

## Risk Tolerance under Violence and Economic Hardship:

### The Decision to Migrate from States of Origin

***E**ach year millions of migrants leave their homes in search of a better life elsewhere, while millions of others facing the same conditions stay at home. The decision to migrate requires weighing the adversities from staying home against migration's dangers and probability of success. Under what conditions do individuals decide that migration is worth the risk? We draw on behavioral economics and psychology to argue that individual-level risk tolerance plays a key role in answering that question. We use observational and survey experimental data from two samples: first, a representative survey of 18,000 Guatemalans conducted in 2019, and second, a unique panel survey of Guatemalans who were deported to Guatemala in 2019-2020. Our analyses show that above and beyond standard economic and security push/pull factors, risk tolerance plays a major role in migratory behavior and intent, particularly as uncertainty about migration conditions increases.*

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## INTRODUCTION

Hundreds of millions of people leave their country of origin annually. They move when there are powerful forces suggesting they would be better off if they leave and when they have sufficient resources to do so. Yet as frequent reports of migrant deaths make clear, the journey can be a dangerous one. Deterrent policies in receiving states include border security, long periods of detention without a hearing, separation of families from children, prosecutions of people who provide life-saving aid, and refusal to allow boats to save people making dangerous sea crossings (Simmons and Kenwick 2022). Despite the risks, migrants continue to seek improved lives abroad (Braithwaite, Salehyan, and Savun 2019).

Why do people migrate despite the risks? Research emphasizes "push" and "pull" factors in shaping these choices (cf. Moore and Shellman 2004). People leave their state of origin when they cannot afford to live well, authorities are corrupt, or violence threatens their well-being (push factors). They go to countries that are proximate, have stronger economies, and promise safer environments (pull factors). In most studies, these push/pull factors are measured at the country-level, with state-level violence or joblessness as predictors of out-migration. But the decision to migrate is ultimately an individual- or household-level one. We can only know if our systemic and state-level theories of international patterns are correct if the underlying individual mechanisms of decision-making hold true. If individuals respond to push/pull factors in the way state-level studies posit, why do some people migrate while others from the same communities and facing the same push/pull factors do not? Are there individual traits which make some people more responsive to push/pull factors than others?

We theorize that a person's psychological risk orientation affects their migratory intent and behavior. In deciding to migrate, people accept risk and uncertainties: They weigh their status quo situations against some probability of experiencing harm or failure. Building on research in psychology and behavioral economics, we conceptualize *risk tolerance* as an individual orientation that predisposes a person to be more or less willing to accept the possibility of experiencing harm, given some degree of uncertainty about its likelihood. Because of their underlying risk tolerance, individuals react differently to the uncertain potential for harm during migration. We hypothesize that higher risk tolerance predicts higher interest in migrating, controlling for push/pull factors. We also hypothesize that risk tolerance

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will matter most in situations where uncertainty about the likelihood of adverse outcomes is high.

Emphasizing the individual level of analysis, we overcome shortcomings in the migration literature. First, most studies focus on national and transnational factors that push migrants from their home state and pull them into a host state. Macro-level factors are slow-moving drivers of migratory trends; their spatial and temporal aggregation speak only vaguely to individual decision-making or why similarly situated individuals make different decisions about migration. Second, empirical work is mostly limited to the treated group. Even the studies that do focus on individuals and their decision to migrate almost exclusively sample people who have already migrated, such as refugees (e.g., Ghosn, Braithwaite, and Chu 2019). These studies tell us something about why people migrate but little about why others do not.

We overcome these limitations with two studies conducted in Guatemala in 2019 and 2020. The first is a nationally-representative survey of 18,000 Guatemalans that includes questions and experiments related to migration. This study allows us to correlate behavioral approximations of risk tolerance and their relationship to past and potential future migration choices in a broad sample of respondents. After controlling for variation in safety and security, people who are more willing to engage in risky behaviors are significantly more likely to consider migrating. We complement our observational evidence with a conjoint experiment to parse key push/pull factors. We show that while those factors matter, their effect is conditioned by risk tolerance. Risk-tolerant respondents are less deterred by the prospect of negative outcomes. These results suggest that migration is both *situational* and *dispositional*.<sup>1</sup>

The second study leverages a unique sample of immigrants deported from the US to Guatemala in 2019. This panel represents a hard test for identifying the effect of risk preferences on migration choices, since prior migration suggests a relatively high tolerance for risk. Analyzing observational and conjoint experimental data, we find that deportees cite common push factors as influencing their decision to migrate, like the expectation of violence or poor economic conditions. Strikingly, these elements explain only 7% of the variation in deportees' attitudes toward re-migration. By comparison, models accounting for individual risk tolerance explain up to *five times* more variance in migration decisions than push/pull factors alone. Further, conditions with high uncertainty do not discourage persons with

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<sup>1</sup>This is similar to Brutger and Kertzer's (2018) argument that people form ideas and act based on situational context and individual dispositions.

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high risk tolerance. We thereby show that a model that incorporates both push/pull factors (context) and how individuals tolerate risk (disposition) is a vastly improved model predicting choice to migrate.

This paper offers insights into migration patterns, effective recruitment or deterrent policies, and the roles of information and uncertainty in migration decisions. We turn to the individual level of analysis to understand why people leave their state of origin, adding detailed understanding of variant patterns to scholarship that examines migrants as aggregate flows. By presenting a slate of push/pull factors in a conjoint experimental design, we ascertain their relative importance in the decision-making process, rather than relying on what recent migrants say in a post-journey survey. We measure how one's risk tolerance amplifies or mediates the relative weight of these factors. Given its usefulness in understanding migration choice, there are observable correlates of risk tolerance one may use to predict migration propensity; we can do that more effectively with a clearer understanding of the mechanisms underlying the relationship between risk tolerance and migration decisions. We highlight the importance of uncertainty in influencing decision-making, as low-information environments are most likely to separate behavior between the risk-tolerant and risk-averse. Beyond migration, the study offers insight into how people vary by tolerance in how they choose to act in an array of risky environments, such as joining social movements under the threat of violence versus accepting a repressive status quo.

## **WHY DO PEOPLE MIGRATE?**

According to the International Organization for Migration, a migrant is a person who moves away from their place of residence, whether within or outside of their home country, for whatever reason.<sup>2</sup> We study migrants who leave their country of origin and try to or successfully cross an international border into a host state, regardless of the reason they leave home. This practical definition excludes internally displaced persons, though they may move for similar reasons; it includes refugees, though they have distinct legal status from economic migrants.

People leave their homes when their situations are “bad” for various reasons and they expect to attain better outcomes in another state. In the language of migration research, the circumstances that provide

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<sup>2</sup>For details, visit <https://www.iom.int/who-is-a-migrant>.

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incentives for people to leave home are known as “push factors.” Push factors are often economic: persons have difficulty finding reliable, safe, or well-paying jobs for their skills and education that would allow them an acceptable standard of living (Chiquiar and Hanson 2005). States with a poor economic outlook, a high unemployment rate, or few opportunities for advancement have more out-migration (Camarena and Hagerdal 2020), and states with better job prospects will attract more immigrants. Labor is mobile, and people leave where jobs are scarce to go where they are abundant (Ortega and Peri 2009; Cadena and Kovak 2016). Corruption exacerbates economic difficulties by creating uncertainty, increasing social injustices, and reducing the quality of life (Lapshyna 2014; Poprawe 2015).

Social scientists point to human insecurity as an important push factor, emphasizing how conflict, violence, and human rights violations encourage people seek safer haven. In 2020, 21 million security migrants were categorized as refugees, with the majority coming from Syria, Afghanistan, South Sudan, Myanmar, and Somalia (Braithwaite, Salehyan, and Savun 2019, 5). The most pressing dangers at home are threats to personal integrity, which physically endanger migrants and lead to increased refugee flows out of the country (Davenport, Moore, and Poe 2003). Conflict between actors in a state also endangers civilians, even if they are not directly targeted by warring sides (Moore and Shellman 2004). In other cases, conflicting forces explicitly use population flight as a tactic in war, displacing civilians to gain strategic advantages (Greenhill 2010; Fisk 2018; Steele 2017).

On the other end of the journey are “pull factors” that draw migrants toward one host country versus another. Inclusive immigration policies draw more migrants than closed and enforced borders (Flahaux and De Haas 2016). Countries with more employment opportunities and higher wages attract more migrants. Family and community networks in host countries make the move easier and cheaper for migrants, who rely on those networks to find work and housing (Gosnell and Abrams 2011). People fleeing violence go to countries proximate to their own, taking the fastest and cheapest escape available. Others who move for economic reasons still favor proximate target states but choose the bordering state with the most economic opportunities (Moore and Shellman 2007). States attempt to exert control over their own push/pull factors and try to either attract or deter migrants based on their domestic priorities. Potential receiving states sometimes use targeted ad campaigns and send recruiters to draw migrants who provide needed labor to their country. They attempt to deter them with policies like quotas, enforcement,

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detention, and deportation. All of these elements—opportunities and limitations—enter a migrant’s calculus in determining the likely success of a journey.

We include these standard explanations of migration patterns in our surveys and analysis in part to learn more about how they affect behavior and preferences in a survey experimental setting. But not all persons faced with economic ruin or violence leave their countries, and deterrent policies do not uniformly discourage migration. Most scholarship investigating migration focuses on state-level factors, for analytical and empirical reasons.<sup>3</sup> Analytically, push/pull factors are understood to operate at the level of countries. Empirically, systematic data on the extent of political violence, rights abuses, conflict, and economic performance and opportunities are easiest to find at the national level. Aggregate, national measures illuminate changes in migratory patterns between states but do not explain why some people stay and others leave under the same national conditions. To understand who will move when and why requires an examination of individual decision-making. We underscore the importance of individual psychological orientation toward risk in distinguishing a person who will remain in their state of origin from one who will migrate.

## **RISK TOLERANCE AND THE DECISION TO MIGRATE**

Conceptually, “risk” reflects some level of potential harm and uncertainty about the likelihood of the outcome. The level of harm is a function of potential negative outcomes *and* mitigating factors or positive outcomes (Kaplan and Garrick 1981). In the context of migration decisions, a person weighs the relative magnitude of potential harms and their likelihood against possible benefits of migration.

It is important to distinguish between two concepts that, while distinct, have been shown experimentally to be correlated (Byrne 2005): risk perception and risk tolerance. Risk tolerance is the maximum uncertainty one is willing to accept given the possibility of a negative outcome (Grable 2008). Risk perceptions are subjective, where different people perceive the same conditions or behavior to present different degrees of risk relative to others. Risk tolerance is a relatively stable characteristic that determines how individuals make decisions, given the level of risk they perceive.

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<sup>3</sup>Williams and Baláz (2014) is an exception that offers a non-political science perspective on migration and risk.

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We focus on *risk tolerance*, as it reflects an underlying, relatively stable individual characteristic that affects decision-making and behaviors in predictable ways across time and contexts. This allows us to measure risk tolerance across persons in a relatively uniform fashion, whether for this study or others. Individual characteristics predict risk tolerance, such as being male (Fisher and Yao 2017), young (Duell et al. 2018), educated (Halek and Eisenhauer 2001), and unmarried. Some life experiences, like experiencing violence in the past or having a family to protect, condition people against risky situations (Schon 2019). Research finds that general measures of risk tolerance are strong predictors of specific risk behaviors (Dohmen et al. 2011). We expect that general measures of risk tolerance will be good predictors of whether one is willing to migrate.

A person's risk tolerance tends to be stable over time, though it is influenced by environmental, temporal, and social factors. Risk tolerance is predicted by brain connectivity in the amygdala, which is relevant for emotion regulation (especially fear) and behavioral responses. This suggests that individuals' risk tolerance is partly affected by biology (Jung et al. 2018). Certain characteristics correlate with higher risk tolerance, such as testosterone (McDermott 2011) and extraversion (Oehler and Wedlich 2018). Prospect theory suggests willingness to take risks is affected by decision context, as whether the choice is in the gain or loss domain. In loss domains, people are approximately twice as risk-tolerant as in the gains domain (Kahneman and Tversky 1979).

We expect that risk tolerance affects decision-making in two ways. First, faced with a specific overall level of risk, people with higher risk tolerance will be more willing to accept it in pursuit of a positive potential outcome. We assume that migration is a riskier choice than remaining at home, given higher uncertainty around migration outcomes. We expect that greater personal risk tolerance predicts greater willingness to migrate and to accept risks in pursuit of a potential positive outcome.

Second, risk tolerance affects how much uncertainty one is willing to accept. Holding the level of harm constant, higher uncertainty raises the overall level of risk. Information about hazards of the route, border conditions, or treatment of migrants in the receiving country can be limited and variable. Limited or variable information increases uncertainty about the likelihood of harm migrants will face, thereby increasing overall risk. We expect that having higher risk tolerance will predict a greater willingness to accept uncertainty when making decisions, given a specific level of potential harm.

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Since research on migration has focused on cross-national push/pull factors, it is not surprising that individual-level risk tolerance has received little attention. Yet whether one considers the risks to prospective migrants of staying in their home country, the migratory journey, or life in a new country, risk tolerance is likely to have major implications for decision-making. At each of these key points of evaluation, prospective migrants must weigh the potential harm, uncertainty, and possible positive outcomes that comprise the risks of staying versus migrating. In highlighting these risks, our goal is not to determine whether staying or leaving is riskier, but to show why and when higher risk tolerance individuals should be more likely to choose migration over the status quo.

Migrants face two overarching risks from staying in their home country. First, there are substantial risks to personal security. In conflict settings, such as contemporary Syria and Ethiopia, conflicts between the state and competing organizations pose daily threats to survival. For a large number of countries, including in Central America, the security risks come from gangs and cartels. Second, staying home often involves substantial economic risks to livelihoods and the capacity to earn a living.

Against these home conditions, prospective migrants weigh the risks of traveling to another country and establishing a new life. From extensive scholarship and journalism on migration, it is clear that the migratory trip is fraught with risks to physical and economic security. Physical threats during the migration journey come in the form of predatory gangs, aggressive government officials, and threatening environments. Insecurity is even higher for women, many of whom face rape and sexual exploitation during the trip (Freedman 2012; Criado-Pérez 2019). Many migrants are subject to economic losses that encumber them with lingering debt. *Coyotes* who specialize in facilitating migration have been known to increase prices along the way, and extortion is common. Qualitative interviews we conducted with Guatemalan deportees highlight the randomness of extortion and assault along the migration journey, demonstrating how much uncertainty potential migrants face when assessing the risks of travel. Furthermore, changes in border policies result in higher likelihoods of detention and deportation. A likelihood of adverse detention experiences is compounded by uncertainty; policies change with national administrations, resources, and public sentiment, and would-be migrants have incomplete information about the current border policies or conditions they are likely to face.

There is considerable uncertainty around all these potential dangers. Migrants tend to be misinformed

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about the likely dangers they face in travel (Beber and Scacco 2020), and people are notoriously poor at estimating likely outcomes given low-odds probabilities (Kahneman 2011). Migrants can more reasonably assess the likely outcomes, positive or negative, of staying in their home, where past experience is used as a strong predictor of future conditions.

It is difficult to quantify whether the potential harms of staying or leaving are high, and the reality likely varies by individual. However, we assert that in general *uncertainty* about the likelihood of harm is higher for migration versus the status quo. For those who stay, past is generally a good predictor of future. For those who would go, there are questions about how likely they are to experience harm relative to migration success at every stage of the journey. It is this high level of uncertainty that makes migration the riskier decision compared to the status quo. More risk-tolerant individuals will be more likely to choose migration, particularly as the migration conditions that they face entail a higher degree of uncertainty.

**Hypothesis 1.** *As one's risk tolerance increases, a person is more willing to migrate.*

**Hypothesis 2.** *High uncertainty about negative outcomes will deter migration less for individuals with high risk tolerance.*

## **EMPIRICAL ANALYSIS: MIGRATORY INTENT AND BEHAVIOR IN GUATEMALA**

### **Context**

Our analysis draws on evidence from two original data collection efforts in Guatemala. The past several decades have witnessed a large increase in out-migration from Central America, purportedly due to a mixture of violence, food insecurity, political unrest, desire for family reunification, and lack of economic opportunity. Recent UN data suggests that more than 8% of the Guatemalan population lives outside the country, and the number of emigrants has increased by nearly 300% over the last three decades.<sup>4</sup> The flow of migrants has continued despite increasingly harsh US immigration policies

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<sup>4</sup>See the UN's International Migration Stock 2020: <https://www.un.org/development/desa/pd/content/international-migrant-stock>

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designed to dissuade potential migrants. Many Guatemalans regularly consider the risks of migrating.

The country-level push/pull factors play a significant role in Guatemala's significant migratory outflow. Most importantly, its economy has performed poorly, particularly in the rural north. Over the last decade, disasters and droughts associated with global warming exacerbated already poor economic conditions. Previous research has shown that migrants from Guatemala are primarily motivated by economic factors—more so than migrants from other countries in Central America's Northern Triangle. Guatemalan migrants in the US are more likely to say they migrated due to unemployment, low earnings, or the need to cover their family's basic needs (Abuelafia, Del Carmen, and Ruiz-Arranz 2019). The majority of respondents to our Deportee Survey—76% of them—listed the economic situation in Guatemala as one of the main reasons they migrated in the first place, and 42% of them listed this as their principal reason to do so. The second most listed answer was to give their children and families a better life (62%). 10% of people listed a variety of other economic reasons, from their desire to save to build a house or start a business, to the need to help family members pay for healthcare costs. The relatively strong performance of the US economy—particularly in construction, food processing, other sectors where Guatemalan immigrants are strongly represented—has served as an important pull factor.

Second, like many other countries in the developing world, Guatemala has seen an increase in insecurity over the last decade, which is a contributing factor to the volume of Central Americans seeking asylum in the US. Surveys show that Guatemalan citizens identify insecurity as the single biggest national problem, and the share who report "some" or "a great deal" of insecurity in their neighborhood has been steadily increasing since 2012. However, only 27% of deportees in our survey listed fear of crime, extortion, or violence from organized crime or other threats as a reason to migrate.

The journey from Guatemala is also fraught with risks. Those risks begin when migrants seek help crossing border. In our survey, 81% of respondents relied on human traffickers to reach the US. *Coyotes* are expensive and can be dangerous. The migration journey itself is fraught with danger, with non-trivial percentages of our sample reporting assault (7%), being held against their will (7%), pressured to carry drugs (2%), and extorted to pay larger smuggling fees (17%). Of the deportees who were extorted, 41% report that they involved demands to pay larger-than-agreed fees after entering the United States. To these dangers one must add the efforts by the Mexican government to deport migrants en route to the US.

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During 2019, the Mexican government deported well over 10,000 Central Americans *per month*.<sup>5</sup> Once Guatemalan migrants reach the US border, they face further risks, including the risk of apprehension and prolonged detention while awaiting deportation proceedings. This list of risks is not for the feint of heart, and we expect individual-specific psychological orientation toward those risks to have important implications for which Guatemalans migrate.

## **A Two-Survey Research Design**

To assess the effects of push/pull factors and risk tolerance on the decision to migrate, we included survey questions and a conjoint experiment in two surveys deployed in Guatemala in 2019 and 2020. The two-pronged approach allows us to identify predictors of migration among a wide, representative population that includes people who have not left the country and a unique, targeted sample of people who have just returned from the US.

We included a module on a large-scale household survey ("MPP Survey") fielded across sixty-four municipalities in Guatemala from June to August 2019. The survey was conducted as part of the end-line evaluation of the "Model Police Precincts" (MPP) Project, which was funded and administered by the US Department of State's Bureau of International Narcotics and Law Enforcement and the Research Triangle Institute (RTI) International. Figure 1 provides a map of the sampled municipalities from all regions within the country. The general survey measures the experiences and opinions related to quality of life and security for 18,715 Guatemalan adults. Respondents had the option of taking the survey in Spanish or the Mayan languages of Ixil, Poqomchi' or Q'eqchi'.

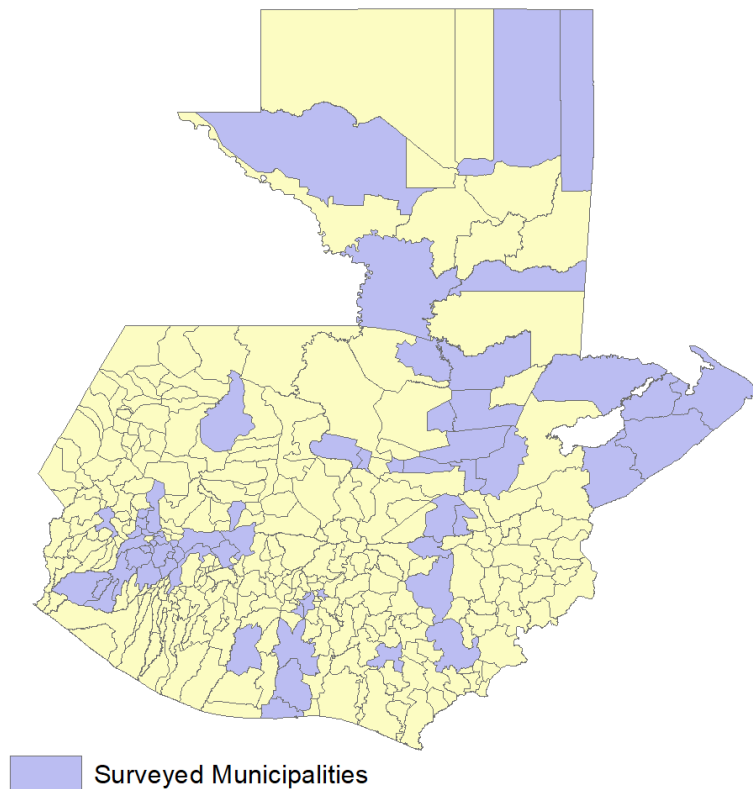
All adults eighteen years and older living in urban and rural areas of the selected municipalities were taken as the universe to sample. Respondents were selected in two stages. The primary sampling unit was selected with a probability proportional to the number of expected voters in the 2019 election.<sup>6</sup> The primary sampling unit was the "nuclear populated place," which corresponds roughly to villages in

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<sup>5</sup>See the monthly data reported by the Strauss Center:<https://www.strausscenter.org/publications/november-central-america-migration-model/>

<sup>6</sup>This information was supplied by Guatemala's Supreme Electoral Tribunal based on population projections from the census in 2002.

**FIGURE 1. Model Police Precincts Survey Sample**



rural areas and to neighborhoods or zones in urban areas. In the second stage, dwellings were chosen by means of a systematic walk that begins at a random location within the selected community. The final sampling unit is the person of age that inhabits the dwelling. If there was more than one, the person who had the most recent birthday was chosen. Details on the sampling process are in the online appendix.

We correlate respondents' answers to survey questions on their economic situation and sense of neighborhood insecurity with their reported intent to migrate in the future. We use questions about behaviors associated with risk tolerance to learn how these behaviors predict migration preferences, controlling for measures of a respondent's local safety and security environment. This observational approach with a very large sample gives us a sense of the overall picture of which people—in which situations and with what risk tolerance—are more likely to migrate in the future.

To learn why people *actually* migrate, we use a second, novel survey of deportees returned to Guatemala from the US conducted between summer 2019 and fall 2020. There are few rigorous studies

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of deported migrants because the population is difficult to track and locate in large numbers. Yet the number of Central Americans who have direct experience with migration and deportation is large. The Inter-American Development Bank estimates that in recent years, 200,000 Central Americans were deported from the US annually (Abuelafia, Del Carmen, and Ruiz-Arranz 2019).

We worked with RTI International and *Te Conecta*, a Guatemalan NGO, to recruit respondents at the Air Force airport in Guatemala City. This airport is the arrival point for all deportees sent to Guatemala, and during our data collection it received three to five planes of deportees each day for four or five days per week. Our survey team greeted deportees after they had been processed and were leaving the airport. Respondents were offered fifty Quetzales (roughly equivalent to 6.50 USD) for taking the survey, which was administered in Spanish. Upon completion, respondents were offered an additional fifty Quetzales for a follow-up interview. We interviewed 1,357 deportees upon arrival. We retained two staff to continue the panel component of the survey via phone, which continued through October 2020. We interviewed panelists approximately one and then three-to-six months after arrival, with those enrolled longest in the study having been interviewed three times. Questions directly measuring risk tolerance were asked in rounds 2 and 3. For this study, we analyze the 294 respondents who participated in round 2 and the 156 participants in round 3.

We present the evidence of risk tolerance and migration in two parts, each of which includes results from the national MPP Survey and the Deportee Survey. In the first part, we present the *observational* results correlating approximated risk tolerance (general population) and self-reported risk tolerance (deportee sample) with the self-reported likelihood of migrating out of Guatemala in the future. This allows us to establish the overall relationship between risk tolerance and migration, both in the general Guatemalan population and among recent deportees, whom we expect to have higher average risk tolerance. In the second part, we present the results of conjoint survey experiments that were embedded in both surveys. This allows us to determine the relative importance of push/pull migration factors and how one's risk tolerance conditions the influence of these factors.

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## Observational Results I: Nationwide

How does risk tolerance affect preferences to migrate among a nationwide sample of Guatemalans? One's risk tolerance varies at the individual level, and we expect that this tolerance changes one's likelihood of migrating when all else is equal. People who are more risk tolerant will be more willing to accept future risks *en route* and upon arrival, rather than continuing to face more certain economic or security costs at home. Conversely, those who are more risk averse will tolerate higher known costs at home before being willing to face the less certain risks of migration.

The MPP Survey did not include a direct measure of risk tolerance. We instead analyze three questions about willingness to engage in risky behavior: willingness to pay a bribe,<sup>7</sup> walk alone at night, and report police misconduct. The misconduct item was shown to half of respondents in a randomly assigned module. Pearson  $\chi$ -squared tests show that all three measures are significantly correlated. To control for possible confounding, we include local factors that may be correlated with the risky behavior and migration choice in our estimates: frequency of criminal acts (index), quality of policing (index), local average bribe price (logged), whether citizens cooperate with police, and whether police treat citizens respectfully.<sup>8</sup> Index questions sum the results across a series of more specific security and policing questions designed to quantify objective experiences. Including these measures allows us to use more objective measures of danger faced by each respondent, so that we may more accurately isolate the relationship between their subjective choices about risky behaviors and their likelihood of migration.

We use logistic regression to estimate whether measures of risk-tolerant behavior predict migration. We use two binary migration measures as outcomes: 1) stated intent to migrate within the next 12 months and 2) whether the respondent migrated to the US in the past. Table 1 presents the results of the logistic estimates, with coefficients presented as odds ratios. These models do not include demographic control variables such as age, gender, or education, as these factors correlate with risk propensity; we want to test whether the risk-seeking behavior itself correlates with migration, regardless of the type of individual exhibiting that behavior. The same models with demographic controls added are in the online

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<sup>7</sup>This sensitive question was asked in three different ways randomized across respondents. Responses are aggregated for this analysis.

<sup>8</sup>Question language is in the online appendix.

appendix; point estimates remain similar although significance is reduced in some cases.

**TABLE 1. Risk Proxies Predict Migration (Odds Ratios)**

	Intent to migrate in <12 months			Migrated in the past		
	(1) Bribe	(2) Alone Night	(3) Report	(4) Bribe	(5) Alone Night	(6) Report
Paid Bribe	2.121*** (6.96)			1.886*** (5.70)		
Safe Walking at Night		1.159+ (1.66)			1.231* (2.20)	
Would Report Misconduct			1.477*** (3.69)			1.187 (1.27)
Security	0.927*** (-4.55)	0.911*** (-5.01)	0.928*** (-3.72)	0.976 (-1.16)	0.955* (-2.03)	0.946* (-2.05)
Police Effectiveness	0.955** (-2.87)	0.953** (-2.79)	0.959+ (-1.94)	0.947* (-2.56)	0.944** (-2.74)	0.950+ (-1.77)
Ln (Local Bribe Price)	0.987 (-0.49)	0.983 (-0.57)	0.983 (-0.53)	0.946* (-2.22)	0.941* (-2.22)	0.933* (-2.00)
Police Legitimacy	1.235** (2.63)	1.249** (2.76)	1.207* (2.00)	1.183 (1.64)	1.206+ (1.79)	1.185 (1.14)
Police Act with Respect	0.988 (-0.37)	0.994 (-0.17)	1.006 (0.15)	0.974 (-0.64)	0.975 (-0.60)	0.996 (-0.06)
Constant	0.530+ (-1.85)	0.700 (-0.91)	0.402* (-2.21)	0.192*** (-5.64)	0.262*** (-3.87)	0.257** (-2.68)
Observations	11242	11315	5498	11382	11459	5563
Pseudo $R^2$	0.023	0.013	0.014	0.013	0.008	0.010

*t* statistics in parentheses. Robust standard errors clustered by municipality.

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

We find evidence that risk-tolerant behaviors correlate with future migration intent and actual past migration. Willingness to pay a bribe is the strongest predictor in magnitude and significance, with those willing to pay a bribe being approximately twice as likely to express future migration intent *and* to have migrated in the past. Walking alone at night is significantly correlated with past migration (23% more likely), and the coefficient for the walking alone predicting future migration model is similar in sign and magnitude (16% higher migration intent) and is marginally significant at 90%. While the sample

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size is halved for the measure on reporting police misconduct, we also see a significant correlation with migration intent (48% more likely). These three behaviors, which approximate a person's demonstrated greater tolerance for risk, are positively correlated with migration.

Next we test whether risk tolerance measures predict migration when controlling for factors correlated with migration decisions: push factors, demographics, and migration history. We create a risk index by adding the binary measures of risk-tolerant behaviors together. Table 2 shows models using a 2-item risk measure (paying bribe and walking alone), which uses the full survey sample, and a 3-item measure that includes half the sample given the random assignment of the misconduct question. The dependent variable in all models is intent to migrate (binary). As models using the full sample show (Columns 1-3), past migration significantly predicts an intent to migrate in the future. If past migrants are more risk tolerant than the general population, we want to know whether risk tolerance remains predictive of future migration, even for this subgroup of past migrants. Therefore, we also estimate models using the subsample of those respondents who have previously migrated to the US (Columns 4-6)<sup>9</sup>.

The 2- and 3-item risk tolerance measures correlate significantly with a respondent's stated intent to migrate, both for the full survey population and the subsample of past migrants. The coefficients for these risk measures are fairly stable across models: reporting willingness to do one additional risky behavior increases the likelihood of planning to migrate by 26% to 42%. Higher R-squared values for the past migrant sample further suggest that these risk measures increase the model's predictive power relative to the baseline models. Risk tolerance predicts a meaningful increase in the likelihood of migration beyond the influence of individual and community conditions to leave.

## **Observational Results II: Deportee Survey**

We provide further evidence of whether risk tolerance shapes migration decisions by surveying those who have made those decisions before: Guatemalans deported from the US. This population is a particularly hard test for our hypothesis bearing on risk tolerance, because deportees already have demonstrated

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<sup>9</sup>About 6% of the overall respondent sample

**TABLE 2. Risk Indices Predict Intent to Migrate within 12 Months (Odds Ratios)**

	Full Sample			Past Migrant		
	(1) Baseline	(2) Risk 2-item	(3) Risk 3-item	(4) Baseline	(5) Risk 2-item	(6) Risk 3-item
2-item risk index		1.332*** (3.38)			1.351* (2.34)	
3-item risk index			1.261*** (3.35)			1.428* (2.51)
Migrated (Self)	2.777*** (9.75)	2.744*** (9.48)	2.390*** (6.12)			
HH Migrated	2.358*** (9.70)	2.315*** (9.66)	2.428*** (8.46)	1.322 (1.51)	1.254 (1.25)	1.350 (1.21)
Difficult Finances	1.101** (3.13)	1.104** (3.25)	1.090* (2.10)	1.078 (0.91)	1.065 (0.75)	0.965 (-0.35)
Security Index	0.941** (-3.19)	0.929*** (-3.83)	0.933** (-2.94)	0.964 (-0.87)	0.955 (-1.11)	0.992 (-0.16)
Police Effectiveness	0.959* (-2.43)	0.958* (-2.52)	0.964+ (-1.72)	0.971 (-0.93)	0.969 (-0.97)	0.920* (-2.03)
Police Legitimacy	1.216* (2.47)	1.217* (2.49)	1.176+ (1.85)	1.551** (2.82)	1.555** (2.86)	1.775+ (1.95)
HH War Victim	1.688*** (6.03)	1.680*** (6.14)	1.753*** (4.31)	1.717** (2.96)	1.708** (3.14)	2.443** (3.22)
Indigenous	0.705** (-2.71)	0.725** (-2.59)	0.724* (-2.52)	0.698 (-1.30)	0.697 (-1.30)	0.672 (-1.03)
Female	0.806** (-3.13)	0.835* (-2.56)	0.771** (-2.91)	1.269 (1.11)	1.381 (1.52)	1.894* (2.23)
Age	0.965*** (-11.38)	0.965*** (-11.60)	0.969*** (-7.50)	0.971*** (-3.45)	0.971*** (-3.30)	0.983 (-1.39)
Education Grade 9	1.293** (2.84)	1.304** (2.87)	1.348* (2.31)	0.966 (-0.14)	0.922 (-0.34)	1.043 (0.12)
Constant	0.994 (-0.01)	0.993 (-0.02)	0.686 (-0.85)	1.348 (0.29)	1.328 (0.29)	0.882 (-0.09)
Observations	11054	10965	5338	748	739	344
Pseudo $R^2$	0.105	0.108	0.102	0.061	0.068	0.110

All models include controls for: Bribe price, police respect, college education, consumption index, household head. Extra controls are not statistically significant in most models.  $t$  statistics in parentheses. Robust standard errors clustered by municipality.

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

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they are willing to bear the risks of migration.<sup>10</sup> If we find evidence that risk tolerance affects attitudes toward re-migration even among this relatively tolerant sub-sample of Guatemalans, it provides strong evidence that even modest variation in tolerance has important implications for migration. We expect risk tolerance to predict intent to migrate again among this population.

In rounds 2 and 3, deportees rated how willing they were to take risks on a 5-point scale. While experimental methods can yield more precise measures of risk tolerance, simpler measures may be more appropriate among low-numeracy populations (Dave et al. 2010). Large-scale surveys embrace non-experimental questions where respondents are asked to self-report risk tolerance, generally or in specific domains. This approach has the benefits of brevity where survey space is constrained, low implementation costs, and strong, positive correlations with actual risky behaviors/outcomes (Stango and Zinman 2009). We use the Dohmen et al. (2011) experimentally-validated general risk question given space constraints, cultural differences, and variable education of participants.

We assess whether this measure of risk tolerance predicts re-migration intent and whether adding the measure improves the model's explanatory power. In the Deportee Survey, migration intent within the next twelve months was measured on a 3-point scale (no, unsure, yes). For interpretation, we treat this outcome as a continuous variable in the linear models presented in Table 3; ordered logit specifications are consistent with these findings and are available in the online appendix. In addition, we operationalize and model the push/pull factors demonstrated in past research to predict migration intent. Push factors are self-reported measures of current economic well-being (higher values being worse conditions) and whether a respondent has been a victim of crimes in Guatemala. Pull factors are self-reported measures of one's economic well-being in the US prior to deportation, whether one was a crime victim in the US, time in the US, and whether they had successfully completed a full migration journey in the past. These variables operationalize economic prospects, perceived security, rootedness in the US, and direct knowledge of how to complete a successful journey. Models include demographic controls.

Columns 1 and 2 show results from the second survey wave, conducted one month after deportees' arrival in Guatemala. Columns 3 and 4 show results from the third survey wave, conducted three to

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<sup>10</sup>Gender (female), having children in the US, and experiences of violence predict lower risk tolerance in our sample; see online appendix for analysis of demographic predictors of risk tolerance.

**TABLE 3. Risk Tolerance Predicts Re-migration, 1 Month and 3-6 Months after Deportation**

	(1) 1 Month	(2) 1 Month + Risk	(3) 3-6 Months	(4) 3-6 Months + Risk
Risk Tolerance		0.271*** (10.62)		0.169*** (4.53)
Econ Situation	0.0966 <sup>+</sup> (1.90)	0.0599 (1.36)	0.243*** (3.73)	0.199** (3.00)
Victim GT Crime Rnd 2	0.210 (1.59)	0.182 (1.45)	0.216 (1.39)	0.0783 (0.52)
Econ Situation US	0.0163 (0.33)	0.0645 <sup>+</sup> (1.67)	0.0416 (0.65)	0.0450 (0.77)
Victim US Crime	-0.138 (-0.84)	-0.199 (-1.49)	-0.165 (-1.01)	-0.203 (-1.29)
Children US	0.210 <sup>+</sup> (1.83)	0.205* (2.13)	0.0124 (0.08)	0.111 (0.76)
Children GT	0.136 (1.26)	0.106 (1.21)	0.103 (0.73)	0.168 (1.23)
Successful Migrations	0.0555 (1.05)	0.0702 (1.48)	0.0853 (1.11)	0.0769 (1.04)
Age	-0.00470 (-0.67)	-0.00434 (-0.78)	-0.0287*** (-3.58)	-0.0258** (-3.35)
Ln(Time US)	-0.0299 (-1.17)	-0.0174 (-0.87)	-0.0104 (-0.34)	-0.00434 (-0.13)
Constant	-0.162 (-0.54)	-1.195*** (-4.37)	-0.0235 (-0.06)	-0.406 (-1.03)
R-squared	0.0733	0.344	0.174	0.294
Observations	294	294	156	152

*t* statistics in parentheses

Models include controls for gender, English proficiency, education, US monetary assets, and indigenous language. Extra controls are not statistically significant. *t* statistics in parentheses.

Robust standard errors.

<sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

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six months after deportation. For each survey wave, estimated results are presented first without and then with the measure of risk tolerance. For both waves, risk tolerance significantly predicts intent to remigrate, controlling for more conventional migration predictors. In fact, the models' predictive power increases dramatically: Adding a measure of self-reported risk tolerance increases the models' predictive power approximately by 1.5 to 5 times.

The coefficients for risk tolerance are also noteworthy: a one-point increase in risk tolerance (on a 5-point scale) predicts an increase of 0.27 (round 2) and 0.16 (round 3) in intent to migrate on a 3-point scale. While the results are large for both rounds, they are somewhat smaller in the three- to six-month survey period; current economic conditions increase in significance (Columns 3-4), while risk's magnitude (and improvement in model fit) decreases. This suggests that as economic realities on the ground become more concrete, they may temper the role of risk tolerance in one's migration choices.

These results suggest that a person's self-reported risk tolerance predicts an increased probability that they will want to remigrate, controlling for measures of conventional push/pull decision factors. This is a focused sample of respondents, who have demonstrated their willingness and ability to migrate to the US and experienced the negative outcome of deportation. Even so, there is enough variation in reported risk tolerance to identify a strong and meaningful relationship between it and the stated desire to migrate again—an effect that dominates other push-pull factors in respondents' decision-making.

In combination, these studies support our Hypothesis 1. In asking deportees to rate how willing they are to take risks, we have a fairly direct measure of risk tolerance (rather than a behavioral approximation), but it does to some extent endogenize the respondent's own risk *perceptions*: push/pull conditions others would see as risky these respondents may perceive as more mundane. We use experimental data to see how risk tolerance conditions decisions in the presence of uncertainty, and how these choices differ among those with and without past migration knowledge.

## **Experimental Results I: Nationwide**

The estimated models presented so far regress a respondent's self-reported tolerance for risks or risky behaviors on the likelihood they self-report an intent to migrate in the future. These analyses use observational data and demonstrate a strong and meaningful correlation between risk tolerance and

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migration intent, bolstered by controlling for a variety of potential confounding variables.

To better understand the nature of risk tolerance's relationship to migration decision-making, we included a conjoint experiment in both studies. Well-suited to a decision like migration where individuals must weigh multiple factors at once, the conjoint experiment enables us to isolate causal effects and compare the relative strength of different potential determinants of opinions and decisions.

We administered a forced-choice conjoint experiment in the MPP Survey. For this experiment, half of the survey participants (n=9367) were randomly selected to hear a short vignette about migration to the US.<sup>11</sup> The English translation of the exercise is here:<sup>12</sup>

Deciding to migrate to the United States as an undocumented person can be challenging. Consider the following scenarios about life in Guatemala and the United States. Each scenario has its own characteristics. With these two cases in mind, in which do you think you would be more likely to try to go to the United States? Even if you are not completely sure, choose one of the two cases.

Respondents were asked to consider two pairs of scenarios (conditions randomly assigned in each). For each pair, respondents chose the scenario under which they would be more likely to migrate. Included items were informed by existing literature on economic and security determinants of migration in the sending and receiving country (Table 4).

We want to identify how varied vignette conditions influence the preference to migrate relative to a baseline condition. First, we examine the experimental data descriptively by plotting the marginal means of each level of all attributes in the conjoint experiment, as shown in Figures 2(a) and (c). Calculating the marginal means requires no modeling assumptions and simply represents the average choice outcome across all appearances of a given attribute level while averaging across all other attributes. Since we use a forced-choice conjoint design, the average marginal mean across all levels in an attribute is 0.5. Marginal means above 0.5 indicate that conjoint profiles showing that attribute level were chosen relatively more often by respondents.

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<sup>11</sup>The other 50% of participants received a different survey module. This division was possible due to the large sample size, enabling investigators to cover a broader range of topics without lengthening the survey.

<sup>12</sup>Original Spanish text is in the appendix.

**TABLE 4. Conjoint Attributes and Levels**

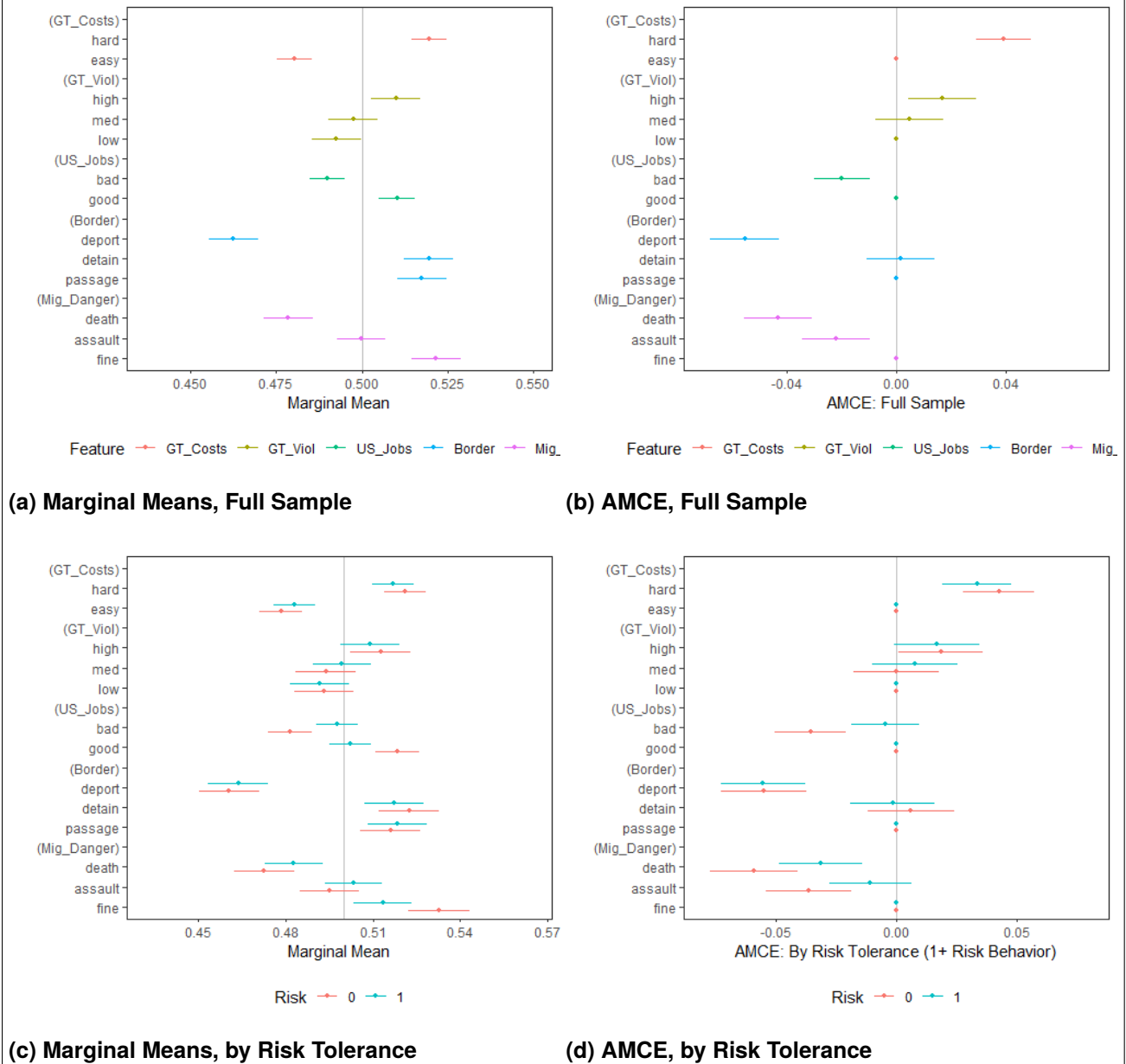
<b>Conditions at home (push factors)</b>	
Economic hardship	Paying basic expenses in Guatemala is [EASY/HARD]
Violence	There is [LOW/MODERATE/HIGH] gang violence where you live.
<b>Conditions abroad (pull factors)</b>	
Economic opportunity	Jobs available in the United States: [MANY/FEW]
Detention	If you arrive in the US, you will [NOT BE DETAINED/BE DETAINED AND RELEASED/BE DEPORTED]
Migration danger	Travel to the US: [SAFE/YOU COULD BE VICTIM OF A CRIME/YOU COULD DIE EN ROUTE]

Then, we present the Average Marginal Component-Specific Effects (AMCEs) of the response data based on the uniform randomization design of the experiment (Hainmueller, Hopkins, and Yamamoto 2014; Sen 2017). This approach allows us to investigate whether these differences are statistically different from each other, and it is the common approach when using regression analysis for estimating causal effects in conjoint designs. The singular dots along the vertical zero-effect line indicate which conditions from the vignettes are considered the relative baseline. The AMCE values plotted for the other conditions represents the average marginal effect of changing conditions in that feature on the probability that the profile is chosen (in this case, the preferred condition for migration), averaged over the joint distribution of the other remaining attributes. Figures 2 (b) and (d) show the AMCEs of the conjoint features and includes the baseline category for each. We report the results for the aggregated sample in Figures 2 (a) and (b) and stratified by risk type in Figures 2 (c) and (d).

Aggregated results support expectations for the effects of push and pull factors. Worse economic and security conditions in Guatemala predict a significantly higher preference for migration. At the same time, pull factors matter: worse economic conditions and expectations for treatment *en route* and at the US border predict a significantly lower preference for migration.

Since our index of risk-tolerant behaviors has predictive power for self-reported migration intent (Observational Results I), we use the conjoint experiment to see whether determinants of migration choice differ based on risk tolerance. In Figures 2(c) and (d), we stratify the analysis based on whether

**FIGURE 2. Determinants of Migration Choice: Full Conjoint Results and by Risk Propensity**



*Note:* Risk defined as reporting at least one of the proxy behaviors (paying bribe, walking alone at night)

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respondents reported at least one risk-tolerant behavior (willing to pay a bribe or walk alone at night).<sup>13</sup>

Importantly, we find that preferences for migration diverge significantly for the factors where we expect greatest uncertainty: pull factors where information is more limited and possible outcomes more varied (US jobs and travel dangers). Higher risks of physical assault or death during travel appear to have less of a deterrent effect for the risk-tolerant. These respondents were also significantly more likely to choose to migrate under vignettes that presented poor job opportunities in the US; for less risk-tolerant respondents, this item was a greater deterrent.

In fact, we find differences in conjoint responses by our risk tolerance measure even among respondents most predisposed toward migration: those who have migrated in the past and those who plan to migrate in the future. For past migrants, high likelihood of deportation and high likelihood of death along the journey are significant deterrents for the risk-intolerant subgroup, while risk-tolerant past migrants are not deterred by these dangers (Online Appendix). Among respondents who say they want to migrate to the United States in the next year, a number of conditions are significant deterrents for low-risk individuals but not for the risk-tolerant: likely deportation, likely death or assault, and poor job prospects in the US (Online Appendix). These observed differences suggest that even among those more predisposed to undertake the risk of migration, underlying risk tolerance affects who and under what conditions we are more likely to see migration.

## Experimental Results II: Deportee Survey

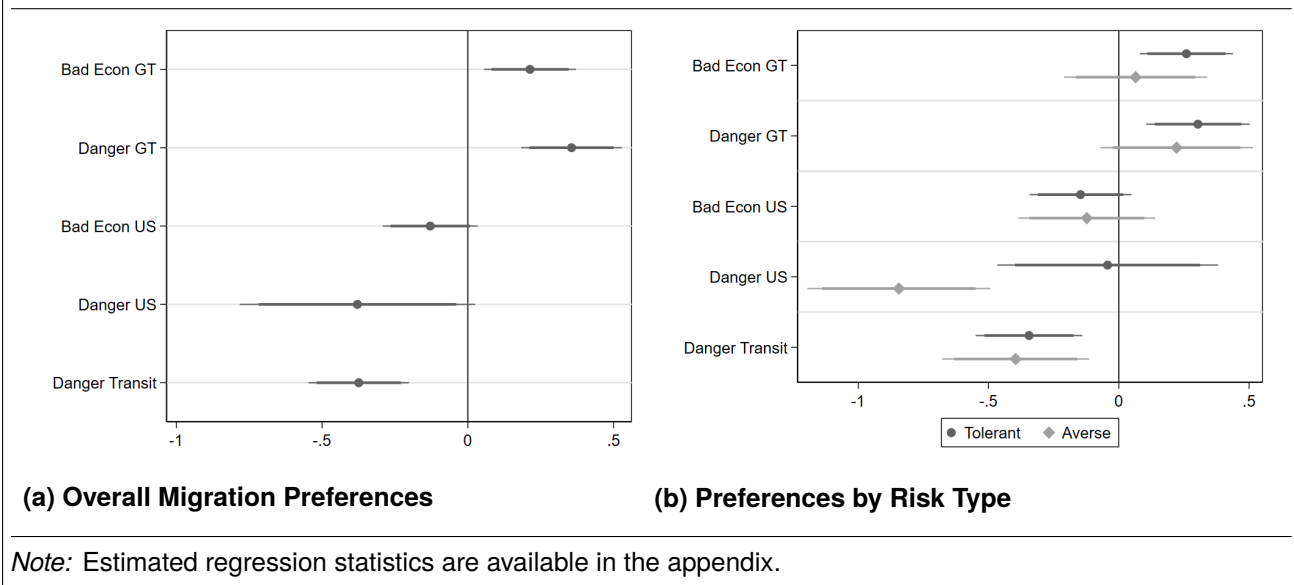
We further explore these differences among Guatemalan deportees, for whom we have more direct measures of general risk tolerance. For the deportee survey, we included the experiment in follow-on round 2 (1 month after arrival in Guatemala; 294 respondents). Respondents received five sequential vignettes, such that the number of units for analysis is  $n = 1470$ . The group of vignettes was introduced with the following text (original Spanish text is in the online appendix):

Deciding whether to leave Guatemala for the US as an undocumented person can be challenging since there are many factors to consider. Imagine the following scenarios

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<sup>13</sup>Here, we use the 2-item risk measure, as the 3-item measure including willingness to report police misconduct would cut our sample size in half, reducing analysis power.

**FIGURE 3. Re-migration Preferences Based on Vignette Characteristics**



involving life in Guatemala and in the US, each with its own characteristics. There may be things you like or dislike about both scenarios, but imagine if you knew only the characteristics we list. After you hear the conditions, please tell me how likely would you be to try to attempt to return to the United States? Even if you are not completely sure, please make your best guess.

Vignette characteristics were randomized by respondent and differed across each of the five scenarios, with each characteristic having an equal (uniform) likelihood of being presented. The attributes and their possible levels are similar to those reported in Table 4, reported in full in the online appendix. These variables were chosen for their representation of economic and security push/pull factors. For each vignette, respondents were asked to rate on a 5-point scale their likelihood of migrating to the US given the presented conditions; the question did not involve a forced choice between separate vignettes. Because the dependent variable is a rating on a scale, we use ordinary least squares regression (OLS) to estimate the effect of each situational characteristic on the likelihood of re-migration. Standard errors are clustered by respondent since each responded to multiple vignettes. We present regression forest plots to illustrate the relative effect of each condition on the relative willingness to migrate again; tables of the estimated statistics are available in the appendix.

Figure 3(a) shows the estimated effects of each of the push/pull factors on the likelihood a respondent

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will want to migrate again. These results aggregate all survey respondents, regardless of their risk type. The results are consistent with traditional expectations of why people migrate: poor economic conditions or violence in Guatemala (push factors) predict higher interest in migration, while poor economic conditions or danger of violence from the government or citizens in the US (pull factors) predict lower interest in re-migrating relative to better conditions. Furthermore, an expectation that the journey would be a dangerous one (high desert temperatures along the border or a prevalence of criminal activity targeting migrants) decreases interest in re-migrating. Conditions in Guatemala (push factors) and during the migration journey are all statistically distinct from a null effect; US conditions (pull factors) are marginally significant at 90% confidence levels.

Figure 3(b) stratifies the sample into those who self-report high or low risk tolerance. Respondents reporting they are "willing" or "somewhat willing" to take risks are coded as risk-tolerant, while other respondents are coded as risk averse. As mentioned, we believe this sample to be more risk-tolerant overall as demonstrated by their past migration, and this is shown in the data, as two-thirds of respondents report themselves to be risk-tolerant by this measure.

We see larger divergence by risk tolerance around areas of uncertainty for deportees than MPP respondents. The results of the stratified estimates indicate a person's risk tolerance seems to drive the overall findings for push factors in the aggregated sample.<sup>14</sup> Push factors are significant predictors of migration preference among risk-tolerant respondents but do not motivate risk-averse participants. While the difference between risk-tolerant and risk-averse groups is not statistically significant, these decision factors are significant for the risk-tolerant group (worse conditions increase migration likelihood) but not for the risk-averse group. The result suggests that the observed role of push factors in migration choice may be driven especially by risk-tolerant individuals—people who are willing to risk the unknown and migrate to avoid poor current living conditions.

Similarly, the specter of experiencing danger in the US only deters respondents who are risk averse; this item has no effect on migration likelihood for risk-tolerant respondents, and the difference of the effect on each group is statistically significant. Immigrants and refugees have been known targets of

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<sup>14</sup>Results are driven by respondents who are more seriously considering returning to the US; people without strong intent to migrate have less significant determinants of migration preference (see online appendix).

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violence ranging from government scapegoating and repression (Savun and Gineste 2019) to violence from citizens (Fisk 2019), and our data suggests expectations of such targeting deter the risk averse.

It is important to keep in mind the survey's time frame (2019-early 2020) when anti-immigrant sentiment was high and volatile in the US—the conditions migrants experienced pre-deportation might not reasonably predict conditions of danger in the future. This increases uncertainty related to possible negative outcomes. Risk-tolerant respondents appear to be more willing to take on that risk, even if informed that the likelihood of negative outcomes is high. At the same time, the good or bad economic conditions in the US do not have a differential effect on the preference to re-migrate. It is only the prospect of physical danger that deters, and then only among the more risk-averse sample. This suggests that information campaigns distributed in Central and South America that describe conditions in the US negatively may not have much of a deterrent effect among populations that have migrated before.

Finally, the danger of the journey decreases respondents' intention to re-migrate. This effect is not differentiated by risk type: both risk-averse and risk-tolerant persons prefer to avoid dangerous journeys. This may be due to wording of the vignettes or to the fact that our deportee sample was already familiar with the migration experience and had more certain knowledge of migration dangers.<sup>15</sup>

These experimental studies provide further evidence that people with higher risk tolerance weigh factors differently when making their migration choice, supporting Hypothesis 1. While this finding may seem intuitive, it represents a fundamental shift in thinking about migration choice not only as a sum of push/pull factors, but also as a choice shaped by individual psychological and behavioral characteristics.

These results together support our Hypothesis 2 that risk tolerance has a greater influence in determining choices when uncertainty over an outcome is high. For risk-tolerant people, the risk of larger costs in situations with low information or high uncertainty is less of a deterrent than for people with lower risk tolerance. When current economic conditions can be used to predict the future status quo, push factors see little difference in choice to migrate by risk tolerance. Conversely, if the likelihood

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<sup>15</sup>The results are driven primarily by the (large) subsample of respondents who self-report elsewhere in the study that they may or do plan to migrate again: subjects who report that they will not migrate again show no meaningful response to varying vignette conditions in their migration response. Results analyzed by true intent to migrate rather than by risk type are presented in the online appendix.

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of negative outcomes along the migration journey or after arrival are less well known, the outcomes are more susceptible to weighting based on a person's risk tolerance. Past migrants have different sets of knowledge and expectations about negative outcomes related to (re)migration; we see that risk tolerance still conditions their choices but especially along the different dimensions of their highest uncertainty.

## CONCLUSION

Our findings provide new insight into why some people decide to migrate despite the enormous risks involved. Traditional push/pull dynamics are operational: Respondents are more likely to have migrated or migrate in the future when they have experienced violence, had difficulty paying their bills in Guatemala, and job prospects in the US are good. Yet respondents' risk tolerance has a powerful effect on migratory past behavior and intent. In observational data, including risk tolerance improves model fit up to five-fold beyond baseline models of push/pull factors alone. Controlling for objective variation in respondents' safety, people who are more willing to engage in behaviors that carry some risk of a bad outcome (walking alone at night, willingness to report police misconduct, willingness to pay bribes) are significantly more likely to migrate. This individual-level, psychological finding is an important complement to existing research that emphasizes country-level push/pull factors.

We use conjoint experiments to quantify the way risk tolerance conditions the relative importance of push/pull factors in one's migration decision. Those who are more risk tolerant are less deterred by negative prospects, whether the US job outlook or dangerous travel conditions. Risk tolerance has the strongest conditioning effects when it comes to pull factors and conditions on the migratory journey, factors over which respondents are less certain than conditions in their current lives. This is the case even among recent deportees who have experienced the journey and destination first-hand, underscoring that the fundamental psychological predisposition toward risk matters most when people process uncertainty.

These results establish the importance of individual psychology in the decision to migrate. Immigration and refugee studies primarily focus on the state-level characteristics that push people from their home state and pull them toward destinations. Individual orientations like risk tolerance function as a psychological lens that clearly influences migration decisions, mitigating the effects of contextual variables. One advantage of adding psychological orientation to models predicting migration is that

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such orientations can be approximated with fairly straightforward metrics. Individual traits predict levels of risk tolerance, such as gender, education, youth, and unmarried status. Some life experiences, like having a family to protect or experiencing past violence, also condition people against risky situations.

Our findings have important policy implications. Some people are more risk tolerant than others, and they are more likely to migrate even under challenging or dangerous conditions to find a better life for themselves or their family. By extension, more risk-averse persons can be put off by policy interventions intended to deter immigration, such as militarization of the border, crackdowns in low-paying sectors, or enforcement campaigns in communities with many immigrants. However, policymakers could spend enormous resources increasing the costs of illegal immigration, but those efforts are unlikely to have a significant effect on the risk-tolerant individuals who are most likely to accept the migratory risk.

Two paths of inquiry strike us as particularly promising. First, future work should more directly assess how risk tolerance affects the *perception* of risks. We do not find evidence that one's self-reported willingness to take risks conditions risk perceptions themselves, as there is no interactive relationship between high-risk survey experimental conditions and high-risk-tolerant respondents. Nevertheless, our studies do not include measures that enable us to cleanly disentangle risk perceptions from risk tolerance. It seems likely that potential migrants vary in how they *perceive* the degree of risk involved in migrating and in their willingness to *tolerate* a given level of risk. Pinning down this crucial distinction would provide an important contribution to understanding the psychology of migration.

Second, scholars considering a variety of risky behaviors, like protesting, rebelling, engaging in terror activities, or challenging a corrupt incumbent, may benefit from considering individual risk orientations in their models. While political psychology has been long invoked to study American political behavior, its effects are less understood in the realm of international political decision-making and political violence. Political psychology is largely used to study leader behavior (e.g., McDermott 2001) audience responses to international policies (e.g. Brutger and Kertzer 2018). Our study suggests the value of considering risk tolerance or other psychological orientations in popular decisions to join and enact dangerous behaviors—not just the decision to vote.

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