Eliciting Illegal migration rates through list randomization[*]

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Abstract

Most migration surveys do not ask about the legal status of migrants due to concerns about the sensitivity of this question. List randomization is a technique that has been used in a number of other social science applications to elicit sensitive information. We trial this technique by adding it to surveys conducted in Ethiopia, Mexico, Morocco and the Philippines. We show how, in principal, this can be used to both give an estimate of the overall rate of illegal migration in the population being surveyed, as well as to determine illegal migration rates for subgroups such as more or less educated households. Our results suggest that there is some useful information in this method: we find higher rates of illegal migration in countries where illegal migration is thought to be more prevalent and households who say they have a migrant are more likely to report having an illegal migrant. Nevertheless, some of our other findings also suggest some possible inconsistencies or noise in the conclusions obtained using this method, so we suggest directions for future attempts to implement this approach in migration surveys.

1. Introduction

"Responding effectively to irregular migration is hampered by a serious lack of verifiably accurate data, making it difficult to identify trends or compare the scale of the phenomenon in different parts of the world" IOM (2010, p. 31)

Illegal or irregular migration is a topic of policy interest in much of the world.[1] Globally it is estimated that between 10 and 15 percent of the World's migrant population, or 20 to 30 million people, are individuals without the appropriate documentation (IOM, 2010). In the United States, it is estimated that 11.2 million people, or 28 percent of all foreign-born (Passel and Cohn, 2011) and 56 percent of all Mexican immigrants (Hanson, 2006) are illegal, while in the European Union estimates range from 7 to 13 percent of the immigrant population (Clandestino, 2009).

However, since illegal migration is by definition migration that occurs without the proper documentation, measuring the extent of it is difficult and the above estimates involve considerable uncertainty. Several approaches are typically used to estimate these stocks. The "residual method" used in the United States involves comparing numbers of individuals recorded as foreign-born in surveys to numbers on official admissions files (Passel and Cohn, 2011). Other estimates come from border apprehension data, re-inspections of travelers, and regularization or amnesty program applications (Morrel-Samuels 2002; IOM, 2010). However, such data are often not available for all countries, and in most cases provide, at best, an estimate of the overall incidence of illegal migration without any socioeconomic or demographic information about these migrants. These methods also can have clear over- or under-estimation problems. For example, estimates of border apprehensions could count the same person more than once and border apprehensions are also a function of the manpower and methods used at the border in addition to the actual number of people crossing. Amnesty programs are usually only available to a sub-group of the illegal population, meaning an underestimation by this method.

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[1] The terms "illegal immigration", "irregular migration", "unauthorized migration", and "undocumented migration" are often used to describe much of the same phenomena. In some cases it is possible for individuals to be without documents but not technically illegal, but since this is rare, for simplicity we will use the term illegal migration in our paper. Note that the Associated Press (2013) recently decided to refer to the phenomenon as "illegal immigration", but to avoid using "illegal immigrant" in favor of variants which describe the action, such as "living or entering a country illegally".

An alternative is to try and directly measure illegal migration through survey approaches (Massey and Capoferro, 2007). There are two key challenges here. The first is getting a representative sample of illegal migrants when no sampling frame is available. In countries with high emigration or immigration a random sample of dwellings might be sufficient. However, in many destination countries where a random sample is not possible, approaches like intercept point sampling may instead need to be used (Clandestino, 2009, McKenzie and Mistiaen, 2009). The second challenge is eliciting information about an illegal act. This raises questions of both research ethics (Duvell et al, 2008) as well as whether one can obtain truthful responses to questions about this sensitive issue. As a result of these issues, while there are a few exceptions (e.g. the Mexican Migration Project), most surveys of migrants (especially in destination countries) do not ask about their legal status.

Of course illegal migration is far from the only sensitive behavior of interest to social scientists, and a variety of methods have been developed to help obtain more reliable data on the incidences of these behaviors. One of the more widely used and simple to apply methods is that of list randomization. Under this method, a sample is randomly divided into two groups. The first group is given a list of n statements (often $n=3$) and asked to say how many of the three statements they agree with. The second group is given a list of $n+1$ statements, consisting of the same n statements as the first group, plus an additional statement which is about the behavior of interest. Since respondents only need reveal the number of statements they agree with, and not which ones, this can yield more truthful responses. The difference in the mean number of responses between the two groups then gives an estimate of the incidence of the behavior of interest.

In principle list randomization can overcome some of the difficulties associated with other methods of measuring illegal migration. Table 1 contrasts some of the pros and cons of different methods. One of the main benefits of using list randomization is that it allows for the estimate of illegal immigration rates in subgroups based on demographic characteristics. This is useful given that the current methods often do not have demographic characteristics. Knowing the demographics of illegal immigration has several potential policy uses – it allows better targeting of enforcement efforts, is an important input into discussions of the potential impacts of amnesty programs, and could inform NGOs, school systems, and other institutions about the likely profile

of individuals that may use their services. An additional benefit of this method is that it can be included in migration focused surveys (which often use convenience sampling methods) providing researchers with a summary measure of illegal immigration rates in the population they are considering while overcoming the reluctance of respondents to answer or ethics review boards to allow asking. However, it is an open question whether such a method will work in practice, and whether individuals will understand the method – this paper provides a first step in exploring the viability of this method.

Table 1: Comparison of the advantages and disadvantages of different methods of illegal immigrant measurement

	Advantages	Disadvantages
List randomization	Incidence and characteristics (sub-group representation) can be obtained without ethical concerns and without truthfulness concerns, can be easily added to migration and non-migration surveys.	Respondents need to fully understand the question. Method has yet to be tested widely.
Residual method	Can yield relatively accurate aggregate measures in cases where both sending and receiving countries have good survey data and administrative data on legal migration. Does not require separate surveys to be conducted.	Many countries lack the data to enable this method to work. Typically this data doesn't allow disaggregation by individual characteristics. Not possible to use for specific survey samples.
Data on border apprehension data, re-inspections of travelers, and regularization or amnesty program applications	In the absence of other data give an estimate of the overall incidence of illegal migration	Does not include socioeconomic or demographic information about these migrants, poor estimation and usually undercounts. Not possible to use for specific survey samples.
Direct elicitation in surveys	Incidence and characteristics can be obtained at the individual level.	Eliciting information about an illegal act raises questions of research ethics and whether one can obtain truthful responses to questions.

Our purpose in this paper is to explore the use of list randomization as a means of measuring both the incidence of illegal migration, as well as the characteristics of illegal migrants. This is the first paper of its kind to use this method in a migration setting. We do this by adding a list randomization question to surveys being undertaken in four countries: Ethiopia, Mexico,

Morocco and the Philippines. We illustrate how the incidence of illegal migration can be obtained via this method, how one can then obtain estimates by socio-demographic characteristic, and in the case of Ethiopia and Morocco, compare direct elicitation to this indirect method. Our results show both some promise, but also limitations, of this approach. They enable us to get estimates of the incidence of illegal migration which are broadly consistent with prior knowledge of relative differences in the share of migration which is legal across our four countries, and which are not too different from the direct measures for the two countries where this was not considered too sensitive a question to ask directly. However, we also show that confidence intervals can be wide unless samples are large, and there are some areas where future efforts could add additional tests. By first testing this method in origin countries (where this issue is less sensitive), we are able to get an idea of how useful this method could be in destination countries where the topic of illegal migration is much more sensitive.

The remainder of the paper is as follows: Section 2 briefly summarizes existing literature on list randomization; Section 3 describes the list randomization question used in our study and the four surveys in which it was added; Section 4 gives our main results, and Section 5 provides discussion and conclusions.

2. List Randomization

List randomization (also referred to as list experiments, the item-count technique, and the unmatched count technique) was introduced by Miller (1984) as a way of eliciting information about sensitive behaviors (in her case, illegal drug use). It has been used in a number of papers in sociology, political science, and psychology to measure incidences of sensitive behaviors as well as attitudes that might otherwise be misreported because of social desirability pressures.

The use of this method typically leads to higher reports of sensitive behaviors than is obtained through direct questioning. For example, LaBrie and Earleywine (2000) find college students to have higher incidences of having had sex without a condom, and having had sex without a condom after drinking via the list randomization method than in an anonymous self-report survey; Gonzalez-Ocantos et al. (2012) use it to find higher incidences of people reporting they had been promised a gift or service in exchange for their vote in elections in Nicaragua; Tsuchiya et al. (2007) find a higher proportion of shop-lifters than by direct questioning; and Wimbush

and Dalton (1997) find higher incidences of reports of employees engaging in theft. This technique has seldom been used in economics, but a recent exception is Karlan and Zinman (2012) who find microfinance clients to be more likely to report spending their loans on things other than business uses when asked via list randomization than through direct response. In contrast, actions and behaviors which have not had social stigma or illegality associated with them have resulted in similar estimates via list randomization as from direct elicitation. Examples include asking college students whether they have gotten drunk (LaBrie and Earleywine, 2000) and asking about giving blood (Tsuchiya et al, 2007).

As well as behaviors, the method has been used in a number of contexts to elicit attitudes, such as racial prejudice (Blair and Imai, 2012) and attitudes towards safety after civil conflict (Jayasuriya and Gibson, 2013). The one migration-related study we are aware of which uses this technique follows in this line of using the method to elicit attitudes. Janus (2010) uses the method to gauge support for more restrictive immigration policies in the U.S., and finds more support for cutting off immigration when asked via list randomization than when asked directly, particularly among more educated individuals and self-identified political liberals.

3. Implementing list randomization for measuring illegal migration

3.1 The List Randomization Question

We randomly allocate individuals into two groups. Group A is asked "can you tell me how many of the following four statements you regard as true":

1. At least one member of my household plans on opening a new business in the next five years
2. The economic situation of my household has improved considerably over the past five years
3. Corruption in my country is a less serious problem than ten years ago
4. This household has at least a member currently residing abroad without a legal residence permit

Group B is asked how many of the following three statements they regard as true:

1. At least one member of my household plans on opening a new business in the next five years

2. The economic situation of my household has improved considerably over the past five years

3. Corruption in my country is a less serious problem than ten years ago

Subtracting the mean number of true statements reported by group B from the mean number of true statements reported by group A then gives the proportion of the sample which has a member residing abroad without the proper documentation.

Several factors enter into the decision of which three questions to make common to the two groups. We choose questions that we thought i) would be a natural fit in either a typical economic survey or would not seem too unusual in the context of a specialty migration survey; ii) would be considered relatively innocuous by most respondents, but not so bland that the illegal migration question would stick out as very different in sensitivity; iii) could be seen by respondents as not easily inferable by the researchers (since if we knew the true answers for the household for each of 1 through 3, then we would be able to infer individual responses for question 4 in group A); and iv) that we thought that people would think it was plausible that many people would answer that at least one question was true, but that few people would be likely to regard all three statements as true.[2]

3.2 Surveys

In order to trial this methodology, we took advantage of surveys in four countries that were being taken for other purposes and added this list randomization question. The surveys in Ethiopia and Morocco were surveys on Migration and Development conducted by Maastricht Graduate School of Governance, and oversampled households with migrants. The Philippines survey was conducted by the World Bank, Innovations for Poverty Action and the University of Michigan as a baseline survey for an experiment intended to help lower barriers to international migration. The Mexican survey was conducted by the World Bank and Innovations for Poverty Action as a

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[2] We follow the existing literature in not varying the order in which these statements are presented, and in using a common set of questions used for both group A and B. In future research it would be interesting to examine the extent to which the ordering of the 4 statements has any affect on the results, and how sensitive results are to different choices of the three common questions.

follow-up survey for a financial literacy experiment. We describe the population of interest in each study.

The Ethiopian sample was a study explicitly designed to study migration and so over-sampled areas with high concentrations of migrants. Sampling was based on a two stage purposive sampling technique. The five regions of Amhara, Oromia, SNNP, Tigray, and Addis Ababa were chosen, and within each region, three Woredas were selected for enumeration: one urban Woreda and two rural Woredas. The Woredas were selected to represent a city within the region (urban area), a rural area Woreda close to an international border area, and a rural area farther from the border. The final criteria for selection were Woredas that were known to have migration. Within each Woreda, the Kebeles selected for the initial household listing were selected based on accessibility. After listing, the survey randomly chose households to survey, oversampling households with current or return migrants (Kuschminder, 2012). Surveying took place between February and April 2011. The resulting sample consists of 1251 households given the list randomization question. Treatment and control groups were assigned randomly with a 50/50 split.

The Morocco survey took place in four regions of Morocco between November 2011 and February 2012. Four areas in Morocco were selected for their representation of key migration characteristics. These were: the Tadla, the Tingitane Peninsula, the Atlantic Axis consisting of the agglomeration of Casablanca, Rabat and Kénitra, and the Rif Central. Smaller geographic units within these areas from which to sample households were then chosen through purposive sampling, and within these areas, the interviewed households were selected through a "random walk". The departure point - usually a well-known reference point like a school or a mosque - of the random walk was chosen with the help of a community representative. Interviewers followed a predetermined route. Depending on the density of buildings, either each 5th household or, in less populated areas, each 3rd household was interviewed. The resulting sample consists of 1485 households given the list randomization question. Survey enumerators alternated to include the fourth list question on every second survey. Treatment and control groups in Morocco were assigned 50/50 but end up with 43% of the sample in the control group and 57% in treatment based on odd numbers of households within areas.

The Mexican survey took place in Mexico City. A convenience sample was first obtained between April and June 2011 by intercepting individuals in five branches of a major Mexican bank, as well as on the streets in public plazas and busy avenues in seven parts of Mexico City. These individuals were then used in an experiment to test the impact of a financial literacy workshop run by this Mexican bank (Bruhn et al, 2013). The follow-up survey for this intervention was conducted between February and June 2012. Randomization was done conditional on agreeing to participate in the follow-up survey, as was done via a computer draw which determined which version of the question an interviewer should ask. In total 1,044 individuals were given the list randomization module in this paper.[3] Treatment and control groups were assigned randomly with a 50/50 split.

The Philippines survey took place between March and August 2010 in Sorsogon Province. Sorsogon is a relatively isolated and rural province, located approximately 12 hours by bus from Manila. International migration rates are lower than the Philippines average as a result of this isolation, and so this location was chosen for an experiment designed to test several interventions aimed at lowering barriers to international migration (Beam et al, 2013). The sample was obtained by first selecting municipalities within this province, then randomly selecting baranguays (local administrative areas) and conducting a door-to-door listing of households in these areas. As such, the survey is representative of this part of the Philippines. These list randomization questions were added to the survey partway during the baseline, and were able to be asked of 2983 individuals. Randomization was done by a computer draw which determined which version of the question an interviewer should ask each interviewee. Treatment and control groups were assigned randomly with a 50/50 split.

4. Results

4.1 Sample Characteristics and Verification of Randomization

Table 2 provides sample means for the treatment (group A) and control (group B) in each of the four countries for a set of variables that are common to all four surveys. We see the different settings enable us to trial this methodology across a range of demographic settings.

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[3] An additional group of respondents were randomized into a Group C, which had the same first three questions as groups A and B, and then a fourth question asking about debt stress. We do not use this group in this paper.

The Ethiopian sample is the least educated and poorest, with 75 percent of respondents having primary education or lower, only 2 percent of households owning a car, and only 39 percent having a television. The oversampling of migrants is reflected in 35 percent of the sample reporting that they have a household member abroad, compared to a national average of only 0.7 percent of the population being emigrants (World Bank, 2011). The Moroccan sample is more heavily dominated by males (the main respondent was chosen as the person who has most control over household finances), still has half the sample with primary education or lower, and has 22 percent owning a car, but almost universal television and telephone ownership. Oversampling of migrants has 28 percent of the sample reporting they have a migrant, compared to a national average of 9.3 percent of the population being emigrants (World Bank, 2011)

The Mexican sample has relatively young and the most educated respondents, with an average age of 34 and 39 percent having university education. They are richer than the Ethiopian and Moroccan samples, with 52 percent owning a car and 68 percent having internet access at home. Ten percent report that they live in a household with a migrant abroad, which is similar to the national average of 10.7 percent of the population being emigrants (World Bank, 2011). The Philippines sample has an average age of 32, and is the most likely to be female (68 percent). In this part of the Philippines car ownership is rare (1 percent), although many households use motorcycles. Fourteen percent have an intermediate family member who is a current migrant, which is higher than the national average of 4.6 percent of the population being emigrants (World Bank, 2011).[4]

Comparing the means for treatment and control groups, we see that randomization has largely succeeded in achieving balance on observable characteristics of respondents and their households. The only significant differences are in household size among the Ethiopian and Filipino samples, and in internet usage among the Moroccan sample. Given that we are testing 56 different treatment-control differences in this table, this number of significant differences is no more than we would expect by chance. As a result we can consider Group A and Group B as being comparable in each country's case, so that any differences in responses to the list

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[4] There are two important reasons why the rate is greater than the national average for the Filipino sample. First, the World Bank data is based on destination country census reports of where individuals live, which can miss a lot of the temporary migration from the Philippines. Second, our definition of migrant for this sample includes both a direct household member being a migrant as well as an immediate family member.

randomization question should reflect the impact of adding the illegal migration question to Group A's set.

4.2 Measuring Illegal Migration

Table 3 reports the results of the list randomization exercise. The first column reports sample size, and the second uses the control group to check what proportion of respondents answer "3" to the list randomization question, reflecting that they think all three statements in the list are true. We would be concerned if this proportion was high, since then respondents with illegal migrants would be in the position of having to answer "4" if they were in the treatment group, thereby revealing their illegal migrant status. Reassuringly we see that the proportion answering "3" in the control group is low, being 0.14 for the Philippines, less than 0.10 for Ethiopia, and less than 0.05 for Mexico and Morocco.

The next three columns then report the mean number of true statements reported in the control group, in the treatment group, and the difference. The difference is our list randomization estimate of the incidence of illegal migration. We estimate that 8.4 percent of the households in the Mexican sample have an illegal migrant abroad, as does 8.6 percent of the Philippines sample, 38.5 percent of the Ethiopian sample, and 41.5 percent of the Moroccan sample.

In addition to this point estimate, we can also use the confidence interval for the difference in means to provide a 95 confidence for the incidence of illegal migration. Despite sample sizes of over 1000 households in each case, these confidence intervals are reasonably wide, typically covering 20 percentage points (11 percentage points in the larger Filipino sample). This is one downside of this indirect elicitation approach – if we asked 1000 individuals a direct question the 95 confidence interval for the proportion would have width at most 6 percent.

Despite the reluctance to ask about illegal migration status in surveys taken at destination, it is possible that reliable answers might be obtained by directly asking sending households in migrant source countries, particularly in cases where illegal migration is commonplace (and hence carries no stigma) and where no contact information for the migrant is collected (limiting the potential for this information to harm the migrant). During a different part of the survey to

the list randomization questions, the Moroccan and Ethiopian surveys asked households who reported having a migrant abroad what type of documentation the person had acquired before entering the destination country, with possible options including work visa, student visa, refugee visa, tourist visa, no documents, or other. We code migrants who enter with no documentation or on a tourist visa as illegal migrants, and report the illegal migration rates as obtained via this direct elicitation in the last column of Table 3. The directly reported rates are 39.3 percent for Morocco and 32.6 percent for Ethiopia, which are reasonably close to (and well within the confidence intervals of) our list randomization estimates. This suggests that list randomization is giving us reasonably accurate estimates.

4.3 Measuring Illegal Migration Rates for Subgroups

In addition to knowing the overall (unconditional) incidence of illegal migration, researchers and policymakers will often be interested in knowing more about the characteristics of which types of households are more likely to have illegal migrants. This can be done by simply comparing treatment and control means within subgroups defined by the characteristics of interest. Ideally one would stratify the randomization on these characteristics, but even without this stratification, randomization should still on average ensure balance within subgroups provided sample sizes are not too small.

Table 4 illustrates this through considering several subgroups of interest. The first group consists of households that report that they have a migrant abroad. We are then interested in knowing the conditional rate of illegal migration – i.e. what proportion of migrant households have an illegal migrant? The first row of Table 3 shows that we estimate that 17 percent of the Filipino migrant households, 45 percent of the Mexican migrant households, 49 percent of the Moroccan migrant households, and 77 percent of the Ethiopian migrant households have illegal migrants.

This ranking is reasonably consistent with other evidence on illegality. Hanson (2006) reports estimates that 56 percent of the Mexican population in the U.S. is illegal, with this rate likely slightly lower for individuals from urban areas as in our study. Opiniano (2007) reports official estimates that 10.6 percent of the Philippines migrant population is irregular. We are unaware of numerical estimates of the proportions of Ethiopian and Moroccan migrants that are illegal, but

the reports that are available do suggest that more of the migrants from Ethiopia are illegal than legal (Kebede, n.d.), while illegal migration is also prevalent from Morocco (Ennaji, n.d.).

A second question of interest is whether there are households who have an illegal migrant that say they do not have a migrant when asked directly. The second row of Table 4 suggests this is not the case in Mexico, but occurs for 7 percent of non-migrant households in the Philippines, 17 percent of the Ethiopian non-migrant households, and 40 percent of the Moroccan non-migrant households might actually have illegal migrants. Since illegal migration appears to be the main form of migration in Ethiopia and Morocco, acknowledging your household as a migrant is tantamount to admitting the migrant is likely to be illegal, and so we interpret these results as suggesting that some households in these countries may underreport having a migrant when asked directly. Some of this could also represent measurement error, which we discuss later in the paper.

The third and fourth rows illustrate how one can look by characteristic, in this case university education. Sample sizes get small in some countries where education levels are low. The rates reported reflect the combination in differences in the likelihood of having a migrant at all by education status, as well as differences in the illegality of that migration. We see that in Ethiopia, Morocco, and the Philippines that more educated households are no less likely (and in fact more likely) to have illegal migrants, whereas in Mexico the less educated households are the ones more likely to have illegal migrants. This may reflect the limited opportunities for Ethiopians and Moroccans to engage in legal forms of international migration regardless of their education level.

Finally, the last row looks at the list randomization estimate of illegal migration for households which answer a direct question that they have a member who went abroad with no documentation or only a tourist visa. We would expect to find an estimated rate close to one for this group, but only get rates of around 50%, with the 95 confidence intervals going up to 79 percent for Morocco and 88 percent for Ethiopia. While one can think of reasons for this discrepancy (for example, migrants may have entered without documents but have subsequently obtained them), this row does suggest there is likely some noise amongst the signal provided by this list randomization question.

5. Conclusions and Discussion

By adding questions to surveys conducted in four countries, we were able to trial the use of list randomization as a means of eliciting illegal migration rates. We find a variety of evidence that taken together suggest that the method is providing useful information. In particular, we find higher rates of illegal migration in surveys which were designed to oversample migrants; that households who report having a migrant are also more likely to have an illegal migrant; that the rankings of illegal migration rates conditional on migration are consistent with other estimates of illegal migration; and that in two countries where it was not considered too sensitive to also ask directly about illegal migration we obtain rates which are reasonably close to our list randomized estimates. The results of this trial suggest that this method could be particularly useful in destinations countries where the issue of illegal migration is much more sensitive.

Nevertheless, there are several limitations of this approach. A first limitation is that the confidence intervals for estimates using this method are much larger than those obtained when asking migrants directly, so in situations where illegal migration is widespread and not considered sensitive, it may be better to just ask directly, particularly in specific origin countries. Secondly, the accuracy of the method relies on individuals understanding that the question protects their privacy and in answering the question accurately (and knowing the true answer themselves, which is not always the case for remaining household members reporting about individuals who have left). If individuals who do not understand the question just give a random answer between 0 and the number of statements, this will inflate the estimate of the illegal migration rate. Adding a third treatment group which is given the same three statements as the control plus a fourth statement that it is expected that almost zero will respond yes to (e.g. "a member of my family is a millionaire") would be a good way to test for such an effect, and enable an adjustment to be made for any such noise effect. For future research and trials of list randomization for this propose, we suggest to include this third control group.

In practice, asking about illegal migration status is likely to be a far more sensitive issue when asked of the migrants themselves in migration destinations than when asking sending households in the home countries. Human subjects review boards are reluctant to authorize researchers from asking about documentation status for fear of this entailing an undue risk on the migrant, and all the major surveys of migrants in destination countries which we are aware of do not ask

documentation status. The results in this paper, therefore, suggest that a list randomization approach may be a useful alternative in such cases, and it would be a valuable avenue for future research to explore the performance of this approach in destination country surveys. Imai (2011) provides techniques that can be used to estimate multivariate regressions with such data, enabling efficient estimation of relationships such as the association between illegal status and wages that are often of research and policy research.

Finally we note that we consider this paper a proof-of-concept, showing how such a method could be used, but also raising a number of interesting policy and methodological issues for future study. We consider the results here promising enough to suggest the method should be trialed further in destination countries, and in studies which wish to look at associations between illegal status and outcomes such as labor market status. In doing so, it would be useful to include tests for order effects, for the sensitivity of the results to exactly which common questions are used, and to use a third treatment group as described above to test whether simply adding more questions leads to a higher response.

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Table 2: Tests of Randomization

	Ethiopian Households			Filipino Households			Mexican Households			Moroccan Households		
	Control Mean	Treatment Mean	T-test p-value	Control Mean	Treatment Mean	T-test p-value	Control Mean	Treatment Mean	T-test p-value	Control Mean	Treatment Mean	T-test p-value
Respondent Characteristics												
Female	0.55	0.53	0.393	0.69	0.67	0.179	0.50	0.47	0.432	0.29	0.32	0.159
Age	45.4	45.8	0.604	32.1	31.9	0.426	33.9	33.9	0.992	41.2	41.5	0.751
Primary education or less only	0.75	0.75	0.938	0.18	0.19	0.901	0.05	0.04	0.676	0.53	0.52	0.793
University educated	0.03	0.04	0.579	0.35	0.37	0.257	0.38	0.40	0.525	0.08	0.10	0.419
Married	0.66	0.64	0.415	0.55	0.56	0.324	0.33	0.32	0.853	0.61	0.63	0.298
Employed	0.58	0.56	0.671	0.46	0.45	0.529	0.70	0.73	0.269	0.46	0.47	0.619
Household Characteristics												
Household Size	6.22	6.50	0.023	5.65	5.84	0.021	3.43	3.48	0.746	4.92	4.90	0.846
Household has a migrant	0.34	0.35	0.660	0.15	0.14	0.787	0.10	0.10	0.934	0.23	0.31	0.477
Have a bank account	0.27	0.30	0.191	n.a.	n.a.	n.a.	0.53	0.53	0.922	0.67	0.66	0.743
Household owns home	0.73	0.77	0.121	0.92	0.91	0.236	0.61	0.62	0.707	0.80	0.80	0.981
Household owns a car	0.02	0.03	0.119	0.01	0.01	0.455	0.48	0.54	0.057	0.21	0.24	0.161
House has internet	0.16	0.14	0.390	0.18	0.18	0.803	0.68	0.69	0.808	0.68	0.60	0.001
Household has television	0.38	0.40	0.662	0.70	0.72	0.150	0.45	0.49	0.227	0.95	0.96	0.242
Household has a telephone/cellphone	0.58	0.61	0.327	0.72	0.71	0.427	0.99	1.00	0.627	0.95	0.96	0.130
Sample size	**605**	**644**		**1477**	**1506**		**513**	**531**		**641**	**844**	

Notes: In Mexico, the television question refers to pay television, and internet refers to having internet within the home.

In Morocco, Ethiopia and the Philippines internet refers to using the internet, either at home or in an internet café. n.a. denotes variable not asked.

Table 3: List-Randomized Measures of Illegal Migration

Country	Sample Size	Proportion of control giving 3 as response	Mean for list question for Control	Mean for list question for Treatment	Illegal Migration Rate Estimated	95% confidence interval	Illegal Migration Rate by Direct Question
Ethiopia	1249	0.098	1.238	1.623	0.385	[0.27, 0.50]	0.326
The Philippines	2983	0.144	1.798	1.884	0.086	[0.03, 0.14]	n.a.
Mexico	1044	0.043	1.275	1.191	0.084	[-0.02, +0.19]	n.a.
Morocco	1486	0.023	1.105	1.520	0.415	[0.33, 0.50]	0.393

Notes:

n.a. denotes question not asked

Table 4: Estimates of Illegal Migration Rates by Subgroup

Subgroup	Ethiopians #Obs.	Ethiopians Rate	Filipinos #Obs.	Filipinos Rate	Mexicans #Obs.	Mexicans Rate	Moroccans #Obs.	Moroccans Rate
Households that say they have a migrant	435	0.772*** (0.096)	429	0.172** (0.074)	105	0.449** (0.173)	323	0.491*** (0.097)
Households that say they don't have a migrant	814	0.172** (0.068)	2550	0.072** (0.030)	939	0.043 (0.055)	1161	0.396*** (0.048)
University-educated	43	0.853*** (0.306)	1059	0.173*** (0.044)	405	0.046 (0.085)	132	0.526*** (0.137)
Not University-educated	1194	0.359*** (0.058)	1920	0.036 (0.036)	639	0.109 (0.067)	1337	0.409*** (0.046)
Household says it has an illegal migrant	144	0.512** (0.184)	not asked		not asked		131	0.472*** (0.162)

Note: *, **. And *** indicate significantly different from zero at the 10, 5 and 1 percent levels respectively.