall sample, death information treatments increase attrition whereas wage information treatment reduce it (columns 1 and 2). For the inexperienced potential migrants, in particular, the ‘high’ wage information treatment lowers this measure of attrition by 4 percentage points (columns 3 and 4). Whereas, for the experienced potential migrants, the ‘low’ death information treatment increases attrition by 6 percentage points (column 5).

The third measure of attrition, Attrition-W, is not correlated with any of the information treatments (bottom panel, Table 4). This measure of attrition is low and, more importantly, not correlated with the treatment status. Particularly for the inexperienced migrants, even the direction of the effects does not match the pattern observed for other measures of attrition.

Furthermore, attriters look broadly similar to non-attriters except for a few characteristics.²⁹ Attriters, by all three measures, have similar characteristics as non-attriters in except for completed years of schooling. For both the subgroups, I cannot reject the joint null that attriters and non-attriters have the same age, geography and locations. However, attriters have lower completed schooling by more than 1 year compared to non-attriters. This also makes some intuitive sense as those who have fewer years of schooling are likely to have fewer cellphones in the family or could be more likely to misreport phone numbers. However, as seen in Table 4, correlation patterns between treatments and attrition measures remain the same despite adding controls, including schooling.

More importantly, attriters, as classified by the first measures, Attrited-F and Attrited-M, had anticipated earlier migration even during the initial survey in January. In the initial survey, respondents were asked to assign 10 tokens to five bins representing their likely time of migration: 0-3 months, 4-6

²⁸Follow-up surveys ended after a 7.8 magnitude earthquake struck Kathmandu on April 25, 2015, one day ahead of the planned end date. In the last working day (April 24), only 26 interviews (0.9 percent of total successful follow-up interviews) were conducted. When the follow-up interviews were in full swing, about 120 successful follow-up interviews were conducted in a day.

²⁹Results not shown, but available on request.

months, 8-9 months, 10-12 months, and 12+ months. Compared to non-attriters, attriters by those first two measures were more likely to indicate certainty of migrating within three months or a much quicker expected migration time. However, attriters by the third measure, Attrited-W, did not have different expectations than non-attriters.

This suggests that attriters by the first two measure attrited precisely because they have migrated. To incorporate, I define my migration outcome based on different assumptions on the attriters. In measures of migration and other outcome that suffer from missing variables problem, I also estimate the [Lee \(2009\)](#) bounds of effects.

Since the two wage information treatments seem to have similar effects on the expected mortality and earnings as well as attrition, I pool the two treatments into a single wage information treatment group from this point forward. The results remain essentially the same with the more disaggregated specification as well.

5.2 Effect on migration

As discussed above, I have various measures of migration status based on various assumptions that I make about the attriters. For those whose migration status is observed, I treat them as migrants if they have already left or are confirmed to leave within two weeks of the follow-up survey.³⁰ For my preferred measure of migration (Migrated-P), I assume all attriters are migrants except those subjects who provided wrong phone numbers or refused to provide any information to the enumerators. That is, this measure of migration treats Attrition-W as missing and considers those with switched off or unavailable phones as migrants. With this measure, as shown above, missing data is uncorrelated with information treatment and hence the estimates of equation 1 are unbiased. Furthermore, those with phones switched off or unavailable during the follow-up had expected to migrate earlier and are indeed more likely to be actual migrants.

For the inexperienced potential migrants, migration decision is consistent with the change in expectations about earnings and mortality rate. As Table 5 shows, ‘low’ death information increased migration by 7 percentage points whereas the wage information treatments lowered migration by 6 percentage points (top panel, columns 3 and 4). These effects are over 20 percent of the migration rate observed in the control group. The effects are also what one would expect, given the change in expectations that the treatments induced. The ‘low’ death information lowered the expected mortality rate abroad, making the destinations more appealing and inducing more them to migrate. On the other hand, the wage information treatments lowered the expected earnings abroad, making destinations less attractive and inducing fewer of them to migrate.

The effect on expectations also resonate on migration decision of the experienced potential migrants. As Table 5 shows, the ‘low’ death information, which lowered expected mortality rates abroad increased migration by 9 percentage points (top panel, columns 5 and 6). On the other hand, the wage information treatments, which failed to induce a change in expectations, also failed to induce a migration response.

The effect of information treatments remain qualitatively and quantitatively similar for the second measure of migration (Migrated-A). This measure of migration treats all attriters as having migrated. As the second panel of Table 5 shows, the effect of information treatments on this measure of migration is quite similar to the effect on the preferred measure (Migrated-P).

Because of the missing variables problem, the effect of the information treatments on the basic measure of migration (Migrated-B) is biased. This measure treats all those individuals with unconfirmed migration status (Attrited-M) as missing. For the inexperienced potential migrants, ‘low’ death information is not correlated with Attrited-M, and hence, as Table 5 shows, the effect on this measure of migration is almost the same as for the previous two measures of migration (bottom panel, columns 3 and 4). However, the effect of wage information treatment is two-thirds the size of the effect for other measure of migration. This is precisely what one would expect if wage interventions led the potential migrants to not migrate and therefore more likely to be found during the follow-up survey.

The third panel of Table 5 shows the results for this measure of migration (Migrated-B). For the

³⁰The results are essentially the same if the confirmed departure time is changed to 1 week or 0 week instead of 2.

inexperienced potential migrants, ‘low’ death information treatment increased migration by 7 percentage points. This effect, significant at 5 percent level, is almost 30 percent of the migration rate in the control group. For this group, death ‘high’ information also increases migration slightly (9 percent) but the effect is insignificant. Note that since missing data (Attrition-M) is not correlated with death interventions, these points estimates similar to the preferred measure of migration. However, since missing data (Attrition-M) is correlated with wage information treatments, the point estimate for wage information treatments is lower and not significantly different from zero at conventional levels. This is precisely what one would expect if wage interventions led the inexperienced potential migrants to not migrate and therefore more likely to be found during the follow-up survey. Similarly, for the experienced migrants, ‘low’ death information, which increased attrition, has a smaller effect than for other measures. Again, this is what one would expect if ‘low’ death information led the experienced potential migrants to migrate more and therefore less likely to be found during the follow-up survey.

Lee (2009) bounds on effect of the information treatments on the basic measure of migration (Migrated-B), also supports that attrition (Attrited-M) captures unobserved migration. As Table 6 shows, the bounds on the effects of the death information treatments for inexperienced potential migrants are tight and similar in magnitude as the effect on the preferred measure of migration (second panel, columns 1 and 2). However, the lower bound on the effect of wage information on migration is similar to the effect on the preferred measure (Migrated-P) whereas the upper bound on the effect is similar to the effect on the basic measure (Migrated-B). That is, selectively dropping a random subset of those who migrated and are from the wage information treatment group, in order to balance attrition, produces an estimate not too different from the effect on the basic measure (Migrated-B). However, selectively dropping a random subset of those who did not migrate and are from the wage information treatment group to balance attrition produces an estimate different from the effect on the basic measure and very similar to the effect on the preferred measure (Migrated-P). This also suggests that attrition is likely to be more among migrants than non-migrants.

5.3 Effect on other outcomes

I also investigate the effect of the information treatments in other outcomes that were collected using the full follow-up survey.³¹ I find that the information treatments did not affect whether the potential migrants choose the same country or region (Persian Gulf versus others) as they did during the initial survey. Furthermore, none of the information treatments changed whether households, particularly those of inexperienced migrants took out new loans, paid back old loans, or bought new assets (bottom panel).

However, I find that wage information increases the chance that inexperienced potential migrants seek new manpower companies. The inexperienced migrants receiving wage information are 6 percentage points more likely to consult different manpower companies after the initial survey. This effect is 26 percent of the likelihood in the control group. This probably reflects an action that inexperienced potential migrants can take upon realizing that they had been misinformed. However, none of the information treatments affect whether they consult with family members or friends. Similarly, none of the information treatments affects any of these outcomes for the experienced potential migrants.

6 Estimates of VSL

Since the information treatments are effective in changing the expectations of inexperienced potential migrants concerning both earnings and mortality rate associated with migration, I estimate the value of a statistical life (VSL) for this group by using the information treatments as instruments. The first part of this section describes the methodology and the contribution of this paper in estimating VSL, the second presents the estimates for the pool of inexperienced potential migrants, and the third explores robustness. The final part estimates the VSL for various subgroups.

³¹Full result on these available on request.

6.1 Methodology and contribution

Schelling (1968) shaped the way economists think about VSL as the willingness to trade-off wealth W for a marginal change in the probability of death d holding everything else constant. That is,

$$VSL = \frac{dW}{dd}$$

holding everything else, including utility, constant.

The empirical approach to estimating VSL in this context can be motivated by a simple binary choice framework. The utility that a potential migrant i receives from migrating can be written as

$$U_i^M = \alpha + \beta d_i + \gamma W_i + \varepsilon_i$$

where W_i is the expected earnings from migration, d_i is the expected mortality risk from migration, and ε_i represents the unobserved individual specific factors that influence the utility from migration. The utility that the potential migrant i receives from not migrating is unobserved and can simply be written as $U_i^H = \alpha' + u_i$. Then the migration decision M_i of potential migrant i is given by

$$\begin{aligned} M_i &= \mathbf{1}(U_i^M > U_i^H) \\ &= \mathbf{1}(u_i - \varepsilon_i < \alpha - \alpha' + \beta d_i + \gamma W_i) \end{aligned}$$

with

$$E_i[M_i] = Pr(u_i - \varepsilon_i < \alpha - \alpha' + \beta d_i + \gamma W_i)$$

By making assumptions on the distribution of $\epsilon_i \equiv u_i - \varepsilon_i$, $\hat{\beta}$ and $\hat{\gamma}$ could be consistently estimated if d_i and W_i are not correlated with ϵ_i . But because of omitted variables (such as inherent ability or carefulness), W_i and p_i are likely to be correlated with ϵ_i (which includes, among other things, earning option and mortality risks of not migrating). To solve this problem, I use the exogenous variation in d_i and W_i generated by the informational interventions as instruments for d_i and W_i for the pool of inexperienced migrants.

Hence, I estimate the following system of equations

$$\begin{aligned} E_i[M_i] &= Pr(\epsilon_i < \alpha - \alpha' + \beta d_i + \gamma W_i) \\ d_i &= \mu_1 DeathLo_i + \mu_2 DeathHi_i + \mu_3 WageInfo_i + \eta_i \\ W_i &= \delta_1 DeathLo_i + \delta_2 DeathHi_i + \delta_3 WageInfo_i + \nu_i \end{aligned} \tag{2}$$

where $DeathLo_i$, $DeathHi_i$ and $WageInfo_i$ indicate whether potential migrant i receives the ‘low’ death information or the ‘high’ death information or any of the wage information.

To make progress in estimation, I assume that $(\epsilon_i, \eta_i, \nu_i)$ are individually and jointly normally distributed. Randomization guarantees that (η_i, ν_i) is independent of the informational treatments. Furthermore, with the assumption that the treatments did not change unobserved amenities associated with migration, the information treatment is also uncorrelated with ϵ_i .³² Given the random assignment of treatment and the assumption on error terms, maximum likelihood estimation of equation (2) yields the most efficient estimator of β and γ up to scale. Given this setup, VSL is simply the ratio of two estimates

$$VSL = \frac{dW}{dd} = -\frac{\frac{\partial E[M]}{\partial d}}{\frac{\partial E[M]}{\partial W}} = -\frac{\beta}{\gamma}$$

and can be estimated by $\widehat{VSL} = -\frac{\hat{\beta}}{\hat{\gamma}}$.

I estimate this equation using both the levels and logarithm of expectations to allow η and ν to be log-normally distributed. I also estimate the model with 2SLS assuming linear probability model and

³²One way to check this assumption is to see whether the information treatments changed their occupation choices, and it does not. Furthermore, for the inexperienced potential migrants the wage information treatments do not change mortality rate expectations and the death information treatments do not change earnings expectations (columns 3 and 4 of Table 2 and Table 3). These results suggest that the exclusion assumption is likely to hold in this context.

find that the point estimates for the VSL are similar. The advantage of estimating equation (2) over estimating 2SLS is that it gives the ratio of coefficients an utility constant interpretation as the definition of the VSL implies. The results with 2SLS estimates are presented in the appendix.

This method of estimating VSL by observing choices of individuals is quite novel in the rich literature on the subject. Most estimates follow the wage hedonic approach following seminal work by [Thaler and Rosen \(1976\)](#) (see [Viscusi and Aldy, 2003](#); [Cropper, Hammitt, and Robinson, 2011](#), for review of empirical estimates). [Thaler and Rosen \(1976\)](#) show that the slope of the observed market locus in the wage-mortality risk plane gives the willingness to pay of the workers to avoid marginal increments in mortality risks (i.e. the VSL). But getting consistent estimate of the market locus (or its slope) has been difficult because of two key problems.

First, in most estimations using the wage hedonic approach, mortality risk is correlated with unobserved determinants of wages (see [Ashenfelter, 2006](#), for a critique). This introduces a selection bias in the estimates with an unknown direction and magnitude of the bias. The current study overcomes this problem by using exogenous variation in (expected) earnings and (expected) mortality risks generated by randomly provided information.³³

The second issue with the wage hedonic approach is that mortality risks are measured with errors and may be known imperfectly to agents. [Black and Kniesner \(2003\)](#) emphasize that the measurement errors are non-classical in nature and leads to large biases in either direction.³⁴ In this study, I directly measure expectations on earnings and mortality risks without the need to worry about whether they (as well as the econometrician) know the actual mortality rate and the earnings involved.³⁵ Rather than the actual risks involved with the occupation, it is the perceived risks that is actually relevant in the decision-making process.

The second, and somewhat new, approach to estimating VSL is by modeling the choices made by individuals or populations. In this vein, [Ashenfelter and Greenstone \(2004b\)](#) model the decision of states to adopt a higher speed limit to compute VSL. In their setting, states choose to adopt a higher speed limit if the monetary value of time saved per marginal fatality is higher than the VSL. The authors estimate the monetary value of time saved per marginal fatality by instrumenting fatalities with a plausibly exogenous increase in speed limits in rural interstate roads in the US from 55 mph to 65 mph in 1987. Though this gives them a well identified upper bound estimate of the VSL, their estimates of actual VSL suffer from lack of exogenous variation in modeling the decision of the states to adopt the speed limit. Furthermore, this VSL is the tradeoff by the state (or the median voter if the preference of the states represent the policy choices of the median voter) and could be different from the tradeoff made by individuals.

In a more refined modeling of individual choices, [Greenstone, Ryan, and Yankovich \(2014\)](#) study the reenlistment decision (and occupation choices within the military) of US soldiers when faced with varying monetary incentives and mortality risks. In a methodology similar to this paper, the authors infer the VSL of US soldiers by looking at the ratio of coefficients on mortality risk and monetary incentives of a discrete choice model of occupation choice. The identifying variation in their study comes from the institutional process that determines compensation for reenlistment and variety of occupations undergoing different mortality risks as the US engages in various military actions. Another study that employs the discrete choice framework to estimate the VSL is [Leòn and Miguel \(2017\)](#), which examines the transportation choices made by travelers to the international airport in Sierra Leone. The identifying variation in this study comes from the availability of different options at different periods over which the data were collected.

This study is methodologically similar to [Greenstone, Ryan, and Yankovich \(2014\)](#) and [Leòn and Miguel \(2017\)](#), as it infers VSL from the ratio of coefficients in a model of migration choices of potential migrants, but it extends the approach with a randomized information experiment that introduces exogenous variation in perceptions of earnings and mortality risks. To the best of my knowledge, this is the first study to employ a randomized controlled trial in estimating the VSL.

³³[Lee and Taylor \(2014\)](#) is one of the rare studies to estimate VSL using an exogenous variation in plant level risk. They exploit the random assignment of federal safety inspection to instrument for plant level risk to estimate the equilibrium relationship between wages and risks.

³⁴In fact, they estimate VSL to be negative in half their specifications.

³⁵This, of course, is assuming that the respondents are able to articulate the risks accurately during the survey.

6.2 Estimates of VSL for inexperienced potential migrants

Both the logarithmic and the levels specifications estimate migration elasticities that are quite similar across specifications. As Table 7 shows, across all three measures of migration, an increase in (logarithm of) expected mortality rate lowers probability of migration and an increase in (logarithm of) expected earnings increases migration probability as expected (top panel). For the preferred measure of migration (Migrated-P), an increase in one percent in expected mortality rate reduces migration by 0.16 percentage points (column 1). This translates to an elasticity of migration to expected mortality risk of 0.5. Similarly, an increase in one percent in expected earnings increases migration by 0.22 percentage points, which translates to an elasticity of migration to expected earnings of 0.7. The bottom panel of the table estimates similar elasticities with the levels specification. An increase in expected mortality rate by 1 percentage points reduces migration rate by 6 percentage points (column 1). This point estimate translates to an elasticity of 0.5, which is exactly the same elasticity from the logarithmic specification. An increase in expected earnings by \$1000 increases migration rate by 1.1 percentage points which implies an elasticity of 0.5 which is only slightly smaller compared to the elasticity estimated using the logarithmic specification. Since expected mortality and expected earnings are more likely to follow a log-normal distribution than a normal distribution, I prefer the estimates with logarithms rather than levels.³⁶

These estimates suggest that misinformation has actually lowered the migration rate because potential migrants overestimate mortality more than they overestimate earnings. If inexperienced potential migrants had true information on the mortality risk (1.3 per 1000 for two-year period instead of 27.57), migration would increase by 47 percentage points from its current level (assuming the effect are the same for large changes in perceptions). Similarly, if inexperienced potential migrants had the same net earnings expectations as the experienced ones (\$9,660 instead of \$12,270), migration would decrease by 5 percentage points. The net effect on migration would therefore be an increase of 42 percentage points – a remarkable 140 percent. Even assuming a much lower actual earnings of \$6,000 for the inexperienced (since the expectations of the experienced are likely to be an upper bound on the counterfactual earnings), migration would still go up by 31 percentage points (102 percent from the current level).

The VSL implied by this choice is the ratio of the marginal effect of the expectations on migration decision. For the logarithmic specifications, the estimates of VSL range from \$0.28 million to \$0.63 million, depending upon the different measures of migration used (top panel, Table 7). The VSL using the preferred measure of migration (Migrated-P) is estimated more precisely than others but the estimated magnitudes are quite similar. For the levels specification, the estimates of the VSL range from \$0.43 million to \$2.35 million for various measures of migration (bottom panel). The levels specification yields larger and noisier estimates than the logarithmic specifications. Except for the measure of migration with attrition problem (Migrated-B), all the estimates are statistically different from zero and qualitatively similar to their logarithmic counterparts. The VSL from the preferred measure with the levels specification is \$0.54 million and its logarithmic counterpart is within one standard error from this estimate.³⁷

Comparison with estimates in the literature

It is hard to compare these estimates of VSL, estimated for the pool of potential international migrants from Nepal, to most estimates in the literature, which apply to the US labor market. As reviewed in Viscusi and Aldy (2003) and Cropper, Hammitt, and Robinson (2011), typical US estimates range from \$5.5 million to \$12.4 million (in 2014 US\$).³⁸ The preferred estimates in this study ranges from \$0.28 million to \$0.54 million (\$0.97 million to \$1.85 million in PPP\$).³⁹ It is reasonable to expect a lower VSL in the context of Nepal compared to the US as the average Nepali potential migrant has a much lower income: US GDP per capita is 23 times the GDP per capita of Nepal in PPP terms. In fact, several studies find the developing country estimates of the VSL are in general lower than the estimates from

³⁶I cannot reject the null of normality for the log of both expectations in the untreated group using a Kolmogorov-Smirnov test. However, the more stringent forms of the test reject normality.

³⁷The 2-SLS estimation of equation (2) produces very similar point estimates for VSL but are estimated with larger standard errors (results in Appendix Table A.4).

³⁸Deflated using Urban CPI series.

³⁹Using PPP conversion factor (US\$ to PPP\$ for Nepal) of 3.45 from The World Bank.

the US (in [Viscusi and Aldy, 2003](#), for example).⁴⁰ Nevertheless, the VSL estimates in this paper are a comparable proportions of the median household income in Nepal as the estimates in the US: 150 to 300 times the median household income in Nepal versus 100 to 250 times that in the US.

Estimates for populations outside the US, especially for developing countries, is quite rare and vary widely. For instance [Kremer, Leino, Miguel, and Zwane \(2011\)](#) estimate the VSL of less than \$1000 based on the revealed willingness of Kenyan households to travel further for cleaner water. [Leòn and Miguel \(2017\)](#) estimate a VSL of \$0.6m to \$0.9m from the revealed choices on transportation options while traveling to the international airport in Sierra Leone. [Greenstone and Jack \(2015\)](#) highlight the paucity of VSL estimates in developing countries and call for more research in developing revealed preference measures of the willingness to pay for lower mortality (through improving environment quality).

6.3 Robustness to various points on the belief distribution

If potential migrants have uncertain priors about earnings and mortality rate while abroad, then they may not act as expected utility maximizers who maximize the probability weighted average of utilities in various states of the world. In such cases, the expected value of their beliefs may not be the right measure that influences their migration decision. It could be possible that people behave in an uncertainty-averse manner and use a different utility maximization rule. For instance, [Gilboa and Schmeidler \(1989\)](#) propose a max-min rule where agents maximize utility assuming the worst possible state. In this part, I explore robustness of the VSL estimates to using alternative points in their belief distribution.

Table 8 shows that the estimates in Section (6.2) are robust to a few alternative decision-making rules. In column 1, I assume that individuals are extremely cautious about migrating and assume the worst. That is, they assume that the actual mortality risk is the highest end of their belief distribution and the actual earnings, at the lowest. With this assumption, the estimated VSL is \$0.16 million using the logarithmic specification and \$0.37 million using the levels specification. These estimates are smaller than those in Table 7 but are unlikely to be statistically different. Similarly, column 3 assumes the opposite of column 2: that the individuals take the most optimistic view in making their migration decision. They assume that earnings are the highest end of the belief distribution and mortality is the lowest end of their belief distribution. With this assumption, the estimated VSL is slightly higher but statistically similar to the corresponding estimates in Table 7. Column 2 performs this exercise assuming that the midpoint of their belief distribution are the relevant parameters and column 5 does the same assuming that their most strongly held beliefs are the relevant parameters. Both of these exercises produce slightly lower estimates than Table 7, but well within a margin of statistical errors. This table suggests that the estimates of VSL are quite robust to alternative decision-making rules on migration with the estimates ranging between \$0.16 million to \$0.32 million with the logarithmic specification and \$0.35 million to \$0.61 million with the levels specifications.

7 Why is expected mortality rate so high?

Section 6.2 establishes that the estimated VSL are reasonable and that misinformation actually has led to lower migration in this context. At the implied willingness to trade off earnings for mortality rate, migration is suppressed because of extremely high expectations of mortality rate relative to the truth. In this section, I show that the high mortality rate expectation is a consequence of over-inference by potential migrants in response to actual migrant deaths rather than misreporting or an artifact of data collection method.

The instrumental variables estimate of the VSL and the migration elasticities are consistent even though the expectations are measured with error. The instrumental variables estimate also solves any measurement issue that can be modeled as an additive component (either in logarithmic or in levels of

⁴⁰Interestingly, the estimates of VSL from [Greenstone, Ryan, and Yankovich \(2014\)](#) (\$0.18 million to \$0.83 million in 2014 US\$) are more in line with those from this study. However the VSL is expected to be much lower among US soldiers, who probably have higher preference for risky activities, than the average American. In fact, even within the soldiers, the authors find a lower VSL for those taking risky jobs.

the expectations). Hence, I use the VSL and the elasticity estimates, along with my estimates from Shrestha (2017) to infer the change in perceived mortality rate for potential migrants in response to a single migrant death.

In Shrestha (2017), I find that, after controlling for an array of confounding fixed effects, one migrant death in a district reduces monthly migrant flow from that district by 0.9 percent for 12 months. This represents a total of 11 percent reduction of monthly migrant flow (albeit over a year) in response to a single death. I then calculate a one-time increase in migrant earnings necessary to induce the same number of potential migrants to migrate so that the net effect on migration is zero. Using the earnings elasticity of migration estimate of 0.7 from Section 6.2, I find that migrant earnings need to increase by 15 percent. That is, a one-time increase in migrant earnings of 15 percent will offset the reduction in migrant flows caused by a single migrant death.

Finally, I use the estimate of VSL from Section 6.2, to translate the change in earnings to change in perceived mortality rate. I use the following discretized formulation of the VSL and the elasticities to do so,

$$\Delta d = \frac{\Delta W}{VSL} = \frac{1}{VSL} \cdot \beta \cdot \frac{1}{\varepsilon} \cdot W \quad (3)$$

where d represents the perceived probability of death and W is the average potential earnings from migration, β is the migration effect of the death, and ε is the earnings elasticity of migration. Using the preferred estimate of VSL and $\frac{\beta}{\varepsilon} = 0.15$ from above, I find that the change in perceived probability following a single death in the district is 6.7 per thousand.⁴¹

The high perceived mortality rates expressed by the potential migrants are consistent with the effect on perceptions generated by a single death and their exposure to migrant deaths. The inexperienced potential migrants expect the mortality rate to be 27.6 per thousand per migration episode. From the estimates above, they only need 4.1 deaths in their district to generate this level of expected mortality rate starting from a prior of zero. In 2013, an average district experienced 4.3 deaths in five months, suggesting that such high level of mortality perception can be generated even if potential migrants are making decisions about mortality risks only based on past five months of migrant mortality incidences in their districts.

In Shrestha (2017), I also find evidence that potential migrants react more adversely when there have been more migrant deaths in the recent past. Subsequent migrant flow falls more drastically in response to a migrant death in districts which have experienced many migrant deaths in the recent past compared to the response in districts which have experienced few migrant deaths in the recent past. That is, potential migrants seem to be over-weighting recent deaths in forming their priors on mortality rate. In Shrestha (2017), I show that the amount of updating following a migrant death, and the responsiveness of updating recent deaths cannot be generated by a rational Bayesian learning model. A model of a learning fallacy, the law of ‘small’ numbers, correctly predicts the over-inference result as well as the dependence on the number of deaths in the recent past (see Rabin, 2002, for mathematical formulation). Belief in the law of ‘small’ numbers, in conjunction with availability or other heuristic decision rule could also explain the high observed overestimation of mortality rate (as in Tversky and Kahneman, 1971, 1973; Kahneman and Tversky, 1974). One such heuristic explanation could be that potential migrants do not pay attention to migrant deaths unless they are actively thinking about migrating abroad, in which case they form their priors by observing migrant deaths in their districts in the past few months. Since they also commit the fallacy of believing in the law of ‘small’ numbers which makes them over-infer from recent information such as actual migrant deaths in the district or even the information provided in this study.

Hence, the high expectation of mortality rate among potential migrants is consistent with the experience potential migrants probably have and the way they appear to process it. The large extent of misinformation seems to be driven by the fallacious way they form their priors on mortality rate abroad.

⁴¹ Assuming that each component of equation (3) is normally distributed with the estimated mean and variance, and also that these components are uncorrelated with each other, the standard error for the change in perceived mortality rate is 3.72. The calculation is robust to using VSL and elasticity estimate from the levels specification, which results in a change in perceived mortality rate of 5.8 per thousand.

8 Conclusion

The gain from international migration is expected to be huge, but there could still be important non-institutional barriers to migration. I show that misinformation about both the rewards and risk associated with migration could be an important deterrent, even in a context where a large share of population migrates for work. I find that potential international work migrants from Nepal overestimate their earnings potential as well as the mortality rate abroad. Contrary to the prevalent belief among policymakers, the extent of overestimation of mortality rate far outweighs the extent of overestimation of earnings. Individuals are not migrating recklessly by trading off high mortality risk for small increase in earnings: the estimated VSL of \$0.28 million to \$0.63 million, revealed from their decision to migrate, is quite reasonable for a poor population. Therefore, at their current willingness to trade off mortality risk with earnings, they would be more willing to migrate abroad if they had accurate information about the earnings and mortality risk abroad.

However, the reason for low migration in this study is distinct from those seen in the literature. Though misinformation on earnings has been documented previously in other contexts, most notably in [McKenzie, Gibson, and Stillman \(2013\)](#), misinformation on the risks of migration has not. This finding suggests that information frictions, particularly about risks that workers face abroad, could suppress migration substantially. Failing to take these into account could lead researchers to estimate high (fixed) costs of migration. In this regard, the estimated costs of migration have to be interpreted not just as monetary and psychic, but also as perceived cost, stemming from misinformation on earnings and, more importantly, risks.

Furthermore, in conjunction with my findings in [Shrestha \(2017\)](#), I show that such misinformation on mortality rate may arise because of fallacious inference by potential migrants. I find they seem to drastically update their beliefs about the mortality rate in response to an actual death of a migrant. Furthermore, the response to a migrant death is larger when potential migrants have seen more migrant deaths in recent months. While models of rational Bayesian learning fail to generate the magnitude of updating or the dependence on recent migrant deaths, models of learning fallacy, such as the law of ‘small’ numbers, combined with some heuristic decision rules can explain the large observed overestimation.

Finally, this paper presents a novel way to estimate the VSL. Among a pool of inexperienced potential migrants, I estimate the VSL by exploiting the exogenous variation in expectation of earnings and mortality risks generated by randomly provided information in a model of migration decision. Two features of this setting make this approach feasible. First, inexperienced potential migrants are misinformed about the mortality rate as well as their earnings potential. Second, they are responsive to information provided to them and their migration choices reflect the changed perceptions induced by the information treatments. This approach could potentially be applied to other settings that meet the two criteria.

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Figures and Tables

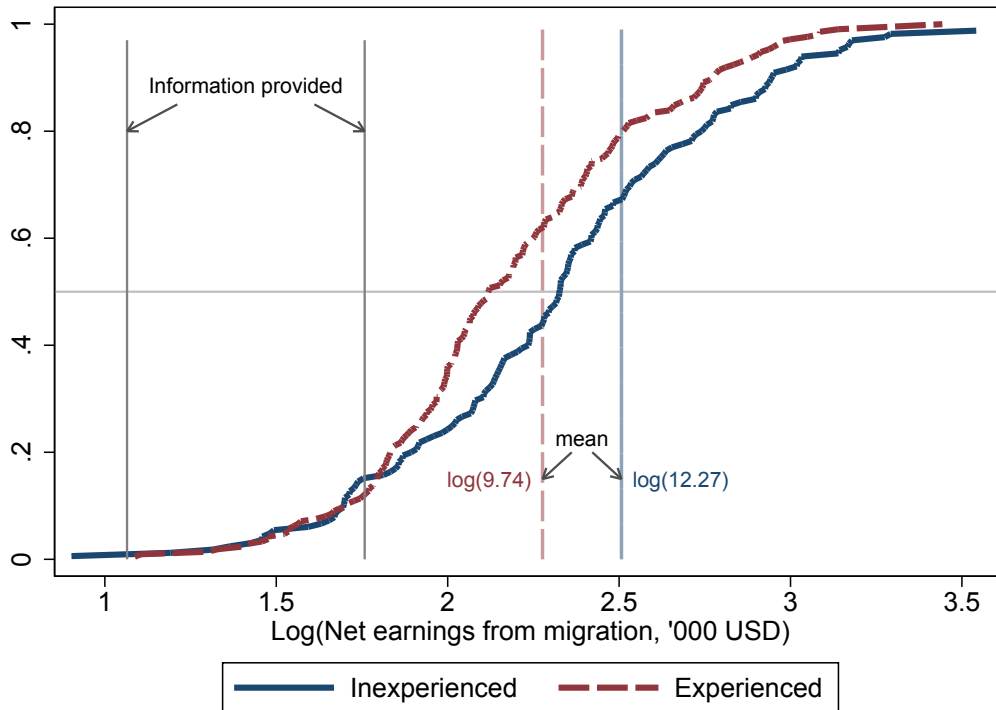
Figures

Figure 1: Sample information cards shown to respondents



Note: This figure shows samples of two cards shown to the respondents.

Figure 2: Earnings expectations of potential migrants



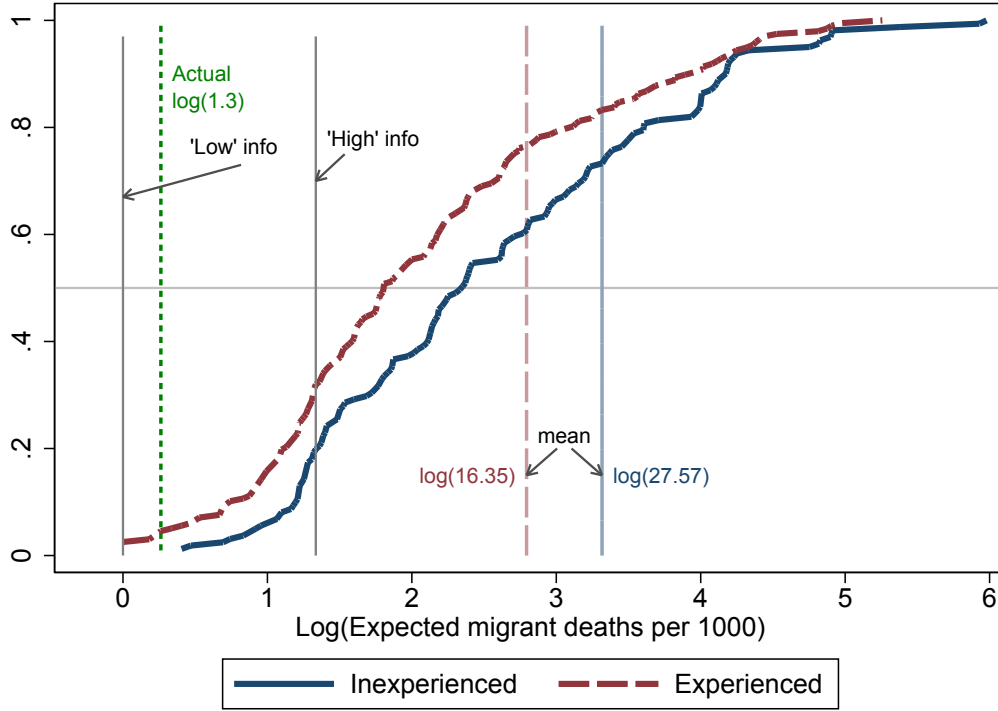
Source: Author's calculations on the survey data collected for this project.

Note: This figure shows the cumulative distribution function (cdf) of expected net earnings from migration for potential migrants in the control group (they do not receive any information on wages or deaths). The solid blue line plots the cdf for the inexperienced ones whereas the dashed red line plots the cdf for the experienced potential migrants.

“Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past for foreign employment.

The means for these two groups are indicated in the figure by vertical lines and are labeled accordingly. The black vertical lines to the left show the level of information that was provided to the ‘high’ and ‘low’ wage treatment groups.

Figure 3: Misinformation on expected mortality rate among potential migrants



Source: Author's calculations on the survey data collected for this project

Note: The figure shows the cumulative distribution function (cdf) of expected mortality rate abroad for potential migrants in the control group (they do not receive any information on wages or deaths). The solid blue line plots the cdf for the inexperienced ones whereas the dashed red line plots the cdf for the experienced potential migrants.

“Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past for foreign employment.

The means for these two groups are indicated in the figure by vertical lines and are labeled accordingly. The short-dashed green vertical line represents the true mortality rate faced by the migrants. True mortality rate is computed using deaths data from the Foreign Employment Promotion Board and the migrant stock data from Census 2011. The black vertical lines to the left show the level of information that was provided to the ‘high’ and ‘low’ wage treatment groups and are labeled accordingly.

Tables

Table 1: Sample size by randomization groups

		Death Information treatment			Total
		None	‘Low’	‘High’	
Wage information treatment	None	376	354	384	1,114
	‘Low’	339	359	352	1,050
	‘High’	382	410	363	1,155
Total		1,097	1,123	1,099	3,319

Note: This table shows the sample size in each of the information treatment cells. Within each of death and wage information, respondents were equally likely to receive no information, ‘low’ information, and ‘high’ information with equal probability. Death information was cross-randomized with wage information.

Table 2: Effects of information treatments on expected mortality rate (per 1000 migrants)

	All		Inexperienced		Experienced	
	(1)	(2)	(3)	(4)	(5)	(6)
Death info: ‘high’	0.221 (1.587)	-0.743 (1.644)	-1.849 (3.047)	-3.889 (3.013)	1.598 (2.124)	1.150 (2.146)
Death info: ‘low’	-4.327** (1.733)	-4.843*** (1.708)	-7.413** (3.247)	-8.081** (3.221)	-2.250 (2.071)	-3.020 (2.344)
Wage info: ‘high’	-0.843 (1.678)	-1.218 (1.680)	2.098 (2.931)	1.781 (3.179)	-2.899 (2.586)	-4.198 (2.812)
Wage info: ‘low’	-0.626 (1.843)	-0.699 (1.846)	2.209 (2.991)	2.580 (3.028)	-3.125 (2.889)	-2.817 (2.955)
Controls	NO	YES	NO	YES	NO	YES
Observations	3319	3319	1411	1411	1341	1341
R-squared	0.003	0.087	0.005	0.112	0.004	0.118
Control group mean	21.276		27.570		17.417	
SD	(39.973)		(51.029)		(28.786)	

Source: Author’s calculations on the survey data collected for this project

Note: This table shows the impact of information treatments on expected mortality rate (per 1000 migrants) estimated using equation (1). Odd numbered columns do not have any controls, even numbered columns control for a full set of interaction of age categories, education categories, location and geography, full set of interaction of location, geography and administrative regions, destination fixed effects, and surveyor fixed effects. Standard errors, reported in parentheses, are clustered at the surveyor \times date of interview level. “Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad; it excludes those who are back home on leave from their work abroad. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 3: Effects of information treatments on expected net earnings (in USD ‘000)

	All		Inexperienced		Experienced	
	(1)	(2)	(3)	(4)	(5)	(6)
Death info: ‘high’	-0.498* (0.279)	-0.461* (0.263)	-0.647 (0.432)	-0.357 (0.393)	-0.500 (0.342)	-0.339 (0.288)
Death info: ‘low’	-0.160 (0.243)	-0.069 (0.229)	-0.604 (0.433)	-0.193 (0.333)	0.157 (0.327)	0.118 (0.299)
Wage info: ‘high’	-0.280 (0.260)	-0.459** (0.211)	-1.071** (0.426)	-0.988*** (0.339)	0.238 (0.297)	-0.034 (0.251)
Wage info: ‘low’	0.072 (0.270)	0.007 (0.213)	-0.858** (0.416)	-0.402 (0.328)	0.557 (0.342)	0.241 (0.312)
Controls	NO	YES	NO	YES	NO	YES
Observations	3319	3319	1411	1411	1341	1341
R-squared	0.002	0.251	0.008	0.333	0.005	0.335
Control group mean	10.851		12.268		9.656	
SD	(8.183)		(11.122)		(4.396)	

Source: Author’s calculations on the survey data collected for this project

Note: This table shows the impact of information treatments on expected net earnings from migration (in USD ‘000) estimated using equation (1). The net earnings from migration is their expected monthly earnings multiplied by the modal duration of a migration episode to their chosen destination after subtracting the expected fees of migrating to that destination.

Odd numbered columns do not have any controls, even numbered columns control for a full set of interaction of age categories, education categories, location and geography, full set of interaction of location, geography and administrative regions, destination fixed effects, and surveyor fixed effects. Standard errors, reported in parentheses, are clustered at the surveyor \times date of interview level. “Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad; it excludes those who are back home on leave from their work abroad. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 4: Correlation between information treatments and various attrition measures

	All		Inexperienced		Experienced	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Attrition F - did not conduct full follow-up survey</i>						
Death info: ‘high’	0.006 (0.016)	0.004 (0.015)	-0.001 (0.023)	0.010 (0.025)	0.016 (0.023)	0.011 (0.023)
Death info: ‘low’	0.031* (0.016)	0.024 (0.016)	0.013 (0.025)	0.010 (0.026)	0.063*** (0.021)	0.048** (0.022)
Wage info: ‘high’	-0.031** (0.015)	-0.030** (0.015)	-0.040* (0.023)	-0.039* (0.023)	-0.021 (0.023)	-0.011 (0.023)
Wage info: ‘low’	0.003 (0.017)	-0.002 (0.017)	0.008 (0.025)	-0.002 (0.025)	0.011 (0.024)	0.000 (0.024)
Controls	NO	YES	NO	YES	NO	YES
Control group mean	0.162		0.152		0.149	
SD	(0.369)		(0.360)		(0.357)	
<i>Attrition M - do not know migration status</i>						
Death info: ‘high’	0.018 (0.015)	0.016 (0.015)	0.005 (0.022)	0.017 (0.023)	0.025 (0.020)	0.020 (0.021)
Death info: ‘low’	0.037** (0.015)	0.029** (0.014)	0.013 (0.023)	0.009 (0.023)	0.068*** (0.020)	0.056*** (0.020)
Wage info: ‘high’	-0.031** (0.014)	-0.030** (0.014)	-0.044** (0.021)	-0.042** (0.021)	-0.015 (0.021)	-0.012 (0.021)
Wage info: ‘low’	-0.003 (0.015)	-0.005 (0.015)	-0.013 (0.023)	-0.024 (0.023)	0.015 (0.022)	0.004 (0.023)
Controls	NO	YES	NO	YES	NO	YES
Control group mean	0.130		0.127		0.112	
SD	(0.337)		(0.334)		(0.316)	
<i>Attrition W - Wrong numbers or refused to interview</i>						
Death info: ‘high’	0.002 (0.008)	0.001 (0.008)	-0.002 (0.012)	0.001 (0.012)	-0.003 (0.013)	-0.000 (0.013)
Death info: ‘low’	0.004 (0.009)	0.002 (0.009)	-0.003 (0.013)	-0.003 (0.013)	0.014 (0.014)	0.013 (0.013)
Wage info: ‘high’	-0.001 (0.007)	0.000 (0.008)	-0.011 (0.011)	-0.005 (0.011)	-0.001 (0.012)	0.005 (0.013)
Wage info: ‘low’	0.003 (0.007)	0.004 (0.007)	0.009 (0.013)	0.014 (0.013)	-0.006 (0.011)	-0.010 (0.011)
Controls	NO	YES	NO	YES	NO	YES
Control group mean	0.040		0.036		0.043	
SD	(0.196)		(0.188)		(0.205)	

Source: Author’s calculations on the survey data collected for this project

Note: This table checks whether the three measures of attrition are correlated with information treatments using equation (1). The heading of each panel indicates and defines the measure of migration. Odd numbered columns do not have any controls, even numbered columns control for a full set of interaction of age categories, education categories, location and geography, full set of interaction of location, geography and administrative regions, destination fixed effects, and surveyor fixed effects. Standard errors, reported in parentheses, are clustered at the surveyor \times date of interview level. “Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad; it excludes those who are back home on leave from their work abroad. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 5: Effects of information treatments on actual migration

	All		Inexperienced		Experienced	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Effect on preferred measure of migration, Migrated-P</i>						
<i>Migrated or will do so in 2 weeks, or reasonable attriters, excludes Attrited-W</i>						
Death info: ‘high’	0.036* (0.020)	0.040** (0.019)	0.019 (0.029)	0.034 (0.030)	0.056 (0.034)	0.044 (0.038)
Death info: ‘low’	0.062*** (0.021)	0.071*** (0.020)	0.069** (0.031)	0.072** (0.031)	0.095*** (0.030)	0.088*** (0.032)
Wage info: any	-0.008 (0.019)	-0.015 (0.018)	-0.057** (0.027)	-0.067** (0.029)	0.022 (0.029)	0.018 (0.031)
Controls	NO	YES	NO	YES	NO	YES
Observations	3210	3210	1364	1364	1297	1297
R-squared	0.003	0.240	0.007	0.136	0.007	0.168
Control group mean	0.410		0.308		0.370	
SD	(0.493)		(0.463)		(0.484)	
<i>Effect on alternative measure of migration, Migrated-A</i>						
<i>Migrated or will do so in 2 weeks, or all attriters</i>						
Death info: ‘high’	0.036* (0.019)	0.040** (0.018)	0.017 (0.029)	0.033 (0.030)	0.052 (0.034)	0.043 (0.037)
Death info: ‘low’	0.062*** (0.020)	0.071*** (0.019)	0.064** (0.031)	0.068** (0.031)	0.100*** (0.030)	0.094*** (0.031)
Wage info: any	-0.008 (0.019)	-0.015 (0.018)	-0.056** (0.027)	-0.062** (0.029)	0.019 (0.028)	0.016 (0.030)
Controls	NO	YES	NO	YES	NO	YES
Observations	3319	3319	1411	1411	1341	1341
R-squared	0.003	0.226	0.006	0.138	0.007	0.163
Control group mean	0.434		0.333		0.398	
SD	(0.496)		(0.473)		(0.491)	
<i>Effect on basic measure of migration, Migrated-B</i>						
<i>Migrated or will do so in 2 weeks, excludes Attrited-M</i>						
Death info: ‘high’	0.028 (0.020)	0.032* (0.019)	0.016 (0.028)	0.023 (0.030)	0.039 (0.034)	0.026 (0.038)
Death info: ‘low’	0.045** (0.021)	0.060*** (0.020)	0.063** (0.030)	0.069** (0.030)	0.063** (0.032)	0.068* (0.035)
Wage info: any	0.004 (0.019)	-0.004 (0.018)	-0.039 (0.025)	-0.044 (0.028)	0.023 (0.030)	0.020 (0.031)
Controls	NO	YES	NO	YES	NO	YES
Observations	2877	2877	1242	1242	1181	1181
R-squared	0.002	0.264	0.006	0.132	0.004	0.177
Control group mean	0.349		0.236		0.322	
SD	(0.477)		(0.426)		(0.469)	

Source: Author’s calculations on the survey data collected for this project

Note: This table shows the impact of information treatments on various measures of migration, estimated using equation (1). The heading of each panel indicates and defines the measure of migration. Odd numbered columns do not have any controls, even numbered columns control for a full set of interaction of age categories, education categories, location and geography, full set of interaction of location, geography and administrative regions, destination fixed effects, and surveyor fixed effects. Standard errors, reported in parentheses, are clustered at the surveyor \times date of interview level. “Inexperienced” refers to potential migrants who have not yet migrated for foreign employment. “Experienced” refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad; it excludes those who are back home on leave from their work abroad. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 6: Lee (2009) bounds of treatment effect on basic migration (Migrated-B)

	<i>Death Info</i>		<i>Wage info</i>
	High (1)	Low (2)	Any (3)
Sample: All			
Lower bound	0.021 (0.024)	0.030 (0.024)	-0.006 (0.022)
Upper bound	0.043* (0.025)	0.073*** (0.025)	0.013 (0.021)
95 % CI	[-0.019 0.085]	[-0.010 0.115]	[-0.043 0.048]
Sample: Inexperienced			
Lower bound	0.015 (0.030)	0.063** (0.031)	-0.063** (0.032)
Upper bound	0.022 (0.035)	0.077** (0.036)	-0.031 (0.028)
95 % CI	[-0.041 0.088]	[0.006 0.143]	[-0.117 0.016]
Sample: Experienced			
Lower bound	0.027 (0.036)	0.040 (0.037)	0.023 (0.031)
Upper bound	0.056 (0.039)	0.121*** (0.041)	0.029 (0.033)
95 % CI	[-0.035 0.122]	[-0.022 0.189]	[-0.035 0.092]

Source: Author's calculations on the survey data collected for this project

Note: This table shows the estimated Lee (2009) bounds for the basic definition of migration (Migrated-B). See Table 5 and the text for the definition of Migrated-B. Each column in each panel represents a separate estimation of the bounds. Each estimation is performed on the sample of the treatment group indicated by the column heading and the control group. For each estimation a lower bound, an upper bound is reported with standard errors in parentheses. The 95% confidence interval on the bounds is reported in brackets. "Inexperienced" refers to potential migrants who have not yet migrated for foreign employment. "Experienced" refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad; it excludes those who are back home on leave from their work abroad. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 7: Binary choice instrumental variable estimates of VSL for inexperienced potential migrants

	Migrated - P Preferred (1)	Migrated - A Alternative (2)	Migrated - B Basic (3)
Logarithmic specification			
<i>Coefficients</i>			
Log(expected mortality per 1000)	-0.485*** (0.040)	-0.460*** (0.068)	-0.513*** (0.043)
Log(expected net earnings, USD '000)	0.699*** (0.099)	0.768*** (0.137)	0.332*** (0.087)
<i>Marginal Effects</i>			
Log(expected mortality per 1000)	-0.155*** (0.011)	-0.149*** (0.020)	-0.160*** (0.012)
Log(expected net earnings, USD '000)	0.224*** (0.031)	0.248*** (0.046)	0.103*** (0.027)
VSL (in '000 USD)	282.412*** (50.938)	245.497*** (75.040)	632.501*** (188.667)
Levels specification			
<i>Coefficients</i>			
Expected mortality (per 1000)	-0.017*** (0.002)	-0.016*** (0.001)	-0.017*** (0.002)
Expected net earnings (USD '000)	0.031** (0.013)	0.038*** (0.007)	0.007 (0.013)
<i>Marginal Effects</i>			
Expected mortality (per 1000)	-0.006*** (0.001)	-0.006*** (0.000)	-0.006*** (0.001)
Expected net earnings (USD '000)	0.011** (0.005)	0.013*** (0.003)	0.003 (0.005)
VSL (in '000 USD)	538.220** (264.302)	430.156*** (94.444)	2354.663 (4471.196)

Source: Author's calculations on the survey data collected for this project

Note: This table shows instrumented probit estimates of the effect of expected earnings and expected mortality rate on migration choices of inexperienced potential migrants, estimated using equation (2). Information treatments are used as instruments for expected earnings and expected mortality. The heading of each column indicates the measure of migration used as the outcome variable. See text and Table 5 for the definition of these measures. The heading of each panel indicates whether the logarithm or levels of expectations is used in the estimation. Coefficients of estimations as well as marginal effects are reported with standard errors in parentheses. Standard errors are clustered at the surveyor \times date of interview level. The bottom of each panel presents the VSL, which is estimated as the ratio of two marginal effects. Standard errors for the VSL are computed using the delta method. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table 8: Robustness in estimates of VSL under some alternative utility maximization rule

	Least optimistic (1)	Median (2)	Most optimistic (3)	Most likely (modal) (4)
<i>Logarithmic specification</i>				
<i>Coefficients</i>				
Beliefs on mortality risk per 1000	-0.484*** (0.113)	-0.477*** (0.028)	-0.431*** (0.053)	-0.438*** (0.047)
Beliefs on net earnings, USD '000	0.767*** (0.166)	0.807*** (0.107)	0.781*** (0.071)	0.824*** (0.113)
<i>Marginal Effects</i>				
Beliefs on mortality risk per 1000	-0.155*** (0.033)	-0.152*** (0.008)	-0.139*** (0.015)	-0.139*** (0.013)
Beliefs on net earnings, USD '000	0.246*** (0.057)	0.257*** (0.032)	0.251*** (0.022)	0.262*** (0.035)
VSL (in '000 USD)	157.360** (68.405)	238.197*** (36.457)	322.092*** (54.377)	215.996*** (46.097)
<i>Levels specification</i>				
<i>Coefficients</i>				
Beliefs on mortality risk per 1000	-0.013*** (0.001)	-0.017*** (0.003)	-0.021*** (0.002)	-0.016*** (0.001)
Beliefs on net earnings, USD '000	0.034** (0.014)	0.048*** (0.015)	0.034*** (0.010)	0.051*** (0.006)
<i>Marginal Effects</i>				
Beliefs on mortality risk per 1000	-0.005*** (0.000)	-0.006*** (0.001)	-0.007*** (0.001)	-0.006*** (0.000)
Beliefs on net earnings, USD '000	0.012*** (0.005)	0.017*** (0.005)	0.012*** (0.003)	0.018*** (0.002)
VSL (in '000 USD)	368.865** (158.346)	353.220** (154.951)	613.984*** (196.121)	320.578*** (35.699)

Source: Author's calculations on the survey data collected for this project

Note: This table shows instrumented probit estimates of the effect of beliefs on earnings and mortality rate on migration choices of inexperienced potential migrants, estimated using equation (2). The preferred measure of migration (Migrated-P) is used as the dependent variable. Information treatments are used as instruments for beliefs on earnings and mortality rate. Instead of using the expected value of their beliefs as the variables of interest, this table takes different points in these belief distributions based on assumptions on the relevant decision-making parameters.

The first column assumes that potential migrants are least optimistic about migration while making their migration decision. They take the maximum of their belief distribution on mortality rate and the minimum of their belief distribution on net earnings as the relevant parameter in their migration decision.

The second column assumes that potential migrants make migration choices by taking the median of their belief distributions.

The third column assumes that potential migrants are most optimistic about migration while making their migration decision. They take the minimum of their belief distribution on mortality rate and the maximum of their belief distribution on net earnings as the relevant parameter in their migration decision.

The fourth column assumes that potential migrants take the most likely points in their belief distribution as the relevant parameters for their migration decision.

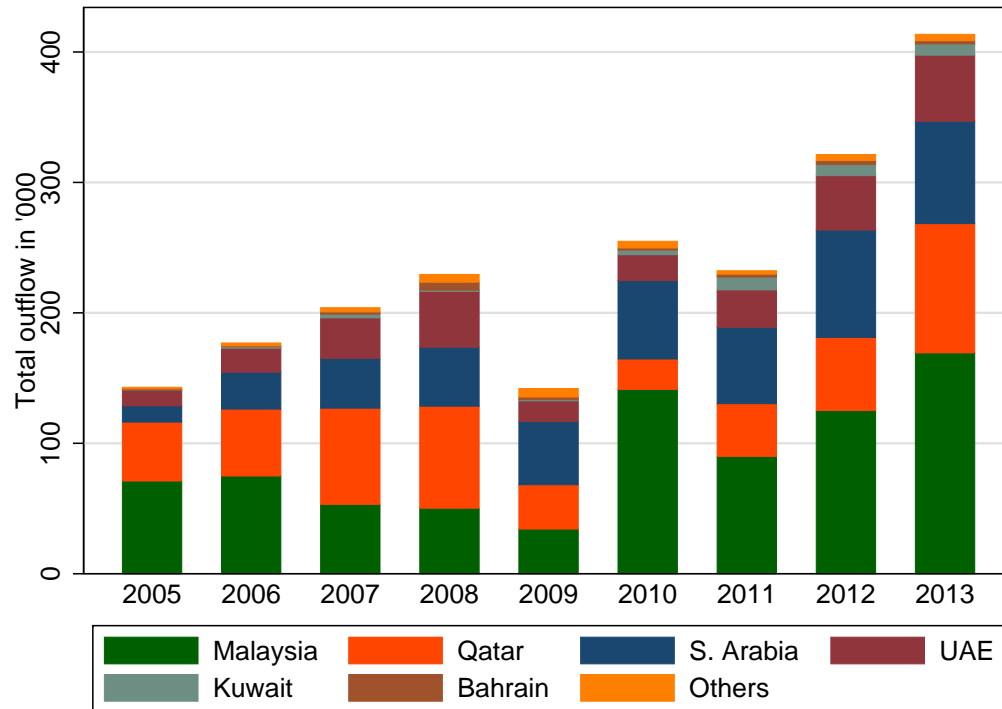
The heading of each panel indicates whether the logarithm or levels of expectations is used in the estimation. Coefficients of estimations as well as marginal effects are reported with standard errors in parentheses. Standard errors are clustered at the surveyor \times date of interview level. VSL is estimated as the ratio of two marginal effects and its standard error computed using the delta method.

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

Appendix A Figures and Tables

A.I Figures

Figure A.1: Permits granted by DoFE for work abroad



Source: Author's calculation on the data provided by Department of Foreign Employment (DoFE).

Note: This figure shows the number of work-permits issued by DoFE for work abroad by year and destination country.

A.II Tables

Table A.1: International migration from Nepal and remittance income

Year	Migrant/Population share			Remittance Income
	All	India	Non-India	% of GDP
1961	3.49			
1981	2.68	2.48	0.19	
1991	3.56	3.17	0.37	1.5
2001	3.41	2.61	0.78	2.4
2011	7.43	2.80	4.63	22.4

Source: Migrant/Population share from the Census reports for respective years, Remittance as a share of GDP from the World Development Indicator database ([The World Bank](http://data.worldbank.org))

Note: This table shows the migrant to population share for each of the census years since 1961. It also shows the share broken down by destination. The last column shows the personal remittance income as a share of national GDP for the years available.

Table A.2: Population comparison between absentees in Census 2011 and survey sample

	Census	Survey Data			
	(2011) mean/(SD) (1)	All mean/(SD) (2)	Inexperienced mean/(SD) (3)	Experienced mean/(SD) (4)	On leave mean/(SD) (5)
<i>Demographics</i>					
Age	27.171 (6.944)	27.573 (7.148)	23.502 (5.883)	29.966 (6.402)	32.040 (6.433)
Completed Education	7.189 (3.418)	7.469 (3.532)	7.777 (3.409)	7.046 (3.582)	7.706 (3.618)
<i>Geography and Location</i>					
Hills and Mountain	0.495 (0.500)	0.501 (0.500)	0.517 (0.500)	0.472 (0.499)	0.530 (0.500)
Southern Plain (Terai)	0.505 (0.500)	0.499 (0.500)	0.483 (0.500)	0.528 (0.499)	0.470 (0.500)
Urban	0.113 (0.317)	0.083 (0.275)	0.073 (0.260)	0.088 (0.283)	0.093 (0.291)
Eastern Region	0.333 (0.471)	0.276 (0.447)	0.245 (0.430)	0.293 (0.455)	0.315 (0.465)
Central Region	0.281 (0.450)	0.373 (0.484)	0.413 (0.493)	0.366 (0.482)	0.287 (0.453)
Western Region	0.292 (0.455)	0.159 (0.366)	0.074 (0.261)	0.180 (0.384)	0.324 (0.468)
Mid/Far Western Region	0.094 (0.291)	0.192 (0.394)	0.269 (0.443)	0.160 (0.367)	0.074 (0.262)
<i>Destination Country</i>					
Malaysia	0.264 (0.441)	0.255 (0.436)	0.359 (0.480)	0.204 (0.403)	0.118 (0.323)
Qatar	0.296 (0.457)	0.232 (0.422)	0.201 (0.401)	0.231 (0.421)	0.310 (0.463)
Saudi Arabia	0.245 (0.430)	0.198 (0.398)	0.135 (0.342)	0.212 (0.409)	0.319 (0.466)
U.A.E.	0.138 (0.345)	0.230 (0.421)	0.232 (0.422)	0.239 (0.427)	0.208 (0.406)
Other destinations	0.056 (0.231)	0.085 (0.279)	0.073 (0.260)	0.115 (0.319)	0.046 (0.209)

Source: Author's calculations using 2011 Housing and Population Census Public Use Microdata Sample and the survey data collected for this project

Note: This table presents the descriptive statistics of the absentee population in the 2011 Housing and Population Census (column 1) and the study sample (columns 2 - 5). The Housing and Population Census of Nepal defines absentee population as "persons away or absent from birth place or usual place [of residence] for employment or study or business purpose [abroad]".

Columns 3-5 presents the descriptive statistics by subgroups of the study sample. "Inexperienced" refers to potential migrants who have not yet migrated for foreign employment. "Experienced" refers to potential migrants who have migrated in the past, but do not have an existing job contract abroad. "On leave" refers to potential migrants who are back home on leave from their work abroad.

Table A.3: Description of information provided to the subjects

	Destination Countries				
	Malaysia	Qatar	Saudi Arabia	U.A.E	Kuwait
Monthly flow	14,100	8,300	6,500	4,200	700
Wage 'High' (NPR)	24,500	25,000	23,000	26,000	26,500
Wage 'Low' (NPR)	12,500	15,500	13,500	19,000	15,000
Death 'High'	9	8	9	3	2
Death 'Low'	2	1	2	1	1

Note: This table presents the exact nature of information provided to the participants. Each row lists the information provided in each of the treatment groups for potential migrants to the Destination countries listed in the columns. Monthly flow is the average number of work-related migrants leaving Nepal every month in 2013. Wage information is provided as monthly wages in Nepali Rupees (exchange rate US\$ 1= NPR 100). Death information provided indicates the number of deaths that occurred in a pre-determined district in 2013.

Table A.4: 2-SLS estimates of VSL for inexperienced potential migrants

	Migrated - P Preferred		Migrated - A Alternative		Migrated - B Basic	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Logarithmic specification</i>						
Log(expected mortality per 1000)	-0.247** (0.115)	-0.246** (0.104)	-0.240** (0.116)	-0.246** (0.109)	-0.221** (0.102)	-0.243** (0.096)
Log(expected net earnings, USD '000)	0.344 (0.350)	0.576 (0.503)	0.386 (0.385)	0.494 (0.516)	0.148 (0.286)	0.290 (0.468)
VSL (in '000 USD)	292.658 (322.218)	173.893 (161.486)	255.377 (275.531)	204.275 (218.349)	612.548 (1210.549)	342.367 (573.157)
Controls	NO	YES	NO	YES	NO	YES
<i>Levels specification</i>						
Expected mortality (per 1000)	-0.011* (0.006)	-0.010** (0.005)	-0.011* (0.006)	-0.010* (0.005)	-0.010* (0.006)	-0.009* (0.005)
Expected net earnings (USD '000)	0.024 (0.033)	0.050 (0.050)	0.028 (0.036)	0.050 (0.054)	0.007 (0.026)	0.012 (0.039)
VSL (in '000 USD)	462.442 (699.784)	199.412 (217.430)	383.485 (527.758)	195.258 (226.762)	1340.595 (4917.707)	773.284 (2680.114)
Controls	NO	YES	NO	YES	NO	YES

Source: Author's calculations on the survey data collected for this project

Note: This table shows 2SLS estimates of the effect of expected earnings and expected mortality rate on migration choices of inexperienced potential migrants. Information treatments are used as instruments for expected earnings and expected mortality rate. The heading of each column indicates the measure of migration used. See Table 5 and the text for the definition of these measures. The heading of each panel indicates whether the logarithm or levels of expectations is used in the estimation. Standard errors, reported in parentheses, are clustered at the surveyor \times date of interview level. VSL is estimated as the ratio of two marginal effects and its standard error computed using the delta method. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$

Table A.5: 2-SLS estimates of VSL for inexperienced potential migrants

	Least optimistic (1)	Median (2)	Most optimistic (3)	Most likely (modal) (4)
<i>Logarithmic specification</i>				
Beliefs on mortality risk per 1000	-0.237** (0.115)	-0.228* (0.123)	-0.215** (0.105)	-0.204* (0.116)
Beliefs on net earnings, USD '000	0.343 (0.371)	0.352 (0.359)	0.377 (0.339)	0.352 (0.340)
VSL (in '000 USD)	172.549 (206.176)	261.089 (303.309)	332.398 (339.636)	236.049 (263.643)
<i>Levels specification</i>				
Beliefs on mortality risk per 1000	-0.008* (0.004)	-0.011* (0.006)	-0.014* (0.008)	-0.012 (0.007)
Beliefs on net earnings, USD '000	0.026 (0.038)	0.034 (0.043)	0.024 (0.028)	0.039 (0.045)
VSL (in '000 USD)	303.364 (476.418)	331.859 (460.645)	560.740 (687.942)	303.301 (374.685)

Source: Author's calculations on the survey data collected for this project

Note: This table shows 2SLS estimates of the effect of beliefs on earnings and mortality rate on migration choices of inexperienced potential migrants. The preferred measure of migration (Migrated-P) is used as the dependent variable. Information treatments are used as instruments for beliefs on earnings and mortality rate. Instead of using the expected value of their beliefs as the variables of interest, this table takes different points in these belief distribution based on assumptions on the relevant decision-making parameters. See Table 8 for the various decision-making choices based on the column headings.

The heading of each panel indicates whether the logarithm or levels of beliefs is used in the estimation. Standard errors are reported in parentheses and are clustered at the surveyor \times date of interview level. VSL is estimated as the ratio of two coefficients and its standard error computed using the delta method. *** : $p < 0.01$; ** : $p < 0.05$; * : $p < 0.1$