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# Informing Risky Migration: Evidence from a field experiment in Guinea

Giacomo Battiston, Lucia Corno, Eliana La Ferrara*

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**Abstract**

Can providing information to potential migrants influence their decisions about risky and irregular migration? We conduct an experiment with over 7,000 secondary school students in Guinea, providing information through video testimonials by migrants who settled in Europe and through aggregate statistics. We implement three treatments: (i) information about the risks of the journey; (ii) information about economic outcomes in the destination country; and (iii) a combination of both. One month after the intervention, all treatments led students to update their beliefs about the risks and the economic outcomes of migration, resulting in decreased intentions to migrate. One year later, the *Risk Treatment* resulted in a 51% decline in migration outside Guinea. This effect was driven by a decrease in migration without a visa (i.e., potentially risky and irregular) and was more pronounced among poorer students. These findings are consistent with the predictions of a model where individuals choose between not migrating, migrating regularly, or migrating irregularly, and where information increases the perceived cost of irregular migration, thus decreasing migration among poorer students who cannot afford regular migration.

**Keywords:** irregular migration, trafficking, information experiment, Guinea
**JEL Classification:** F22, O15, J61, D8, C93

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# 1 Introduction

Recent years have seen a surge in irregular migration from Africa to Europe, creating a first-order humanitarian problem and a major policy challenge. Since 2016, approximately 1 million people have attempted to cross the Mediterranean Sea irregularly to reach Europe from Africa.[1] This type of migration has three main features. First, the migration routes from Africa to Europe are fraught with severe risks, including violence, kidnapping, trafficking, and drowning while attempting to cross the Mediterranean Sea.[2] Second, migrants who manage to enter Europe illegally encounter financial and legal barriers to labor market participation, hindering their ability to find a regular occupation and their overall well-being.[3] Third, recent evidence shows that before leaving their countries of origin, migrants have limited and distorted information on the risks associated with the journey (Beber and Scacco, 2022; Eziakonwa et al., 2019) and on their rights in destination countries (Mixed Migration Centre, 2019a; Tjaden, 2020; Sanchez et al., 2018), even after they reach Europe (Achilli et al., 2016).[4,5]

This paper studies whether the provision of information to potential migrants induces them to reassess the risks of the journey and the economic prospects at destination, in a way that ultimately affects their choice to migrate and the type of migration. Answering this question is important in order to design policies that minimize the human and economic costs associated with irregular migration. Lack of accurate information about the expected costs and benefits of migration could in fact result in ex-post sub-optimal decisions.

We conducted a randomized control trial (RCT) involving 160 secondary schools and over 7,000 students in Conakry, the capital of Guinea. Guinea has been a relevant source of irregular migration to Europe over the past decade, mostly consisting of individuals with a high-school diploma, and a considerable number of asylum-seekers (IOM, 2018a; UNHCR, 2017; EU Commission, 2023). The main goal of the intervention was to make participants aware of the risks associated with traveling irregularly and of the employment prospects in destination countries, thus helping them to assess the relative costs and benefits of migrating irregularly, migrating regularly, or not migrating. The intervention, designed in collaboration with a local NGO, combines video testimonials by men and women who migrated irregularly and eventually settled in Europe, brochures with cartoons on fictional stories, and slides showing migration statistics from official and publicly available sources.

We randomized the schools in our sample into four groups: a control group and three treatment arms. The first treatment (T1) delivered information about the risks of the journey from Africa to Europe. The second treatment (T2) provided information about migrants' economic outcomes in the destination countries, using the same format as T1. The third treatment (T3) pooled together the two previous types of information. By differentiating the content delivered in the various arms, our design allows us to disentangle the relative

[1] Consistent with other work in economics and other disciplines (Bah et al., 2023; Deiana et al., 2024; Van Liempt et al., 2023), we refer to migration to Europe through the Sahel and the Mediterranean as 'irregular migration.' Figures on crossings include migrant flows across the Mediterranean Sea to Italy or continental Spain and flows from African shores to the Canary islands (source: authors' calculation on the "Missing Migrants dataset", IOM, 2023).

[2] According to the International Organization for Migration (IOM, 2023), an estimated 23,000 migrants lost their lives or went missing between 2014 and 2019 while attempting to make this sea crossing. In the same period, over 70% of migrants who successfully reached Italy from Africa reported experiencing violence during their journey (IOM, 2018b).

[3] See for example Fasani (2015), Dustmann et al. (2017), Devillanova et al. (2018), Fasani et al. (2021), Achilli et al. (2016).

[4] Wrong perceptions may stem from distorted information shared by friends and relatives who have migrated (Ikuteyijo, 2020; Van Caudenberg et al., 2020) as well as from the limited information available among returnees (Ikuteyijo, 2020). Additionally, traffickers play a significant role in creating false narratives about migration by strategically misrepresenting opportunities abroad (Ikuteyijo, 2020) and by threatening retaliation against migrants who disclose information about abuses (Dunkerley, 2018).

[5] Migrants from West Africa to Europe heavily rely on contacts abroad to get information about migration and these contact may have incentives to transmit incorrect information about the outcomes of migration (Sanchez et al., 2018; Optimity Advisors, 2018).

importance of different types of information and their potential complementarity.

We interpret the effects of our treatments through the lens of a theoretical framework where liquidity-constrained agents decide whether to remain in the home country, migrate regularly, or migrate irregularly. Irregular migration is cheaper than regular migration, but it involves higher journey risks. We assume that migrants can reduce this risk by investing in safer travel methods, financed either with initial wealth or through debt, using potential migration earnings as collateral. The information provided in our treatments should lead to pessimistic updates on risk and economic beliefs, ultimately altering agents' perceived costs and benefits of migration, thus affecting their choices. Our model suggests that the effects differ based on the type of information provided. While information about the risk of the journey increases the expected utility cost of traveling irregularly, information about economic outcomes abroad reduces the perceived utility of reaching Europe *and* increases perceived journey risks by diminishing credit for investing in a safer journey. As a result, our model suggests that information on economic outcomes abroad may also affect beliefs about journey risks. Crucially, the model predicts that if any type of information has an effect, this should be a reduction in migration intentions and migration choices, particularly among poorer individuals, who are less able to afford the costs of regular migration.

We conducted three rounds of survey data collection: a baseline survey, a midline survey after 4 months, and an endline survey after 15 months. The timing of the midline and endline surveys approximately corresponds to one month and one year after the intervention. Our outcomes of interest can be grouped in three categories: (i) beliefs about the risks associated with the journey and the economic conditions in destination countries; (ii) migration intentions; and (iii) actual migration status. To accurately record migration status, we made every effort to track individuals who were absent during the endline survey. We contacted them by phone, reached their close contacts identified during the baseline, and conducted surveys within schools to gather information from their classmates.

To the best of our knowledge, ours is the first paper testing, on a large sample of potential migrants, the relative importance of information about the risks and the economic returns of migration on *actual* migration outcomes.[6]

Our results can be summarized as follows. First, in the short run, all three treatments lead to updates in beliefs about the risks of the journey and the economic outcomes abroad. Specifically, one month after the intervention, students in T1 (*Risk Treatment*) on average expect a 34% higher journey duration, a higher probability of being beaten, of being forced to work, of being kidnapped, of dying during the trip by boat and of being sent back to their country of origin, with magnitudes ranging from 7 to 10 percentage points. Students in T2 (*Economic Treatment*) expect a lower probability to find a job, get asylum, continue studying, and become a citizen in the destination country where they would migrate irregularly, with magnitudes between 4 and 8 percentage points. These effects are similar in sign and magnitude for students in T3 (*Risk and Economic treatment*). The direction of belief updating suggests that students were ex ante over-optimistic on average, both about the risk of the migration journey and the economic returns to migration. In line with the predictions of our model, information on economic outcomes abroad (T2) also has an effect on the entire set of beliefs related to the risk of the journey.

Reflecting this change in beliefs, respondents also decrease their intentions to migrate one month after treatment. Treatments reduce the proportion of students saying they wish to migrate or plan to migrate by about 4.6 and 2.8 percentage points, down from 25.6% and 15.9% in the control group, respectively. Effects

[6]Since migration is a rare outcome, attaining statistical power to measure the impact of information interventions requires large samples. For this reason, our study relies on a sample of more than 7,000 individuals.

of treatments containing risk information (T1 and T3) are more robust across specifications and outcomes, compared to the treatment delivering information on the economic returns abroad (T2).

Crucially, one year after the intervention, despite the limited amount of variation in migration status – 1.6% students migrate in the control group at endline– the *Risk Treatment* (T1) had a negative and significant effect on international migration, equal to 51% of the migration rate in the control group. Notably, we find that T1 only affected *potentially risky* irregular migration (i.e., migration without a visa). We do not find significant effects of T2 or T3 on migration status.

Our paper contributes to two main strands of literature. First, it relates to recent studies on information interventions targeting prospective migrants, which have mostly focused on the impacts on migration *intentions*. For instance, Frohnweiler et al. (2024) showed that providing information about regional income disparities in Ghana and Uganda shifts migration intentions towards wealthier regions. Florio (2023) delivered information about migration laws and labor market conditions to potential migrants from Senegal and observed changes in their willingness to migrate irregularly. In the same context, Dunsch et al. (2019) found that peer-to-peer communication about the risks associated with migration journeys reduces migration intentions, while Mesplé-Somps and Nilsson (2021) found no effect on migration intentions from documentaries portraying positive or negative migration stories. In Guinea, Tjaden and Gninafon (2022) demonstrated that a media-based information intervention significantly affects migration intentions. Only recently, a few papers have estimated the effect of information interventions on actual behavioral outcomes. Shrestha (2020) randomized information about wages and mortality rates in destination countries and found effects on both expectations and migration decisions. Closely related to our work, Bah et al. (2023) conducted an experiment comparing the effects of information on the risks of irregular migration, vocational training, and assistance for migrating to Senegal among potential migrants from the Gambia. They found that vocational training and migration assistance influenced regional migration, while information alone did not.[7,8] Our paper aims to investigate the distinct effects of information about economic conditions abroad and about the risks of the migration journey, as well as any potential complementarity between the two. We also leverage a large sample size, which is essential for studying rare events such as actual migration.

Second, our work relates to papers investigating migrants' expectations about the outcomes of migration. Few empirical contributions compare migrants' beliefs to their counterfactual or realized outcomes abroad. McKenzie et al. (2013) shows that potential male migrants from Tonga to New Zealand underestimate the labor earnings and the odds of being employed. Hoxhaj (2015) finds that migrants overestimate potential wages in the destination country. Other papers measure the update in migrants' beliefs about migration outcomes in response to information treatments (Bah et al., 2023; Bah and Batista, 2020; Florio, 2023). While all these studies hint to a misinformation problem, they reach different conclusions about the direction of the bias. We contribute with a rich elicitation covering several belief items and allowing to measure perceptions about migration along multiple dimensions. Our information treatments lead to a pessimistic update in students' beliefs, consistent with students overestimating economic outcomes of migration, and underestimating the risks related to the migration journey.

The remainder of the paper is organized as follows. Section 2 provides the background and study setting. Section 3 presents the theoretical framework guiding our empirical analysis. In Section 4 we detail the intervention and experimental design. Data and descriptive statistics are outlined in Section 5 while Section

[7] In an ongoing field experiment, Beber et al. (2021) are evaluating the impact of information campaigns highlighting migration journey risks on migration intentions and decisions in Nigeria.

[8] Andries et al. (2024) shows that providing information about the hardships of irregular migration also improves attitudes *towards* migrants in an experiment exploiting virtual reality in the US.

6 discusses the empirical strategy and main findings. Finally, section 7 offers concluding remarks.

## 2 Background and Study Setting

Guinea is a low-income country located in the West Coast of Africa with an average GDP per capita of $1,664 in 2023 and a total estimated population of 14 million people, 2 million of which live in the capital, Conakry (World Bank, 2024; Institute National de la Statistique de Guinée, 2014). Although Guinea has a smaller population compared to other West African countries, it ranked first as the country of origin for irregular migration through the Mediterranean Sea in 2018. In only one year, an estimated 14,400 immigrants arrived irregularly in Europe (UNHCR, 2019). Overall, Guineans accounted for 8 percent of the migrants rescued at sea between 2016 and 2019.[9] In the last 10 years, 113,000 Guineans submitted first-instance asylum requests in the EU (Eurostat, 2024). Interestingly, individuals with secondary education constitute the majority of Guinean migrants who reached Italy irregularly in recent years (IOM, 2018a).

European countries impose tight restrictions on immigration from Africa and, since the 1990s, migrants have been trying to circumvent barriers to mobility by reaching Europe irregularly. Appendix Figure A1 shows the main migration routes, which require crossing the Sahara Desert and then the Mediterranean Sea, either from Libya (the so-called "Central Mediterranean route") or from Morocco (the so-called "Western Mediterranean route").[10]

Since 2016, over 800,000 individuals attempted to cross the Mediterranean via the Central Mediterranean route, with around 15,000 lives lost at sea (IOM, 2023). Additionally, migrants using this route face life-threatening conditions, beginning with the perilous desert crossing and subsequent entry into conflict-ridden Libya, where human trafficking has become rampant (Mixed Migration Centre, 2018; 2019b). A recent survey of migrants arriving in Italy without legal permission found that 76 percent of male migrants and 67 percent of female migrants reported experiences of trafficking, with reported violence particularly prevalent among migrants from West Africa (IOM, 2018b).[11] Consequently, Guineans are a relevant target for an information intervention addressing the risks of irregular migration.

In migrants' journey, the smuggling market plays a crucial and complex role, with important consequences on migrants' traveling conditions and journey costs. Migrants can buy different services from smugglers to improve safety or decrease the likelihood of detection by the police when crossing borders irregularly (Davy, 2017).[12] During sea crossings, for instance, migrants paying lower fees were often assigned to dangerous spots below deck, risking death by asphyxia (Tinti et al., 2018), while higher payments could secure life jackets, satellite phones, or food and water for the journey by boat (Davy, 2017). In addition, smugglers have strong negotiating power, and use it to charge wealthier migrants higher prices (Aiazzi et al., 2015; EU Commission, 2015; UNDOC, 2018).

Overall, migration restrictions for entry into European countries create significant uncertainty for migrants regarding the route and duration of their journey, directly impacting their safety (Andersson, 2014). This

[9] Authors' calculation on UNHCR data recording the nationality of migrants disembarked upon rescue in the Mediterranean Sea.

[10] Figure A1 also shows the Eastern Mediterranean route involving maritime migration from Turkey to Greece. The number of people taking this route declined significantly following the European Union–Turkey agreement in March 2016, after which Turkey considerably increased border enforcement for migrants attempting to reach Europe.

[11] The survey is conducted in reception facilities and meant to be representative of the migrant population. IOM (2018b) defines as victims of trafficking persons who i) worked or performed activities without getting the expected payment, ii) were forced to perform work or activities against their will, iii) were offered an arranged marriage, or iv) were kept at a certain location against their will.

[12] For instance, during the peak of the humanitarian crisis, Syrian asylum-seekers, who generally had better financial resources, were able to secure safer travel conditions (Reitano et al., 2017).

uncertainty is further prolonged and intensified by institutional constraints they encounter upon arrival in Europe (Brekke and Brochmann, 2015).

# 3 Conceptual framework

In this section we develop a simple conceptual framework to examine how the decision to migrate, and whether to do so regularly or irregularly, depends on the beliefs about the economic returns to migration and its costs. Our theoretical findings shed light on the channels driving the treatment effects we observe in the empirical part.

Consider an agent evaluating whether to stay in the home country ($H$), to migrate regularly ($R$), or to migrate irregularly ($I$). The agent's preferences over consumption are represented by an increasing and concave utility function $u$. Consumption depends on the income available at the chosen destination, and we use $y_H$ to denote the income at home, $y_R$ the income at destination if migration occurs regularly, and $y_I$ the income at destination if migration occurs irregularly. We assume that $y_H$ is perfectly known by the agent, while $y_R$ and $y_I$ are observed with noise.[13] In particular, the agents believe that income abroad is given by $y_j = \tilde{y}_j \varepsilon_j$, where $\varepsilon_j$ is distributed with CDF $F_j(.)$ such that $\mathbb{E}(\varepsilon_j) = 1$ and $\tilde{y}_j$ represents the agent's expected income abroad.

In addition to the location-specific income, the agent is endowed with $w$ units of consumption, which they can consume or use to finance migration, if they decide to move. The cost of migration depends on its type: migrating irregularly costs $p_I$ units of consumption and migrating regularly costs $p_R$. We also assume that agents are potentially liquidity-constrained: other than their own wealth $w$, agents can borrow up to a fraction $\gamma \in [0, 1]$ of their future expected income.[14,15] For simplicity, we assume that the cost of irregular migration $p_I$ is exogenously determined and that $p_I < p_R$. In the Appendix B2, we allow for a general price-formation mechanism for $p_I$, based on Nash Bargaining. We show that the price, in that case, is increasing in expected income.

Agents who decide to migrate irregularly also bear an additively separable utility cost, $\kappa_I$, representing potential violence or trafficking along the migration route, known by agents with some error $\varepsilon_\kappa$. This utility cost can be partially reduced by investing in safety. In particular, we assume that the best forecast of the utility cost of irregular migration is given by $\tilde{\kappa}_I \sigma(s)$, where $\tilde{\kappa}_I$ represents agents' beliefs on risk along the migration route, and $\sigma(s)$, decreasing and convex, represents a travel technology using a safety investment $s$ to reduce risk.[16] This is consistent, for example, with the role of '*passeurs*' in North Africa as agents endowed with knowledge on how to cross geographic barriers and borders, with the ability to affect crossing risk for migrants (Tinti et al., 2018).[17]

[13] Our assumption that $y_H$ is fully known to the agent is consistent with the idea that misinformation channels (e.g., misreporting by contacts abroad) do not influence economic prospects at home. Nonetheless, all of the predictions of the model are unchanged if we assume uncertainty on the process for $y_H$, too.

[14] This assumption reflects the possibility that capital markets are imperfect, as well as migrants' ability to borrow money from family members, which may then be repaid in the form of remittances.

[15] The importance of liquidity constraints –one of the features of our model– has also been empirically validated in the context of Bangladesh. Bryan et al. (2014) shows that a small migration subsidy has a large impact on the uptake of internal seasonal migration, suggesting that liquidity constraints may prevent individuals from taking advantage of income-enhancing migration opportunities.

[16] Without loss of generality, we assume $\sigma(0) = 1$; any different value would just be equivalent to a rescaling of $\tilde{\kappa}_I$. In addition, we assume that $\sigma(s)$ respects a version of Inada (1963) conditions for an interior solution; namely, the derivative of $\sigma(s)$ goes to 0 for $s$ approaching 1 and it goes to minus infinity for $s$ approaching 0.

[17] Smugglers in our framework provide a technology to reduce migrants' crossings risks, different from their role in Friebel and Guriev (2013), where they act as financial intermediaries.

Defining as $\hat{s}$ agents' investment in safety, we can write the agent's expected utility from choice $m \in \{H, R, I\}$:

$$\mathbb{E}(U_m) = \begin{cases} u(y_H + w) & \text{if no migration,} \\ \int u(\tilde{y}_I \varepsilon_I + w - p_I - \hat{s}) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma(\hat{s}) & \text{if irregular migration,} \\ \int u(\tilde{y}_R \varepsilon_R + w - p_R) dF_R(\varepsilon_R) & \text{if regular migration.} \end{cases} \tag{1}$$

The utility of migrating regularly, $\mathbb{E}(U_R)$, increases in the expected income $\tilde{y}_R$, taking as given the variance of the forecast shock $\varepsilon_R$. We assume that $\tilde{y}_R$, $F_R$, and $y_H$ are such that $U_R > U_H$.[18] In other words, an unconstrained agent (who can afford to pay $p_R$) always prefers to migrate regularly rather than staying in the home country.

Agents, considering migration, evaluate the safety investment they would make if migrating irregularly, taking into account the liquidity constraint they face. Conditional on choosing irregular migration, an unconstrained individual would invest $s^*$ units of consumption in safety, equalizing the marginal benefit of the safety investment (a reduction in the risk of the journey) to its marginal cost (a decrease in the utility of future consumption). Instead, constrained migrants would spend all of their budget –their current wealth and a fraction of future income– in travel cost and safety investment. We can thus establish the following result, with proof in the Appendix B1:

**Result 1.** *The optimal unconstrained level of safety for the agent, $s^*$, solves the following equation:*

$$-\tilde{\kappa}_I \sigma'(s^*) = \int u'(\tilde{y}_I \varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I). \tag{2}$$

*Agents' chosen investment in safety, $\hat{s}$, is given by:*

$$\hat{s} = \begin{cases} \gamma \tilde{y}_I + w - p_I & \text{if } \gamma \tilde{y}_I + w - p_I < s^*, \\ s^* & \text{if } \gamma \tilde{y}_I + w - p_I \geq s^*. \end{cases} \tag{3}$$

Note that $\hat{s}$ increases with wealth ($w$) and with the expected income from irregular migration ($\tilde{y}_I$), and that $s^*$ increases with the perceived risk of migration ($\tilde{\kappa}_I$).

Having specified how investment in safety depends on the current wealth and on expected income, we can now solve the model in terms of migration choice. We can identify three types of agents, based on their wealth: (i) those unable to afford any migration ($w + \gamma \tilde{y}_I < p_I$), (ii) those unable to afford regular migration, but able to afford irregular migration ($p_I \leq w + \gamma \tilde{y}_I \leq p_R$), and (iii) those able to afford both types of migration ($w + \gamma \tilde{y}_R \geq p_R$). Agents in case (i) do not migrate. The choices of the other agents can be characterized as a function of their beliefs:

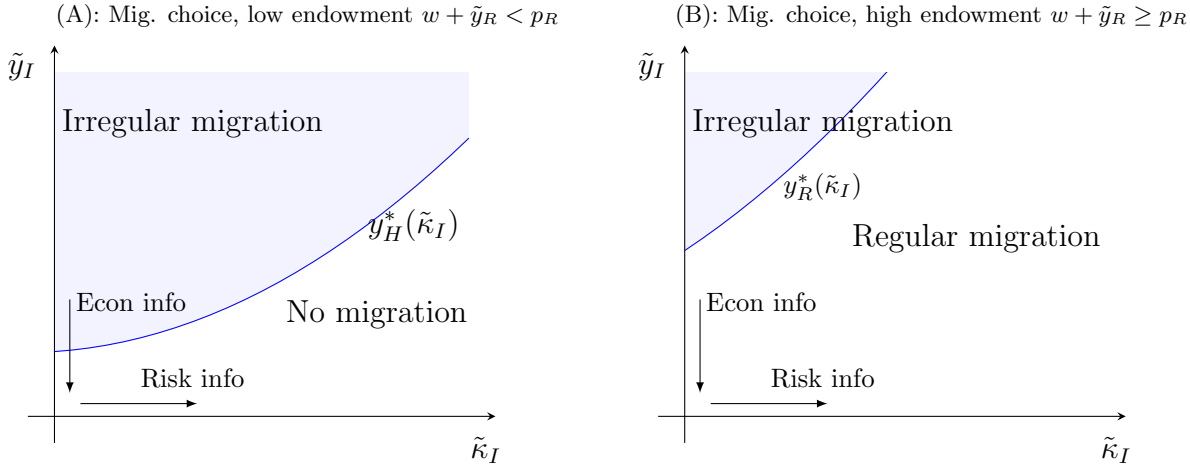
**Result 2.** *Consider an agent with wealth $w$. If $w < p_R - \tilde{y}_R$, the agent will migrate irregularly if and only if $\tilde{y}_I > y_H^*(\tilde{\kappa}_I)$ and stay in the home country otherwise. If $w \geq p_R - \tilde{y}_R$, the agent will migrate irregularly if and only if $\tilde{y}_I > y_R^*(\tilde{\kappa}_I)$ and migrate regularly otherwise. In addition, $y_H^*(\tilde{\kappa}_I)$ and $y_R^*(\tilde{\kappa}_I)$ are strictly increasing in $\tilde{\kappa}_I$.*

[18] If we allowed for uncertainty over the income in the home country, too, this assumption would constrain expected income at home $\tilde{y}_H$ and the CDF on shocks to the home income $F_H$, instead of just $y_H$.

We illustrate Result 2 for $\gamma = 1$, i.e., for the case where agents can borrow against all of their future income. The Appendix B3 extends it to the case of $\gamma \in [0, 1)$. Agents who cannot afford regular migration, i.e., those with endowment $w < p_R - \tilde{y}_R$, will migrate irregularly when $\mathbb{E}(U_I) \geq \mathbb{E}(U_H)$.[19] Instead, agents who can afford regular migration (i.e., with $w \geq p_R - \tilde{y}_R$) will migrate irregularly if and only if $\mathbb{E}(U_I) > \mathbb{E}(U_R)$. Intuitively, since increases in $\tilde{y}_I$ increase $U_I$ and leave $U_R$ and $U_H$ unchanged, for both unconstrained and constrained agents, there exists a level of expected income from irregular migration above which agents choose this option. In addition, since $U_I$ decreases in $\tilde{\kappa}_I$, we can show that such threshold for $\tilde{y}_I$ increases in the level of perceived risk associated with the journey.

In Figure 1 we represent the agent's migration choice by plotting the beliefs on the economic returns of irregular migration, $\tilde{y}_I$, against the expected risk of the journey $\tilde{\kappa}_I$, in the case of low endowment (Panel A) and high endowment (Panel B). The functions $y_H^*(\tilde{\kappa}_I)$ and $y_R^*(\tilde{\kappa}_I)$ partition the space in two regions. In both panels, agents are more likely to undertake irregular migration when they expect high economic returns ($\tilde{y}_I$ is high) and low cost ($\tilde{\kappa}_I$ is low). Agents with low endowment choose between migrating irregularly and staying in the home country, while agents with high endowment choose between irregular and regular migration. Given our assumption that $\mathbb{E}(U_R) > \mathbb{E}(U_H)$, the shaded area in Panel B is a subset of the shaded area in Panel A, that is, for all $\kappa_I$ we have $y_R^*(\tilde{\kappa}_I) > y_H^*(\tilde{\kappa}_I)$. In other words, if an agent with high endowment finds it optimal to migrate irregularly, a poor agent with the same $\tilde{y}_I$ and $\tilde{\kappa}_I$ will find it optimal, too. This suggests that, if the distribution of beliefs is similar between high-endowment and low-endowment agents, the uptake of irregular migration will be higher among poorer agents.

Figure 1: Migration choice and beliefs




*Note:* $\tilde{\kappa}_I$ is the expected utility cost of irregular migration net of the safety investment $s$ and $\tilde{y}_I$ is the expected income of irregular migration.

## 3.1 Comparative statics and predicted treatment effects

We describe the intervention in detail in the next section, but we summarize the basic features of each treatment here, to frame the model predictions in light of our intervention. The Risk Treatment (T1) includes information about the risks of the migration journey; the Economic Treatment (T2) consists of information on the economic returns of irregular migration; the Combined Treatment (T3) delivers information about

[19] We assume that agents migrate irregularly when indifferent. This assumption does not have any impact on our results.

both. As we will see from empirical results, all treatments made agents more pessimistic about migration, consistent with these treatments delivering new (potentially negative) information or increasing the salience of adverse migration outcomes. We can characterize T1 and T3 as increasing the expected utility cost of the journey ($\tilde{\kappa}_I$) and $T2$ and $T3$ as decreasing expected income from irregular migration ($\tilde{y}_I$).

We can illustrate the predicted effects of our treatments using Figure 1. The provision of information about risk (T1 and T3) corresponds to a movement to the right along the horizontal axis (an increase in $\tilde{\kappa}_I$), while the provision of information about economic outcomes abroad (T2 and T3) corresponds to a downward movement along the vertical axis (a decrease in $\tilde{y}_I$). Notably, our treatment should decrease the benefit of irregular migration also compared to regular migration since our treatment emphasizes economic prospects of irregular immigrants. Both the movements on the graphs imply a negative impact on the uptake of irregular migration, by making it relatively less appealing than staying home for poorer agents (Panel A), and less appealing than migrating regularly for richer agents (Panel B). The combination of less migration among the poor and more regular migration among the rich leads to lower irregular migration, and lower migration in general. In other words, if one of our information treatments has any impact on migration, our framework suggests that this effect would likely be negative and driven by irregular migration.

Figure 1 also helps visualize which factors may affect the impact of an information intervention about migration. First, the extent of the potential effect on irregular migration largely depends on the magnitude of the shift in beliefs induced by the intervention (the length of the arrows in 1). Second, the impact may depend on the level of the thresholds $y_H^*(\tilde{\kappa}_I)$ and $y_R^*(\tilde{\kappa}_I)$. If irregular migration is relatively appealing, for instance because economic prospects in the home country are very poor for an agent, or because the price of irregular migration is relatively high, the agent's beliefs will be located in the shaded blue area and likely remain there after the intervention. Third, the slope of $y_H^*(\tilde{\kappa}_I)$ and $y_R^*(\tilde{\kappa}_I)$ will depend on the relative importance of risk and economic factors in determining migration. The more agents are interested in journey risk factors compared to economic ones, the steeper such functions will be. We summarize the predictions of our model in the following corollary.

**Corollary 1.**

*(a) An increase in the cost of traveling irregularly (T1 and T3) may have a negative effect on irregular migration, or no effect at all;*

*(b) A decrease in the expected income abroad (T2 and T3) may have a negative effect on irregular migration, or no effect at all;*

*(c) T1, T2, and T3 should have negative effects only on irregular migration;*

*(d) A decrease in expected income abroad (T2 and T3) increases the perceived utility cost of traveling (economic information increases the perceived risk of the journey).*

# 4 Intervention and experimental design

## 4.1 Sample

We conducted a cluster-randomized controlled trial, randomly selecting 160 out of the 300 high schools located in Conakry and dividing them into four experimental arms, with equal allocation probabilities. We stratified our sample based on the median number of enrolled students, which is equal to 436. The average

school in our sample had 557 students and 14 sections. In each school, we randomly selected 50 students among those in grades 11 to 13 who were present on the day when we first visited the school for the baseline data collection. We targeted grades 11 to 13, i.e., the last three grades of high school, because existing survey data shows that Guinean migrants to Europe are very young.[20] Our visit was not announced in advance, limiting potential concerns related to sample selection.[21] This gave us an initial sample of 7,295 students for which we collected at least basic demographic characteristics during the baseline survey. We invited these students to participate in the baseline survey, as well as the intervention and subsequent survey rounds, during regular class hours.

## 4.2 Intervention

After the baseline survey, 40 schools received information about the risks of the journey for irregular migrants (T1 or Risk Treatment); 40 schools received information about economic outcomes abroad (T2 or Economic Treatment); and other 40 schools received both types of information (T3 or Combined Treatment). The remaining 40 schools did not receive any information (Control group). Figure A2 shows the geographic location of the schools by treatment arm. To reduce the risk of spillovers, we imposed a minimum distance of 400 meters (approximately 440 yards) between pairs of schools included in the sample.

The intervention was designed and implemented in collaboration with two policy partners: *Un Sole per Tutti*, an NGO based in Italy with the mission of hosting international migrants, and *Aguidie* (*Association Guineenne pour le Développement Integral de l'Enfant et du Jeune*), a local NGO based in Conakry. Participants were gathered by Aguidie's moderators in a common room within the school to jointly receive the information treatments. All treatments had a similar structure and consisted in a one-time session that took place during school hours approximately three months after the baseline in each treated school.

The intervention started with a short video including testimonies and migration stories, followed by the projection of slides containing statistical information. Then, there was a collective discussion moderated by Aguidie's staff, and finally students received a brochure with a cartoon that they could bring back to their class and to their homes, in order to remember key messages and stimulate further discussion.

The videos used for the first part of the intervention included approximately 15 minutes of testimonies and 5 minutes of a fictional example story. Testimonies were given by migrants from West Africa who entered Italy illegally and were recorded at a reception center for asylum seekers in Italy, in 2017. Both the videos and the fictional example story were scripted and filmed by our partner NGOs. The statistical information following the videos was compiled from official sources (listed below) and presented in an easy-to-understand way, through stylized silhouettes representing frequencies of various outcomes. We next describe the content of the treatments in more detail.

**T1 (Risk Treatment).** T1 provided information about the risks and the costs of the journey from West Africa to Europe. In this treatment, the video testimonies featured migrants recounting the difficult conditions of every stage of the journey, with a particular focus on the hardships experienced in the Sahara Desert, the time spent in Libya, and the boat trip across the Mediterranean. The same themes were addressed in a fictional story featuring a migrant's journey from West Africa to Europe. The slides projected at the end

[20] Available data on migrants, registered at transition hubs in Italy, report an average (median) age of 20 (19) years among Guineans (IOM, 2018a). Furthermore, roughly 52% of the individuals who reside in Conakry in the 15-24 age bracket are currently enrolled in school (Institute National de la Statistique de Guinée, 2014). Therefore, high school students are a relevant target population for our intervention.

[21] When less than 50 students were present, we selected all of them. To avoid possible discontent among non-selected students, we clarified that participant students were randomly selected for research purposes.

of the video displayed statistics on the average duration of the journey, based on data from IOM (2018b), as well as on the probability of exploitation and of becoming a victim of violence, based on data from UNHCR (2017). Figure A3 shows a screenshot from the video testimony (leftmost panel), and an example slide displaying statistical information (rightmost panel). After the screening, students took part in a group discussion about what they had seen and heard, moderated by Aguidie's staff. At the end of the session, students received a brochure with information on the risks associated to the journey, conveyed through a short story in cartoon form.

**T2 (Economic Treatment).** T2 provided information on migrants' economic conditions at their potential destinations. In the video testimonies, migrants shared stories about the lack of jobs and their status as migrants residing in Italy without legal permission. They compared their expectations before leaving their home country with the reality they found upon arrival, which was typically disappointing.[22] Migrants also emphasized that they had failed to obtain legal status and secure employment. The fictional example stories shown in T2 highlighted the potential contrast between the reality in destination countries and the distorted information that migrants might send back home. The slides used for T2 included data on France, Italy, and Spain, the three most frequently mentioned 'ideal' destination countries elicited during our baseline survey. These slides presented statistics on the probability of working, studying, and obtaining asylum in these three destination countries, based on data from the European Labour Force Survey and Eurostat (Eurostat, 2018a, 2018b). As before, the statistical information was presented in a easy-to-understand format. Figure A4 shows a screenshot from the video and an example of a slide. As in T1, the information session was followed by a discussion about what students had watched, moderated by Aguidie's staff. The session concluded with the distribution of a brochure containing information on economic outcomes at the destination, presented as a short story in the form of a cartoon.

**T3 (Combined treatment).** In T3, we pooled the information provided in T1 and T2, showing both videos, both sets of statistics, and having a joint discussion of the two topics. At the end of the discussion, students were given brochures with both cartoons.

# 5 Data and descriptive statistics

We conducted three rounds of survey data collection: a baseline (November 2018-January 2019), a midline at the end of the academic year (April-June 2019) and an endline (mid-January to mid-April 2020). The midline and the endline were rolled out so that each school was surveyed approximately one month and one year after the treatment, respectively. Participation in the surveys and in the treatment sessions was voluntary. According to our records, all invited students took the baseline survey.[23] For each student, we also collected information on whether they actually attended their assigned treatment session.

## 5.1 Outcomes

To gain a comprehensive understanding of the migration patterns among students in our sample, we collected several key outcomes. In the baseline and midline surveys, we focused on participants' beliefs about the risks

[22] In some cases, expectations were simply to find a job, while in others they hoped for financial security, higher education or the ability to send money home.

[23] To incentivize participation in all the survey rounds, we randomly drew three tablets (of the value of around $200 each) among all students who completed the questionnaire. Surveys were self-administered using tablets.

of the migration journey, about their expectations of economic returns, and their intentions to migrate. In the endline survey, we expanded our data collection to include information on actual migration decisions.

**Beliefs about risks of the journey.** We elicited perceptions of risk of migrating as probabilities of risky events occurring along the migration journey. We asked questions about the routes through Italy and through Spain, separately. As we discuss in Section 6.1, beliefs about the two routes are very similar and highly correlated, both before and after the intervention. For this reason, we aggregate the two routes in the analysis. In order to elicit probabilistic beliefs, we first asked respondents to imagine 100 people exactly like them migrating through a given route, and then we asked how many of those 100 individuals would see the realization of a particular event. All belief variables are expressed on a scale of 0-100. We collected risk beliefs for six events: (i) being beaten or physically abused during the journey; (ii) being forced to work; (iii) being held against one's will during the journey; (iv) dying before starting the trip by boat; (v) dying during the trip by boat; and (vi) being sent back to Guinea within a year from arrival. We also collected information on (vii) the expected journey duration (in months) and (viii) the expected cost of the journey.[24] For the empirical analysis, we consider each variable in isolation, as well as an aggregate index constructed using principal component analysis (*Risk Beliefs Index*).[25] Higher values of this index indicate a more pessimistic assessment of the risks associated with the journey.

**Beliefs about economic returns to migration.** To measure expectations about economic outcomes abroad, we first elicited information about potential destinations in Europe for a hypothetical individual similar to the respondent. We then asked six questions on how many out of 100 individuals similar to the respondent would see the realization of the following economic outcomes in the destination country: (i) finding a job; (ii) continuing with their studies; (iii) getting asylum; (iv) becoming a citizen of the country; (v) going back to Guinea within 5 years from arrival; and (vi) receiving money from the government. We also elicited the following expectations about the destination country: (vii) the fraction of the population in favor of migration; (viii) the expected wage earned by someone like the respondent, and (ix) the cost of living for someone like the respondent.[26] Similar to risk beliefs, we also constructed an aggregate index using principal component analysis (*Economic Beliefs Index*). Contrarily to the *Risk Beliefs Index*, higher values of the *Economic Beliefs Index* indicate a more positive assessment of the economic returns to migration.[27]

**Migration intentions.** To measure migration intentions, we followed the format of the Gallup World Survey and asked each respondent: (i) whether they would migrate to another country if this were possible (*Wishing to migrate*); (ii) whether they were planning to move to another country (*Planning to migrate*); and (iii) whether they were preparing for the move (*Preparing to migrate*), e.g., saving money or contacting someone abroad. If the answer to any one of these questions was affirmative, we also asked which country the respondent wanted to migrate to.

**Migration Decisions.** At endline, we collected data on respondents' migration status using a variety of sources. First, we recorded the presence of students at school on the day of the survey. Second, we

[24] The expected cost of the journey was elicited in Guinean Francs (GNF). In the empirical analysis, we winsorize journey duration and expected cost of the journey at the $5^{th}/95^{th}$ percentiles in order to deal with outliers. We also apply the inverse hyperbolic sine (IHS) transformation to deal with skewness.

[25] As robustness, in Appendix Table A3, we report results by using an alternative index following Kling et al. (2007) (*Kling Risk Index*). This index is constructed summing the z-scores of all variables. Higher values of the index represent more pessimistic beliefs related to the risk of the journey.

[26] In the empirical analysis, we winsorize expected wages and cost of living at the $5^{th}/95^{th}$ in order to deal with outliers. We also apply the inverse hyperbolic sine (IHS) transformation to deal with skewness.

[27] As robustness, in Appendix Table A3, we report results following Kling et al. (2007) (*Kling Econ Index*). Higher values of the *Kling Economic Index* are associated with higher expected economic returns from migration.

conducted phone surveys with respondents who were absent, using the phone numbers they provided at baseline. Third, if the absent student did not reply to our phone calls, we conducted phone surveys with respondents' contacts (e.g. parents), again using phone numbers provided by the respondent at baseline. Phone surveys were shorter than the in-person surveys and only elicited information about the individual's migration status and migration intentions. Our local enumerators, daily supervised by our project manager, tried to reach the same student and their contacts on the phone for four consecutive days. If we failed to reach them after this period, we imputed the migration status of the absent student using information from a short survey with other students and with the school administration.[28]

We report attrition in Appendix Table A1. Out of 7,295 students interviewed in person at baseline, we were able to recontact 61% of them during the midline and 32% at endline. The high attrition rate emerging from in-person surveys at endline may reflect the absence of students in class as well as a potential migration. However, some of it is explained by students changing school (17.5% of the sample) and students graduating from high school (15% of the sample). Nonetheless, when exploiting our various survey methodologies, we retrieve migration information for 99.6% of the students. This high recontact rate is in line with the low attrition levels in the study of Bah et al. (2023) in a similar setting. In Appendix Table A2 we estimate the probability of attrition for each survey methodology as a function of treatment assignment. Attrition is slightly higher in the *Risk Treatment* for in-person interviews in the midline survey (column 1), relative to the control group, but not significantly different among the three treatment arms. In addition, this imbalance is less significant at endline and it disappears when looking at the sample of students interviewed with other survey methodologies (columns 3-5).

Based on these various sources, we construct the variable *Out of Guinea*, an indicator taking value 1 if the respondent is currently outside Guinea and has been since at least 30 days prior to the endline survey. This is our main measure of migration status. Notice that this variable captures both migration to Europe and migration to other African countries, which could be either permanent or transitory (e.g., if the respondents are on their way to Europe).

Given the nature of our intervention, it is important to distinguish between regular and irregular migration. During the phone surveys with respondents who migrated (or with their contacts), we elicited information about visa applications and about the means of transportation used to reach the current location. In particular, we asked whether respondents who were out of Guinea had applied or were planning to apply for a visa in the country they were in, or in their planned final destination. We used this question to construct a first proxy for 'irregular' migration, *Migration without visa*.

## 5.2 Descriptive Statistics

Table 1 shows that migration is a relevant issue in our sample. At baseline, 38% of the students have a classmate who migrated, 60% have at least one contact living abroad, and 42% report contacts in Europe (Panel A). 41% have discussed about migration with friends or siblings in the week prior to the survey, 32% have talked about economic outcomes outside Guinea with their contacts living abroad and 34% about the risks faced during the journey (Panel B). Almost everyone in the sample has heard about irregular migration through Libya and Italy (92%) and through Morocco and Spain (88%) (Panel C). Nonetheless, students seem to be misinformed about their rights at destination: 44% of students wrongly believe that asylum-seekers

[28] This brief survey collected only information on each individual's migration location, if known: whether the individual was in Conakry, outside Conakry but in Guinea, or outside Guinea. It includes data on all absent students, provided by either present schoolmates or by the school administration.

Table 1: Migration networks and information at baseline

| | |
|---|---|
| ***Panel A: Migrants networks*** | |
| Has a classmate who migrated | 38% |
| N. of classmates who migrated | 1.5 |
| Has a contact abroad | 60% |
| Has a contact in the EU | 42% |
| N. of contacts abroad | 3.4 |
| ***Panel B: Own information acquisition*** | |
| Discussed about migration w/ friends/siblings last week | 41% |
| Has a contact abroad & discusses economic outcomes abroad w/ him/her | 34% |
| Has a contact abroad & discusses risk of the journey w/ him/her | 32% |
| ***Panel C: Previous knowledge of irregular migration routes*** | |
| Heard about boats transporting migrants from Libya to Italy | 92% |
| Heard about boats transporting migrants from Morocco/Algeria to Spain | 88% |
| ***Panel D: Misconceptions about migration to Europe*** | |
| False that asylum-seekers can work in Italy | 44% |
| True that poverty gives right to asylum in Italy | 34% |
| True that Italy has *ius soli* | 67% |
| False that asylum-seekers can be deported to European country of first arrival | 15% |
| False that Guineans can obtain Italian citizenship by marrying Italian | 13% |
| ***Panel E: Optimistic perceptions about hard-information outcomes*** | |
| Optimistic about violence | 57% |
| Optimistic about exploitation | 76% |
| Optimistic about journey length | 69% |
| Optimistic about employment | 56% |
| Optimistic about asylum | 33% |
| Optimistic about continuing studies | 53% |
| Observations | 7,367 |

*Notes:* 'Optimistic' about violence, exploitation, or journey length is a variable equal 1 if the student expected a lower probability of violence, of exploitation, or journey length than the ones announced during the information treatment, respectively. During the treatments, we announced the following statistics about journey risk for migrants entering Italy illegally through Libya: i) 7 migrants out of 10 suffer violence during the journey (IOM, 2018b), ii) 9 out of 10 suffer exploitation on their way to Europe (UNHCR, 2017), and iii) 5 migrants out of 10 take more than 6 months to complete their journey (UNHCR, 2017). 'Optimistic' about employment, asylum, or continuing studies is a dummy equal 1 if the student expected a higher probability of employment, of obtaining asylum, or of continuing studies than the ones announced during the information treatment, respectively. We announced the following statistics about young African migrants in Italy, Spain, or France: i) 8 migrants out of 10 are not employed (Eurostat, 2018a), ii) 8 out of 10 trying to obtain asylum do not receive it on first instance (Eurostat, 2018b) (this statistic refers to young Guineans), and iii) 7 out of 10 migrants are not studying (Eurostat, 2018a).

are not allowed to work in Italy; 34% think that poverty alone gives right to asylum; 67% erroneously think that Italy has *ius soli*, the right to citizenship by birth (Panel D).

In Panel E of Table 1 we show the share of individuals with optimistic perceptions about migration outcomes, using as a benchmark the statistics provided by our treatment during the information sessions. We define 'optimistic' those individuals who believe that the probabilities are lower than the announced value for outcomes related to risk and higher than the announced value for economic outcomes. For example, a student would be defined optimistic about economic outcomes if his or her subjective probability of employment and

obtaining asylum were higher than the ones included among the statistics in the treatment. The fraction of optimists ranges between 57% and 76% for risk items and between 33% and 55% for economic items. These findings suggest that students are on average more likely to underestimate the risk of the journey from Guinea to Europe than to overestimate economic outcomes abroad.

Notably, Table 2 shows that beliefs are a relevant predictor of intentions to migrate. Students with more optimistic beliefs about the risk of the journey (lower values of the *Risk Beliefs Index*) and about the economic returns to migration (higher values of the *Economic Beliefs Index*) are more likely to report they wish to migrate (columns 1-2), plan to migrate (columns 3-4), or prepare to migrate (columns 5-6). This result is merely a correlation; however, it is robust to the inclusion of individual and school level controls, as well as to the inclusion of fixed effects for school by grade ($11^{th}$, $12^{th}$, $13^{th}$) by type of curriculum (experimental, social or mathematical sciences).

Table 2: Correlation between Migration Intentions and Beliefs

| | y = intending to migrate from Guinea | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Wishing to migrate | | Planning to migrate | | Preparing to migrate | |
| Risk Beliefs Index | -2.68*** | -2.79*** | -1.88*** | -1.92*** | -0.98*** | -0.95*** |
| | (0.33) | (0.33) | (0.28) | (0.28) | (0.18) | (0.18) |
| Economic Beliefs Index | 1.82*** | 1.79*** | 1.87*** | 1.83*** | 0.60*** | 0.58** |
| | (0.34) | (0.34) | (0.31) | (0.31) | (0.22) | (0.22) |
| *Risk Beliefs Index = - Econ Beliefs Index (p-value)* | 0.107 | 0.059 | 0.979 | 0.835 | 0.220 | 0.226 |
| Individual controls | No | Yes | No | Yes | No | Yes |
| School X Grade X Curriculum FEs | Yes | Yes | Yes | Yes | Yes | Yes |
| *N* | 6936 | 6936 | 6936 | 6936 | 6936 | 6936 |
| Mean dep. var. | 29.9% | | 20.1% | | 5.4% | |

*Notes:* OLS estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. The dependent variable is a dummy for intending to migrate from Guinea at midline. In Cols.1-2 the dependent variable takes value 1 if the student "wishes" to migrate, in Cols.3-4 if the student "plans" to migrate, in Cols.5-6 if the student "prepares" to migrate. Individual-level controls include dummies for gender, grade, place of birth, dummies for parents alive and completed any education, number of brothers and sisters. The mean of the dependent variable is measured at baseline.

As we assume in our model, migration choices are also affected by wealth. In Appendix Table A4, we show that the intentions to migrate regularly reported at baseline (as measured by having requested a visa) are positively correlated with the index of durable goods. In all columns we control for school by grade by type of curriculum, in col 3-4 we add individual controls. In columns 2 and 4 we also control of a dummy reporting whether subjects prepare for migration, to isolate the effect of wealth on migration *type* (regular versus irregular). The correlation is positive and significant in columns 1-3, with effects larger than 10% of the percentage asking a visa at baseline. In column 4 we lose precision since individual controls are correlated with the socioeconomic status, which we are trying to capture.

Table 3 reports balance checks on the students' main socio-economic characteristics, as well as on beliefs and migrations intentions, all measured at baseline. Column 1 shows the mean and standard deviation in parentheses for students in Control schools. Columns 2, 3, and 4 report the differences in means between students in the Risk (T1), Economic (T2) and Combined (T3) treatments, respectively, and students in Control, with the associated standard errors in parentheses. 48% of the students in our sample are female

and 37% are in grade 13, the last year of high school. These variables are balanced across treatment arms, as is the wealth index.

Table 3: Balance table on Socioeconomic controls and Outcomes

| Variable | (1) Control Mean | (2) T1 (Risk)-Control | (3) T2 (Econ)-Control | (4) T3 (Combined)-Control | (5) $N$ |
|---|---|---|---|---|---|
| ***Socio-economic characteristics*** | | | | | |
| Female | 0.483 | 0.011 | -0.008 | -0.000 | 7295 |
| | (0.500) | (0.022) | (0.021) | (0.020) | |
| Student in $12^{th}$ grade | 0.250 | 0.018 | 0.020 | 0.024 | 7295 |
| | (0.433) | (0.027) | (0.029) | (0.032) | |
| Student in $13^{th}$ grade | 0.369 | 0.009 | -0.001 | -0.001 | 7295 |
| | (0.483) | (0.040) | (0.039) | (0.042) | |
| Durables index | -0.007 | -0.013 | 0.027 | 0.014 | 6908 |
| | (1.568) | (0.107) | (0.093) | (0.098) | |
| ***Migration intentions and beliefs*** | | | | | |
| Wishing to migrate | 0.298 | -0.007 | -0.002 | 0.011 | 7295 |
| | (0.458) | (0.023) | (0.024) | (0.026) | |
| Planning to migrate | 0.192 | 0.009 | 0.007 | 0.024 | 7294 |
| | (0.394) | (0.021) | (0.020) | (0.023) | |
| Preparing to migrate | 0.051 | 0.002 | 0.005 | 0.005 | 7294 |
| | (0.220) | (0.010) | (0.010) | (0.010) | |
| Risk Beliefs Index | 0.003 | -0.039 | 0.023 | -0.026 | 7195 |
| | (1.771) | (0.076) | (0.088) | (0.090) | |
| Economic Beliefs Index | 0.048 | -0.064 | -0.096 | -0.019 | 7095 |
| | (1.729) | (0.091) | (0.091) | (0.100) | |

*Notes:* Col.1 reports the control mean of the variable and its standard deviation in parentheses. Cols.2-3-4 report differences between T1, T2, T3 and the control group, with OLS estimates and standard errors in parentheses clustered at the school level. Col.5 reports the number of observations available for each variable. Durables index is constructed as the first principal components from a series of items owned by the respondent's household: radio, television, mobile phone, watch, car, bike, motorbike, refrigerator, fan, and air conditioning. Risk Beliefs and Economic Beliefs Indexes are described in Section 5.

Intentions to migrate are also well balanced across treatments arms. Among students in Control schools, 30% declare they wish to migrate if possible, 19% that they plan to migrate in the next 12 months, and 5% that they have made some preparation to migrate.[29] These figures are very similar to the shares reported by Guineans interviewed in the 2017 Afrobarometer survey, as shown in Appendix Table A5. The last two rows of Table 3 show that the Risk Belief Index and the Economic Belief Index are also well balanced across treatment arms.[30]

While Table 3 reports a parsimonious set of characteristics, a broader set is included in Appendix Table A6 which also shows good balance overall. It is worth noting that the parental education levels in our sample, shown in Appendix Table A6, follow very closely the distribution of education levels in the urban areas of Guinea from the last census (RGPH, 2017). Coupled with the previous findings on intentions to migrate in our sample and in the Afrobarometer survey, this information helps gauge the representativeness of our sample. In Appendix Table A7 we report descriptive statistics on the schools in our sample using administrative data from the Ministry of Education. We gathered data on number of students, teachers and staff, as well as information on the gender ratio among students, average class size and the fees paid by students. School characteristics are also well balanced across treatment arms.

[29] When asked to report one or more reasons for wishing to migrate, students answer as follows: continuing with studies (88%), economic reasons (14.5%), family reunification (11.1%), conflict and persecution (6.3%) and climate change (1%).

[30] Appendix Table A8 tests for balance in the individual variables composing these indexes, separately by migration route, again showing good balance.

# 6 Results

The empirical analysis is divided in two parts. First, we test the impact of our intervention on beliefs and intentions to migrate, measured at midline. Second, we examine treatment effects on students' actual probability to migrate at endline.

## 6.1 Empirical Strategy

For beliefs and migration intentions, we estimate the following specification:

$$y_{t,i,j} = \alpha_0 + \alpha_1 T1_j + \alpha_2 T2_j + \alpha_3 T3_j + \rho y_{0,i,j} + \alpha_X X_{0,i,j} + \alpha_W W_{0,j} + \varepsilon_{t,i,j} \quad (4)$$

where $y_{t,i,j}$ is our outcome of interest for student $i$ in school $j$, at time $t$. $t$ equals 0 at baseline and 1 at midline. $T1$ is a dummy equal to one if school $j$ was allocated to the *Risk Treatment*, $T2$ is a dummy equal to one for the *Economic Treatment*, and $T3$ for the *Combined Treatment*. We estimate an ANCOVA model, including the lagged dependent variable $y_{0,i,j}$ in the empirical equation. The vector $X_{0,i,j}$ contains individual-level controls including a dummy for gender, school grade ($11^{th}$, $12^{th}$, or $13^{th}$ year of school), type curriculum (experimental, social, or mathematical sciences) indicators for parents being alive, parents having completed primary, secondary or tertiary education and the number of brothers and sisters. The vector $W_{0,j}$ contains school-level controls: an indicator for above-median school fees, the ratio of female students, student/teacher and student/class-groups ratios, and a dummy indicating if school $j$ has an above-median number of students (stratification dummy). We cluster standard errors at the school level, our unit of randomization.

Students' beliefs are measured using aggregate indexes as well as their components separately. To account for multiple hypothesis testing, we adjust p-values according to the free step-down re-sampling method Westfall and Young (1993), accounting for the family-wise error rate (FWER).[31]

At endline (t=2), we test the impact of our intervention on actual migration choices (i.e., on the probability that individual $i$ is outside Guinea). We estimate a specification similar to (4), except that we cannot control for $y_{0,i,j}$ because by construction the dependent variable is zero at baseline for all our respondents.

Given that 24% of the students interviewed at baseline (out of 7,374 students) did not participate in the session where the treatment was administered, in what follows we report Intention to Treat (ITT) and Treatment on the Treated (IV) estimates, using the randomly assigned treatment as instrument for attendance to the session.

## 6.2 Impact on beliefs about the risks of the journey

In Table 4 we report treatment effects on students' perceptions about the risks of the migration journey one month after the intervention (midline). Panel A shows intention-to-treat and Panel B treatment on the treated estimates. Within each method, the upper sub-panel contains estimates obtained by pooling the three treatment arms, while the lower sub-panel displays separate estimates by treatment. The bottom part of each panel reports the p-values for the null that the estimated coefficients are the same across pairs of treatments.

[31] Using indexes as dependent variables also mitigates problems associated with testing multiple hypotheses and augments the power of our tests by reducing noise in individual outcomes.

Table 4: Treatment Effects on Risk Beliefs

| | (1) Risk Beliefs Index | (2) Being Beaten | (3) Forced to Work | (4) Being Kidnap-ped | (5) Death before Sea | (6) Death at Sea | (7) Sent Back | (8) Journey Cost | (9) Journey Duration |
|---|---|---|---|---|---|---|---|---|---|
| ***Panel A: ITT*** | | | | | | | | | |
| Any treatment | 0.68*** | 8.53*** | 6.27*** | 8.57*** | 8.56*** | 8.76*** | 8.14*** | -0.19 | 0.20*** |
| | (0.07) | (0.90) | (0.96) | (0.93) | (1.08) | (0.96) | (0.93) | (0.12) | (0.04) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.152] | [0.000] |
| $T1$ - Risk | 0.71*** | 9.21*** | 6.67*** | 8.48*** | 9.51*** | 9.91*** | 6.83*** | 0.02 | 0.29*** |
| | (0.09) | (1.19) | (1.29) | (1.28) | (1.36) | (1.28) | (1.24) | (0.14) | (0.04) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.797] | [0.000] |
| $T2$ - Econ | 0.53*** | 6.39*** | 5.27*** | 6.53*** | 6.12*** | 5.77*** | 8.40*** | -0.29** | 0.09** |
| | (0.08) | (1.11) | (1.13) | (1.16) | (1.25) | (1.15) | (1.27) | (0.14) | (0.04) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.170] | [0.127] |
| $T3$ - Combined | 0.83*** | 10.35*** | 7.04*** | 11.19*** | 10.41*** | 11.07*** | 9.35*** | -0.31* | 0.22*** |
| | (0.11) | (1.51) | (1.54) | (1.42) | (1.47) | (1.46) | (1.25) | (0.19) | (0.05) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.227] | [0.001] |
| $T1 = T2$ *(p-value)* | 0.076 | 0.042 | 0.307 | 0.181 | 0.014 | 0.005 | 0.288 | 0.045 | 0.000 |
| $T1 = T3$ *(p-value)* | 0.311 | 0.507 | 0.830 | 0.109 | 0.577 | 0.498 | 0.084 | 0.096 | 0.160 |
| $T2 = T3$ *(p-value)* | 0.007 | 0.016 | 0.271 | 0.003 | 0.003 | 0.001 | 0.515 | 0.884 | 0.003 |
| ***Panel B: TOT*** | | | | | | | | | |
| Any treatment | 0.83*** | 10.39*** | 7.64*** | 10.44*** | 10.42*** | 10.67*** | 9.91*** | -0.23 | 0.24*** |
| | (0.08) | (1.09) | (1.16) | (1.13) | (1.32) | (1.16) | (1.16) | (0.14) | (0.05) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.146] | [0.000] |
| $T1$ - Risk | 0.84*** | 10.91*** | 7.90*** | 10.03*** | 11.26*** | 11.73*** | 8.08*** | 0.02 | 0.34*** |
| | (0.10) | (1.35) | (1.48) | (1.47) | (1.57) | (1.47) | (1.47) | (0.16) | (0.05) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.826] | [0.000] |
| $T2$ - Econ | 0.68*** | 8.20*** | 6.75*** | 8.38*** | 7.86*** | 7.42*** | 10.73*** | -0.37** | 0.12** |
| | (0.10) | (1.40) | (1.44) | (1.46) | (1.60) | (1.44) | (1.65) | (0.18) | (0.05) |
| | | [0.000] | [0.002] | [0.000] | [0.000] | [0.000] | [0.000] | [0.150] | [0.116] |
| $T3$ - Combined | 0.98*** | 12.25*** | 8.35*** | 13.24*** | 12.34*** | 13.11*** | 11.09*** | -0.37* | 0.26*** |
| | (0.13) | (1.76) | (1.79) | (1.68) | (1.80) | (1.76) | (1.52) | (0.22) | (0.06) |
| | | [0.000] | [0.002] | [0.000] | [0.000] | [0.000] | [0.000] | [0.222] | [0.009] |
| $T1 = T2$ *(p-value)* | 0.177 | 0.094 | 0.476 | 0.332 | 0.034 | 0.011 | 0.143 | 0.035 | 0.000 |
| $T1 = T3$ *(p-value)* | 0.302 | 0.490 | 0.819 | 0.100 | 0.577 | 0.498 | 0.081 | 0.097 | 0.178 |
| $T2 = T3$ *(p-value)* | 0.019 | 0.032 | 0.396 | 0.008 | 0.009 | 0.002 | 0.842 | 0.981 | 0.008 |
| $N$ | 4367 | 4367 | 4367 | 4367 | 4367 | 4367 | 4367 | 4367 | 4367 |
| Mean dep. var. control | -0.25 | 49.7 | 49.9 | 45.3 | 36.2 | 40.7 | 37.2 | 15.9 | 2.19 |

*Notes:* ITT (upper panel) and TOT (lower panel) estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. FWER-adjusted p-values in square brackets, computed following Westfall and Young (1993) with 1,000 iterations. Dependent variables are measures of risk beliefs one month after the intervention, specifically: a PCA aggregator of beliefs about risk outcomes (Col.1); beliefs about the probability of: being beaten (Col.2); being forced to work (Col.3), being kidnapped (Col.4), dying before reaching the Mediterranean Sea (Col.5), dying during travel by boat (Col.6), and being sent back (Col.7). The dependent variable in Col.8 is the cost of the journey (inverse hyperbolic sine of Euros), in Col. 9 it is the duration of the journey (inverse hyperbolic sine of months). All specifications include the individual controls listed in Table 2 as well as the following school-level controls: above-median school fees, share of female students, student/teacher ratio, student/classes ratio, and a stratification dummy for schools with above-median number of students.

The estimated coefficient on the pooled treatment dummy in Panel A indicates that treated students update their beliefs about the risk of migration in the direction of 'more risk'. The magnitude of the effect on column 1 corresponds to a 0.24 standard deviations higher Risk Belief Index for treated students, relative to control ones.[32] Panel A of Appendix Figure A5 shows that our results are not caused by a large shift in

[32]All treatments also have a positive and significant effect on the two formulations of the *Kling Risk Index*, as reported in

the perception of a few subjects. We observe a uniform shift to the right in the distributions of beliefs for treated students relative to control ones.

More specifically, treated students are more likely to mention a significantly higher probability of being beaten along the route (column 2), being forced to work (column 3), being kidnapped (column 4), dying before or during the trip by boat (columns 5-6), and of being sent back to the country of origin (column 7). Treated students also believe that the migration journey will be longer (column 9) but not more expensive (column 8). These effects are large: the magnitudes range between 13 and 24 percent of the control group mean at baseline.

Panel A also reports estimates separately by treatment arm. All three treatments have a significant impact on the Risk Belief Index, as well as on its individual components. For T1 and T3, this is not surprising because those treatments explicitly included information about the risks of the journey. The impact of T2 can be rationalized in several, non mutually exclusive, ways. One interpretation, consistent with our model, is that receiving negative information about economic outcomes abroad may reduce the expected ability to borrow to invest in safety for the journey. Another is that information treatments lead to information acquisition on aspects of migration that go beyond the specific type of information received. A third possibility is that'bad news' lead to a pessimistic update across the board. In general, when designing information interventions, it is not uncommon to find spillovers on beliefs not directly targeted by the treatments (see, for example, Ciancio et al., 2020). However, reassuringly, when we test whether the impacts of the various treatments are statistically different (p-values reported at the bottom of Table 4), it is reassuring to observe that the Risk Treatment (T1) and the Combined treatment (T3) have significantly larger impacts than the Economic Treatment (T2) for the majority of the outcomes.

Treatment on the treated estimates, reported in Panel B, are larger than ITT ones by a factor of 1.18 to 1.27, depending on the treatment.[33] Relative to the control group mean, the Risk Treatment (T1) and the Combined Treatment (T3) increase the *Risk Beliefs Index* by 0.84 and 0.98 standard deviations, respectively, compared to an increase by 0.64 SD induced by the Economic Treatment (T2).

### 6.3 Impact on beliefs about economic outcomes at destination

In Table 5 we examine the effects of our intervention on beliefs about potential economic outcomes in destination countries, reporting both ITT and TOT estimates. Being assigned to treatment leads to a 0.43 SD reduction in the Economic Belief Index (column 1), reflecting more pessimistic expectations about economic conditions abroad. Treatment also has a significant negative effect on the probability of finding a job (column 2), of continuing with studies abroad (column 3), of receiving asylum (column 4), of becoming a citizen of the destination country (column 5), of receiving government transfers at destination (column 7), and a positive effect on the probability of returning to the home country within 5 years (column 6). The estimated coefficients are negative but insignificant for expected wages and cost of living abroad. The estimates in columns 2-7 range between 3.5 and 8 percentage points, corresponding to 10.3% to 20.3% of the control group mean. The treatment also negatively affects the expected share of the host country population in favor of migration ('*Host country attitudes*'), though the coefficient is no longer significant when adjusting for multiple hypothesis testing (column 8).

Appendix Table A3.

[33] These coefficients correspond to the ITT coefficients divided by the differences in conditional expectations of participation between treatment and control individuals. The participation rate in control schools is always zero because the sessions were available only in treated schools.

Table 5: Treatment Effects on Economic Beliefs

| | (1) Econ Beliefs Index | (2) Finding Job | (3) Contin. studies abroad | (4) Getting asylum | (5) Becom. Citizen | (6) Return before 5 yrs | (7) Getting public transf. | (8) Host country attit. | (9) Wage abroad | (10) Cost of living abroad |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Panel A: ITT*** | | | | | | | | | | |
| Any treatment | -0.43*** | -7.87*** | -4.66*** | -6.43*** | -6.50*** | 3.47*** | -5.50*** | -2.54** | -0.11 | -0.08 |
| | (0.10) | (1.25) | (1.20) | (1.31) | (1.30) | (1.20) | (1.42) | (1.26) | (0.09) | (0.08) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.043] | [0.000] | [0.161] | [0.504] | [0.504] |
| *T*1 - Risk | -0.30** | -4.95*** | -2.98* | -3.53** | -5.43*** | 2.07 | -4.27** | -1.94 | -0.11 | -0.01 |
| | (0.12) | (1.57) | (1.67) | (1.67) | (1.67) | (1.45) | (1.77) | (1.51) | (0.13) | (0.08) |
| | | [0.045] | [0.511] | [0.393] | [0.045] | [0.757] | [0.276] | [0.765] | [0.782] | [0.978] |
| *T*2 - Econ | -0.39*** | -8.33*** | -4.03** | -7.12*** | -5.97*** | 5.60*** | -4.85*** | -2.02 | -0.03 | -0.10 |
| | (0.12) | (1.64) | (1.59) | (1.52) | (1.60) | (1.44) | (1.72) | (1.57) | (0.11) | (0.09) |
| | | [0.000] | [0.194] | [0.000] | [0.010] | [0.008] | [0.099] | [0.765] | [0.974] | [0.765] |
| *T*3 - Combined | -0.65*** | -10.74*** | -7.40*** | -9.00*** | -8.39*** | 2.51 | -7.73*** | -3.90** | -0.21* | -0.15 |
| | (0.13) | (1.47) | (1.53) | (1.62) | (1.75) | (1.71) | (1.73) | (1.76) | (0.12) | (0.10) |
| | | [0.000] | [0.000] | [0.000] | [0.000] | [0.765] | [0.000] | [0.291] | [0.724] | [0.710] |
| *T*1 = *T*2 *(p-value)* | 0.488 | 0.061 | 0.590 | 0.030 | 0.770 | 0.023 | 0.749 | 0.962 | 0.576 | 0.251 |
| *T*1 = *T*3 *(p-value)* | 0.016 | 0.001 | 0.023 | 0.003 | 0.129 | 0.806 | 0.061 | 0.278 | 0.494 | 0.098 |
| *T*2 = *T*3 *(p-value)* | 0.037 | 0.123 | 0.044 | 0.204 | 0.133 | 0.074 | 0.078 | 0.275 | 0.151 | 0.627 |
| ***Panel B: TOT*** | | | | | | | | | | |
| Any treatment | -0.53*** | -9.58*** | -5.67*** | -7.83*** | -7.92*** | 4.23*** | -6.70*** | -3.10** | -0.14 | -0.10 |
| | (0.11) | (1.49) | (1.44) | (1.56) | (1.55) | (1.47) | (1.69) | (1.52) | (0.11) | (0.09) |
| | | [0.000] | [0.002] | [0.000] | [0.000] | [0.036] | [0.002] | [0.139] | [0.470] | [0.470] |
| *T*1 - Risk | -0.35** | -5.83*** | -3.51* | -4.15** | -6.42*** | 2.44 | -5.04** | -2.28 | -0.13 | -0.01 |
| | (0.15) | (1.85) | (1.98) | (1.96) | (1.97) | (1.72) | (2.08) | (1.77) | (0.15) | (0.10) |
| | | [0.072] | [0.572] | [0.442] | [0.067] | [0.772] | [0.293] | [0.772] | [0.790] | [0.985] |
| *T*2 - Econ | -0.50*** | -10.64*** | -5.16*** | -9.08*** | -7.64*** | 7.12*** | -6.21*** | -2.58 | -0.04 | -0.13 |
| | (0.15) | (1.98) | (1.95) | (1.84) | (1.93) | (1.87) | (2.10) | (1.96) | (0.14) | (0.12) |
| | | [0.002] | [0.166] | [0.002] | [0.015] | [0.023] | [0.090] | [0.772] | [0.974] | [0.772] |
| *T*3 - Combined | -0.77*** | -12.76*** | -8.77*** | -10.69*** | -9.97*** | 3.02 | -9.18*** | -4.63** | -0.25* | -0.18 |
| | (0.14) | (1.61) | (1.71) | (1.82) | (1.98) | (2.02) | (1.98) | (2.02) | (0.14) | (0.12) |
| | | [0.000] | [0.002] | [0.001] | [0.002] | [0.772] | [0.002] | [0.293] | [0.719] | [0.719] |
| *T*1 = *T*2 *(p-value)* | 0.349 | 0.022 | 0.478 | 0.010 | 0.575 | 0.014 | 0.585 | 0.881 | 0.604 | 0.231 |
| *T*1 = *T*3 *(p-value)* | 0.010 | 0.000 | 0.016 | 0.001 | 0.107 | 0.787 | 0.048 | 0.258 | 0.485 | 0.094 |
| *T*2 = *T*3 *(p-value)* | 0.052 | 0.224 | 0.058 | 0.332 | 0.198 | 0.049 | 0.113 | 0.312 | 0.161 | 0.689 |
| *N* | 4305 | 4305 | 4305 | 4305 | 4305 | 4305 | 4305 | 4305 | 4305 | 4305 |
| Mean dep. var. control | 0.34 | 38.6 | 32.7 | 37.0 | 34.8 | 33.5 | 36.9 | 40.7 | 15.3 | 7.54 |

*Notes:* ITT (upper panel) and TOT (lower panel) estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. FWER-adjusted p-values in square brackets, computed following Westfall and Young (1993) with 1,000 iterations. Dependent variables are measures of risk beliefs one month after the intervention, specifically: (1) PCA aggregator of beliefs about economic outcomes; beliefs about (2) probability of finding a job, (3) probability of continuing studies, (4) probability of getting asylum, if requested, (5) probability of becoming a citizen, (6) probability of having returned after 5 years, (7) probability that of receiving public transfers at destination, (8) perceived host country attitudes (percentage in favor of migration), (9) expected living cost at destination (inverse hyperbolic sine of Euros), and (10) expected wage at destination (inverse hyperbolic sine of Euros). The mean of the dependent variable in the control group is measured at midline. All specifications include the controls listed in Table 4.

The lower part of Panel A shows ITT estimates separate by treatment arm. All treatments have a negative and significant impact on the aggregate index of economic beliefs (column 1), with the combined treatment (T3) inducing the largest reduction (0.65 SD).[34] Panel B of Appendix Figure A5, shows that our treatments led to a leftward shift in the entire distribution of beliefs.[35] When we consider each component of the Economic Belief Index separately (columns 2-10), we find results consistent with those for the pooled

[34]Once again, we check that these findings are robust when using the *Kling Econ* index in Appendix Table A3.

[35]The distributions for treated groups differ from that of the control group in a statistically significant way according to the Kolmogorov-Smirnov test (p-values $< 0.001$).

treatment. It is worth noting that T2 and T3 generally have larger and more significant effects than T1, consistent with the fact that T2 and T3 contained explicit information on economic conditions abroad.

Again, IV coefficients in Panel B are higher than the OLS ones, reflecting a less-than-full take-up of the information sessions by the students. Based on the TOT estimates in column 1, T2 and T3 reduce the *Economic Beliefs Index* by 0.50 and 0.77 standard deviations, respectively –significantly more than the effect of T1.

Overall, the results in Table 4 and Table 5 are consistent with the predictions of our model. Information on the risk of the journey makes students more pessimistic about the risks of the journey. The impact of risk information is strong and statistically significant according to FWER p-values for nearly all journey outcomes for which we assessed probabilities, as well as for the duration of the journey. Information on economic outcomes abroad has a robust impact on both beliefs about the journey risk and the economic benefits of migration, generating a pessimistic update. The negative impact of the economic information on the expected cost of the journey is in line with the model predictions. Reducing expected income abroad decreases the amount of debt that migrants can credibly repay, to finance their journey.

## 6.4 Impact on Migration Intentions

We next test whether our interventions affected migration intentions elicited at midline, approximately one month after the information sessions. In Table 6 we report the estimated impacts on the following binary outcomes: '*Wishing to migrate*' (columns 1-2), '*Planning to migrate*' (columns 3-4), and '*Preparing to migrate*' (columns 5-6).

As before, Panel A shows ITT effects and Panel B TOT estimates. The effect of the pooled treatments is negative across specifications and it is statistically significant for the variables '*Wishing to migrate*' and '*Planning to migrate*, even after correcting for multiple hypothesis testing.[36] In terms of magnitude, treated students are 4.5 percentage points less likely to wish to migrate and 2.8 percentage points less likely to plan to migrate, relative to 25.6% and 15.9% of students reporting to wish or plan to migrate in the control group, respectively. Treatment effects are negative but not significant for the outcome '*Preparing to migrate*'. This is consistent with a substantially lower power to detect an effect, since only 4.2% of students prepare to migrate in the control group.

When examining the three treatments separately, the coefficients are negative across all outcomes and specifications. The effect on 'Wishing to Migrate' (columns 1-2) is statistically significant for all treatments, with an estimated reduction of approximately 5 percentage points, representing a 20% decrease relative to the control group mean. The effects are significant at the 5% level for T1 and 10% for T3 (based on FWER-adjusted p-values). For 'Planning to Migrate' (columns 3-4), students in T1 and T3 are about 3 percentage points (20% of the mean) less likely to intend to migrate, but the estimates are no longer significant after adjusting for multiple hypothesis testing. The effects of T2 are smaller in magnitude and noisier. One possible explanation is that, even if students become more pessimistic about the economic returns to migration, they may still consider the economic conditions at home relatively worse. In Panel B of Table 6 we report the corresponding TOT estimates. Again, these are 18%-27% higher than the ITT effects.

In Table 7, we show that migration intentions at midline correlate with actual migration decisions at endline. The dependent variable is the indicator for whether the student is out of Guinea and migration intentions are measured as 'wishing' (columns 1-2), 'preparing' (columns 3-4) or 'planning' (columns 5-6)

[36]The FWER p-values in square brackets are calculated allowing for the correlation between effects in columns 1, 3, 5 and 2, 4, 6.

Table 6: Treatment Effects on Migration Intentions

| | y = intending to migrate from Guinea | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Wishing to migrate | | Planning to migrate | | Preparing to migrate | |
| ***Panel A: ITT*** | | | | | | |
| Any treatment | -4.65*** | -4.53*** | -2.80** | -2.75** | -0.82 | -0.90 |
| | (1.39) | (1.38) | (1.28) | (1.27) | (0.61) | (0.58) |
| | [0.005] | [0.021] | [0.056] | [0.183] | [0.172] | [0.535] |
| $T1$ - Risk | -5.28*** | -5.27*** | -3.35** | -3.47** | -0.31 | -0.54 |
| | (1.66) | (1.69) | (1.52) | (1.54) | (0.71) | (0.67) |
| | [0.028] | [0.021] | [0.164] | [0.183] | [0.513] | [0.535] |
| $T2$ - Econ | -4.00** | -3.91** | -1.80 | -1.86 | -0.99 | -0.89 |
| | (1.75) | (1.74) | (1.57) | (1.59) | (0.75) | (0.73) |
| | [0.164] | [0.183] | [0.513] | [0.535] | [0.513] | [0.535] |
| $T3$ - Combined | -4.71*** | -4.40*** | -3.34** | -2.98** | -1.16 | -1.31* |
| | (1.69) | (1.68) | (1.52) | (1.50) | (0.75) | (0.78) |
| | [0.082] | [0.079] | [0.213] | [0.224] | [0.324] | [0.316] |
| $T1 = T2$ *(p-value)* | 0.454 | 0.433 | 0.304 | 0.311 | 0.341 | 0.620 |
| $T1 = T3$ *(p-value)* | 0.733 | 0.618 | 0.997 | 0.746 | 0.236 | 0.304 |
| $T2 = T3$ *(p-value)* | 0.681 | 0.779 | 0.307 | 0.468 | 0.824 | 0.603 |
| ***Panel B: TOT*** | | | | | | |
| Any treatment | -5.63*** | -5.52*** | -3.39** | -3.36** | -0.99 | -1.09 |
| | (1.67) | (1.67) | (1.54) | (1.53) | (0.73) | (0.71) |
| | [0.005] | [0.010] | [0.073] | [0.084] | [0.200] | [0.158] |
| $T1$ - Risk | -6.29*** | -6.24*** | -3.99** | -4.11** | -0.37 | -0.64 |
| | (1.99) | (2.01) | (1.81) | (1.83) | (0.84) | (0.80) |
| | [0.027] | [0.039] | [0.170] | [0.197] | [0.678] | [0.537] |
| $T2$ - Econ | -5.07** | -5.02** | -2.28 | -2.40 | -1.25 | -1.14 |
| | (2.20) | (2.20) | (1.99) | (2.01) | (0.95) | (0.93) |
| | [0.160] | [0.197] | [0.460] | [0.537] | [0.454] | [0.537] |
| $T3$ - Combined | -5.54*** | -5.26*** | -3.93** | -3.56** | -1.36 | -1.56* |
| | (1.95) | (1.97) | (1.77) | (1.77) | (0.88) | (0.92) |
| | [0.061] | [0.099] | [0.170] | [0.251] | [0.373] | [0.353] |
| $T1 = T2$ *(p-value)* | 0.564 | 0.565 | 0.358 | 0.378 | 0.315 | 0.564 |
| $T1 = T3$ *(p-value)* | 0.701 | 0.631 | 0.972 | 0.756 | 0.236 | 0.294 |
| $T2 = T3$ *(p-value)* | 0.821 | 0.906 | 0.370 | 0.535 | 0.907 | 0.668 |
| Individual controls | No | Yes | No | Yes | No | Yes |
| School controls | No | Yes | No | Yes | No | Yes |
| $N$ | 4434 | 4434 | 4434 | 4434 | 4434 | 4434 |
| Mean dep. var. control | 25.62% | | 15.91% | | 4.21% | |

*Notes:* ITT (upper panel) and TOT (lower panel) estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. FWER-adjusted p-values in square brackets, computed following Westfall and Young (1993) with 1,000 iterations. The dependent variable is a dummy for intending to migrate at midline. Panel B reports the effect of different treatments on the same variable. In cols. 1-2 the dependent variable takes value 1 if the student "wishes" to migrate, in cols. 3-4 if the student "plans" to migrate, in cols. 5-6 if the student "prepares" to migrate. The mean of the dependent variable in the control group is measured at midline. Individual and school level controls are described in Table 2 and 4.

to migrate. The analysis is performed on the sample of control schools students, so that the correlation is unaffected by our treatment, also controlling for grade by curriculum fixed effects. We find that 'Wishing to migrate,' and 'Planning to migrate' are positively correlated with migration decisions at endline. Subjects who intend to migrate one month after the intervention are between 1.3 and 1.4 percentage points more likely to migrate one year later, corresponding to about 80% of the overall probability of migrating in the control group.

Table 7: Correlation between Migration Intentions and Migration Decisions

| | y = migrated from Guinea at Endline | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Intentions measured as: | Wishing to migrate | | Planning to migrate | | Preparing to migrate | |
| Intends to migrate | 2.56* | 2.47* | 2.66** | 2.61** | -0.30 | -0.57 |
| | (1.44) | (1.38) | (1.30) | (1.29) | (0.30) | (0.47) |
| Individual controls | No | Yes | No | Yes | No | Yes |
| School X Grade X Curriculum FEs | Yes | Yes | Yes | Yes | Yes | Yes |
| *N* | 1122 | 1122 | 1122 | 1122 | 1122 | 1122 |
| Mean dep. var. control | 1.56% | | | | | |

*Notes:* OLS estimates and standard errors in parentheses. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. In all columns, the outcome is being outside Guinea at endline. The sample is restricted to the control group. Individual and school controls as described in Table 2.

## 6.5 Treatment effects on Migration Decisions

Table 8 reports the treatment effects on the probability to migrate outside Guinea as measured at endline, i.e., approximately one year after the information session. Our dependent variable, *Out of Guinea*, is an indicator taking value 1 if the respondent has been outside Guinea since at least 30 days prior to the survey, constructed using the comprehensive methodology described in Section 5. In the control group, on average, 1.56% of students aged 15-24 migrate outside Guinea in the year between the baseline and the endline.[37]

When we pool all treatments, the estimated coefficients are negative but not statistically significant (Panel A). However, when we estimate the effect of the three treatments separately (Panel B), we find that students assigned to the Risk Treatment (T1) have a lower probability of migrating out of Guinea. The estimated effect is significant at the 10 percent level and its magnitude is sizable: in our most comprehensive specification (column 3), being assigned to T1 reduces the probability of migrating outside Guinea by 0.8 percentage points, equivalent to a 50% reduction relative to the control mean. The corresponding IV coefficient in column 6 is larger –a 63% reduction– and significant at 5 percent level.

We do not find any significant effect of the treatments involving economic information (T2 and T3) and the p-values reported at the bottom of Table 8 show that the impact of T1 is significantly different from that of T2 and T3. For T2 this is not too surprising, because the results in Table 6 already showed small and insignificant effects of T2 on planning and preparing to migrate. For T3, Table 6 did show significant effects on intentions to migrate, but it is possible that combining the less impactful information on economic returns with the more impactful information on risk may have diminished the effectiveness of the latter in the long run. In other words, delivering both types of information may have led T3 to play differentially compared to T1 when it came to converting short-run belief updating into actual choices in the long run.

[37]Evidence from similar populations indicates that this share is relatively high: this emigration rate is double that the one found among urban Senegalese aged 18 to 24 between 1970 and 2008, as reported by Willekens et al. (2017).

Table 8: Treatment Effects on Migration from Guinea

| | y = migration from Guinea | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | ITT | ITT | ITT | TOT | TOT | TOT |
| ***Panel A*** | | | | | | |
| Any treatment | -0.215 | -0.161 | -0.215 | -0.284 | -0.212 | -0.284 |
| | (0.350) | (0.370) | (0.350) | (0.461) | (0.484) | (0.461) |
| ***Panel B*** | | | | | | |
| $T1$ - Risk | -0.737* | -0.736* | -0.762* | -0.955* | -0.953* | -0.985** |
| | (0.400) | (0.400) | (0.391) | (0.520) | (0.519) | (0.501) |
| $T2$ - Econ | 0.241 | 0.230 | 0.135 | 0.328 | 0.314 | 0.180 |
| | (0.450) | (0.454) | (0.406) | (0.610) | (0.614) | (0.552) |
| $T3$ - Combined | -0.017 | 0.004 | 0.008 | -0.022 | 0.006 | 0.009 |
| | (0.459) | (0.457) | (0.448) | (0.589) | (0.585) | (0.581) |
| $T1 = T2$ *(p-value)* | 0.015 | 0.014 | 0.012 | 0.016 | 0.015 | 0.013 |
| $T1 = T3$ *(p-value)* | 0.078 | 0.061 | 0.056 | 0.076 | 0.058 | 0.055 |
| $T2 = T3$ *(p-value)* | 0.572 | 0.615 | 0.760 | 0.561 | 0.603 | 0.754 |
| $T1 = T2 = T3 = 0$ *(p-value)* | 0.058 | 0.050 | 0.049 | 0.057 | 0.047 | 0.043 |
| Individual controls | No | Yes | Yes | No | Yes | Yes |
| School controls | No | No | Yes | No | No | Yes |
| $N$ | 7266 | 7266 | 7266 | 7266 | 7266 | 7266 |
| Mean dep. var. control | 1.56% | | | | | |

*Notes:* OLS estimates with standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. The dependent variable is a dummy equal 1 if the respondent has been out of Guinea for at least 30 days prior to the endline survey. Effects are reported in percentage points. Cols. 1-2 show ITT results, Cols. 4-6 show treatment-on-the-treated estimates where attendance to the information session is instrumented with assignment to treatment. The mean of the dependent variable in the control group is measured at endline. Individual and school level controls are described in Table 2 and 4.

In addition to gathering data on migration intentions and actual migration decisions, we collected information on the specific countries students wished to migrate to or had migrated to. Appendix Figure A6 displays the primary destination countries for students who expressed a desire to migrate at baseline (Panel A) and the locations of students who had migrated by endline (Panel B).[38] While the majority of the respondents expressed a desire to migrate to high-income countries in Europe and North America, such as France (36%) and the USA (22%), actual migrants overwhelmingly report being in African countries such as Senegal (25%) and Morocco (16%). Since these locations were recorded only one year post-intervention, they may reflect transit points on routes toward Europe.

Finally, we gathered data on whether students applied for a visa for their current or intended destination. As explained in in Section 5, this information serves as a proxy for the 'irregular' status of migrants. Results are presented in Table 9. In columns 1-3, we show effects on 'irregular' migration and in columns 4-6 even-numbered columns on 'regular' migration. The findings suggest that the reduction in migration shown

[38]Information on countries selected for planning' and preparing' to migrate is also available and shows a similar pattern to those 'wishing' to migrate.

Table 9: Treatment Effects on Risky and Safe Migration from Guinea

| | y = migration from Guinea | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Migration w/out visa | | | Migration with visa | | |
| ***Panel A: ITT*** | | | | | | |
| Any treatment | -0.101 | -0.091 | -0.094 | 0.027 | 0.006 | -0.018 |
| | (0.252) | (0.261) | (0.251) | (0.189) | (0.188) | (0.178) |
| $T1$ - Risk | -0.559** | -0.555** | -0.582** | -0.070 | -0.092 | -0.093 |
| | (0.231) | (0.242) | (0.244) | (0.208) | (0.205) | (0.197) |
| $T2$ - Econ | 0.236 | 0.240 | 0.228 | -0.078 | -0.096 | -0.122 |
| | (0.351) | (0.354) | (0.339) | (0.220) | (0.216) | (0.207) |
| $T3$ - Combined | 0.015 | 0.027 | 0.095 | 0.244 | 0.223 | 0.186 |
| | (0.323) | (0.328) | (0.318) | (0.271) | (0.269) | (0.259) |
| $T1 = T2$ *(p-value)* | 0.006 | 0.005 | 0.004 | 0.969 | 0.984 | 0.874 |
| $T1 = T3$ *(p-value)* | 0.025 | 0.021 | 0.014 | 0.213 | 0.200 | 0.236 |
| $T2 = T3$ *(p-value)* | 0.547 | 0.559 | 0.707 | 0.220 | 0.222 | 0.245 |
| ***Panel B: TOT*** | | | | | | |
| Any treatment | -0.133 | -0.119 | -0.123 | 0.036 | 0.009 | -0.024 |
| | (0.331) | (0.341) | (0.329) | (0.248) | (0.246) | (0.233) |
| $T1$ - Risk | -0.724** | -0.718** | -0.754** | -0.091 | -0.120 | -0.121 |
| | (0.301) | (0.313) | (0.313) | (0.269) | (0.265) | (0.253) |
| $T2$ - Econ | 0.321 | 0.326 | 0.307 | -0.106 | -0.131 | -0.167 |
| | (0.473) | (0.476) | (0.457) | (0.298) | (0.292) | (0.282) |
| $T3$ - Combined | 0.019 | 0.036 | 0.123 | 0.314 | 0.287 | 0.240 |
| | (0.414) | (0.420) | (0.412) | (0.346) | (0.343) | (0.333) |
| Individual controls | No | Yes | Yes | No | Yes | Yes |
| School controls | No | No | Yes | No | No | Yes |
| $T1 = T2$ *(p-value)* | 0.007 | 0.006 | 0.005 | 0.955 | 0.965 | 0.851 |
| $T1 = T3$ *(p-value)* | 0.023 | 0.019 | 0.013 | 0.210 | 0.196 | 0.232 |
| $T2 = T3$ *(p-value)* | 0.533 | 0.544 | 0.692 | 0.218 | 0.218 | 0.238 |
| $N$ | 7203 | 7203 | 7203 | 7194 | 7194 | 7194 |
| Mean dep. var. control | 0.59% | 0.59% | 0.59% | 0.47% | 0.47% | 0.47% |

*Notes:* ITT (upper panel) and TOT (lower panel) estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. In Cols.1 and 3, the outcome is equal 1 if outside Guinea at endline and having possibly migrated irregularly. In Cols.2 and 4, the outcome is equal 1 if outside Guinea at endline and having migrated regularly. We define potentially irregular/regular migration based on having entered or planning to enter the final destination with or without a visa. In Cols. 1-3, we exclude from the analysis people who have migrated regularly; in Cols.4-6, we exclude people who have potentially migrated irregularly. The mean of the dependent variable in the control group is measured at endline. All specification include individual and school level controls described in Table 2 and 4.

in Table 8 in response to the Risk Treatment (T1) is primarily driven by a decrease in *irregular* migration, consistent with the conceptual framework presented in Section 3.

# 7 Conclusions

Risky and irregular migration from Africa to Europe, particularly through the Mediterranean Sea, remains an unresolved issue from both an economic and a humanitarian standpoint. An open question is whether migrants taking risky routes have enough information when deciding whether to leave their home country. In particular, it is possible that they may have insufficient information about the risks of violence, trafficking, or death during the journey, as well as about the (often limited) prospects of integration in the European labor market.

In this paper, we design a large scale randomized controlled trial involving over 7,000 potential migrants enrolled in secondary schools in Guinea to test the impact of providing information about the risk of the journey and about the economic returns to migration. To the best of our knowledge, ours is the first paper to test, on such a large sample, the relative importance of information about the risks of irregular travel and the returns to migration in the destination country on perceptions and beliefs on migration outcomes, intentions to migrate and actual migration behavior.

We find that, one month after the intervention, both types of information led students to update beliefs about the risks of irregular travel and the economic prospects abroad, relative to a control group that received no information. Information about the risks of the journey also reduced individuals' intentions to migrate and their likelihood of planning and preparing for migration. When tracking *actual* migration among the students in our sample, we find that those who received information about the risks of the journey were less likely to migrate outside Guinea compared to a control group that received no information. This reduction in migration stems from fewer students traveling irregularly, as measured by not having a visa. In contrast, the treatment including information about the economic returns to migration and the treatment including both types of information do not impact actual behavior.

Our results call for further research on low-cost, scalable approaches to addressing information asymmetries and reducing the human and economic costs associated with irregular migration, while at the same time offering viable options for safer migration routes.

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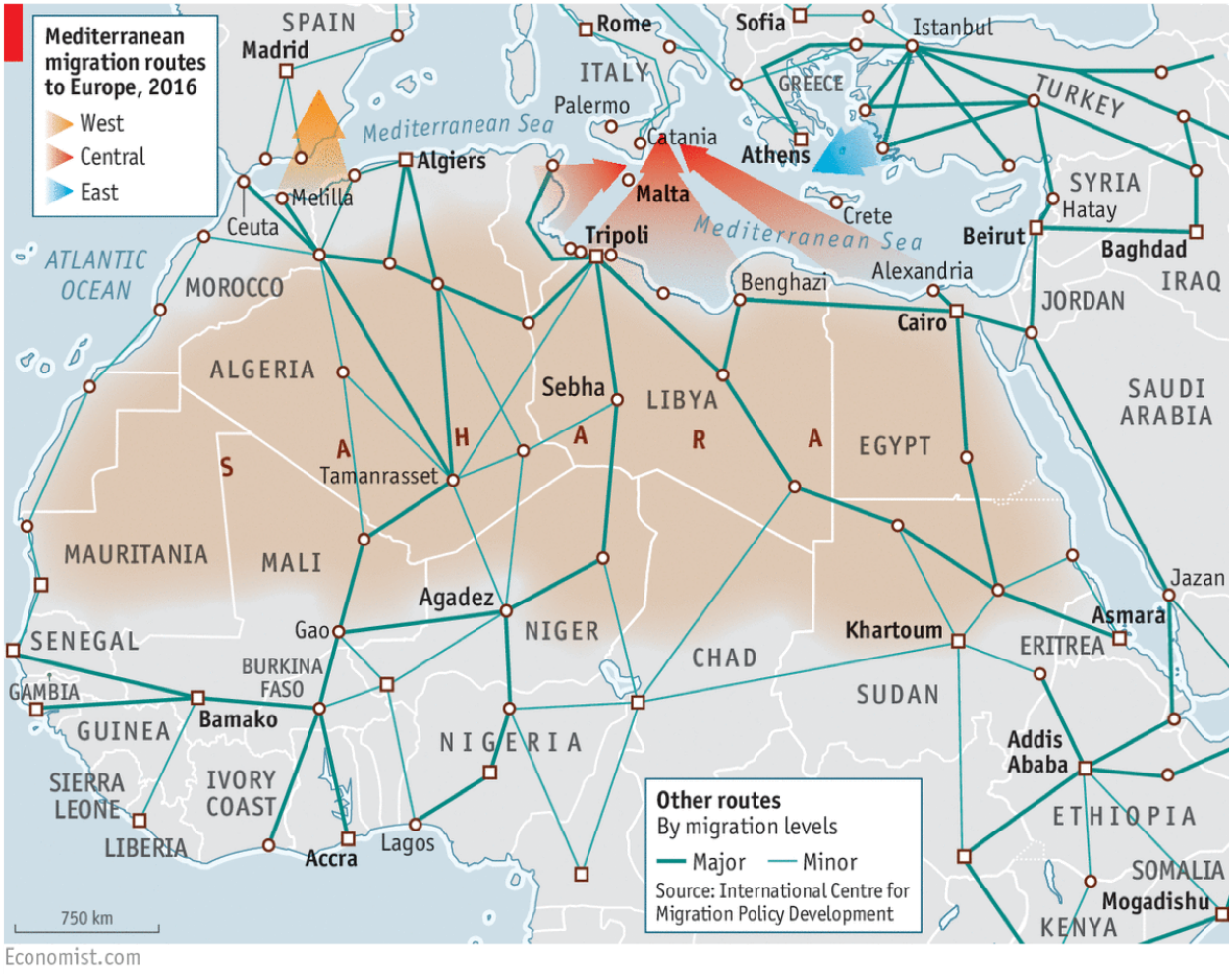
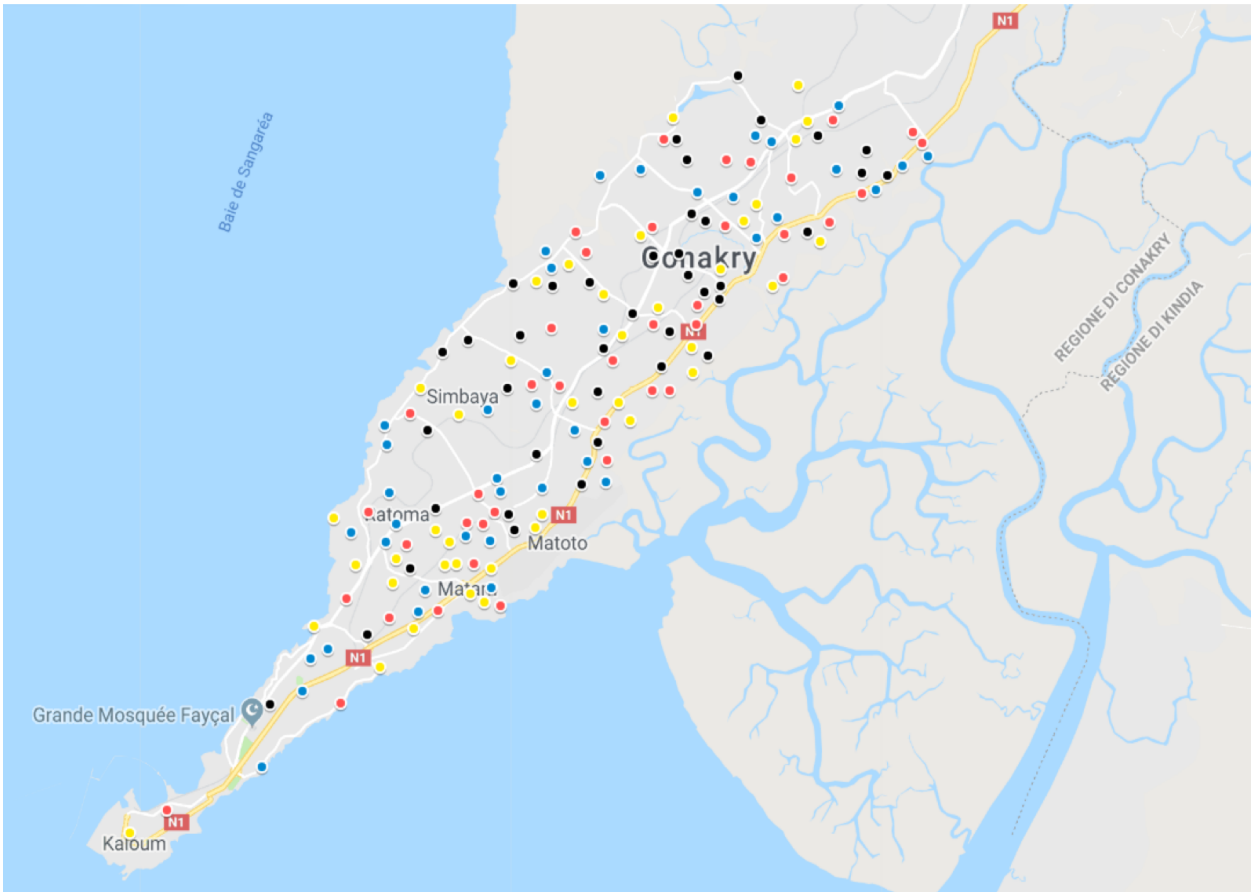
# Appendix A

Figure A1: Main irregular migration routes from Africa to Europe




*Sources*: The Economist, 2016.

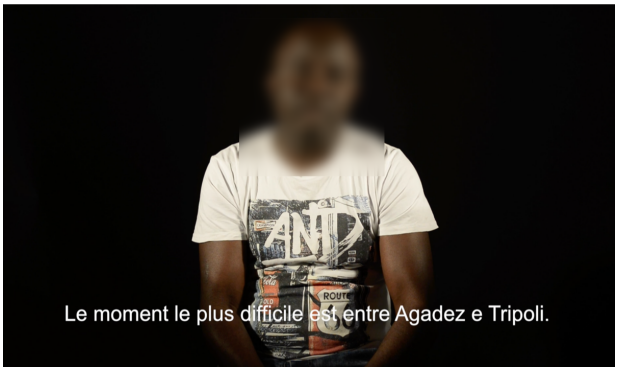
Figure A2: Schools Location by Treatment Arm



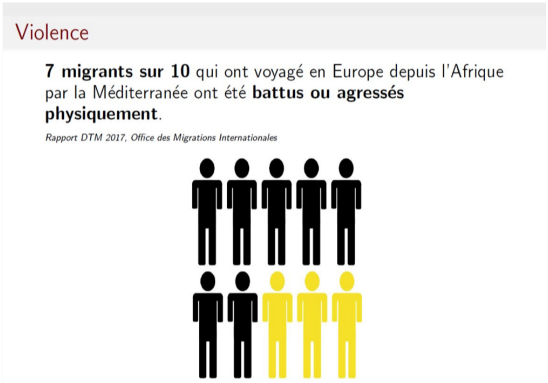

*Notes*: Schools in Control Group are depicted in black, those in the *Risk Treatment* in Yellow, schools in the *Economic Treatment* in Blue, and those in the Combined Treatment in Red.

Figure A3: Example of video testimonies and slides for the Risk Treatment (T1)

A: Screenshot from video testimony



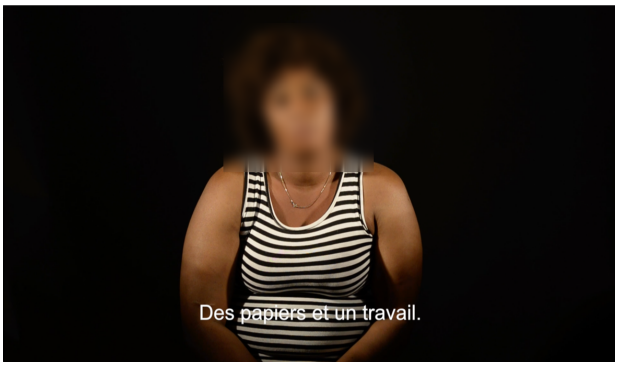

B: Slide



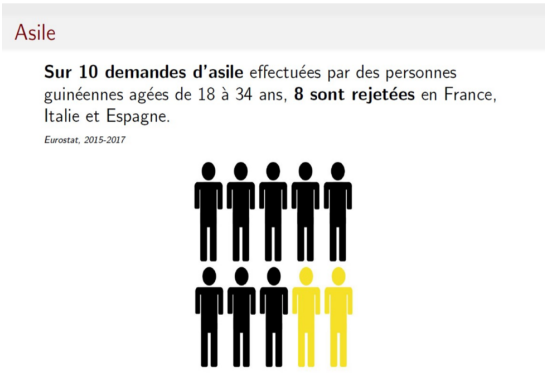

*Notes:* Panel A: screenshot from video testimony with subtitle reading "*the hardest moment is between Agadez and Tripoli*'. Panel B: example of a slide reporting the probability of suffering violence along the journey with text reading "*7 out of 10 migrants who travel from Africa to Europe by the Mediterranean have been beaten or physical abused*".

Figure A4: Example of video testimonies and slides for the Economic Treatment (T2)

A: Screenshot from video testimony

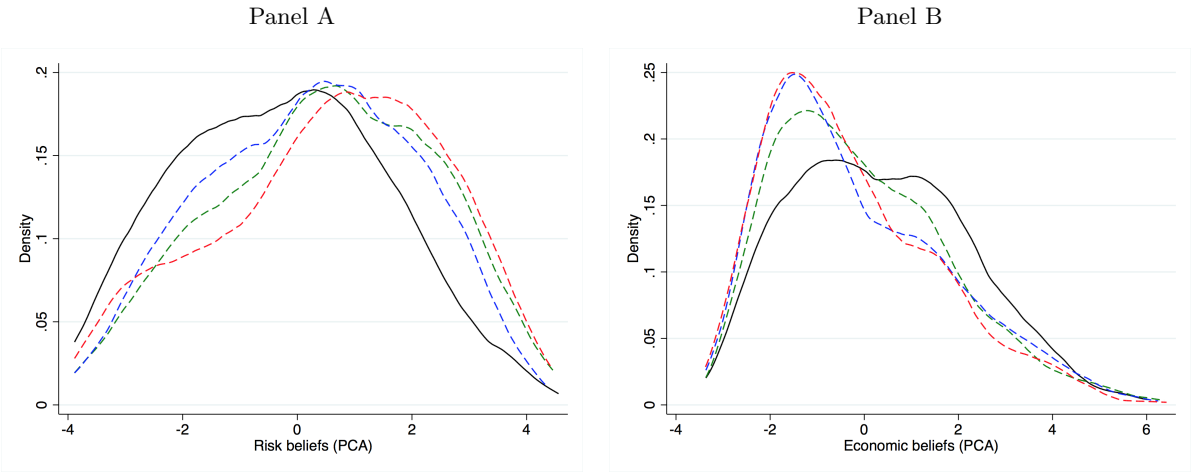



B: Slide




*Notes:* Panel A: screenshot from the video testimony with subtitle reading "it is hard to obtain "*[d]ocuments and a job.*".Panel B: example of a slide reporting the probability of obtaining asylum in Europe with text reading "*[o]ut of 10 asylum applications by Guineans aged 18 to 34, 8 are rejected in France, Italy, and Spain.*"

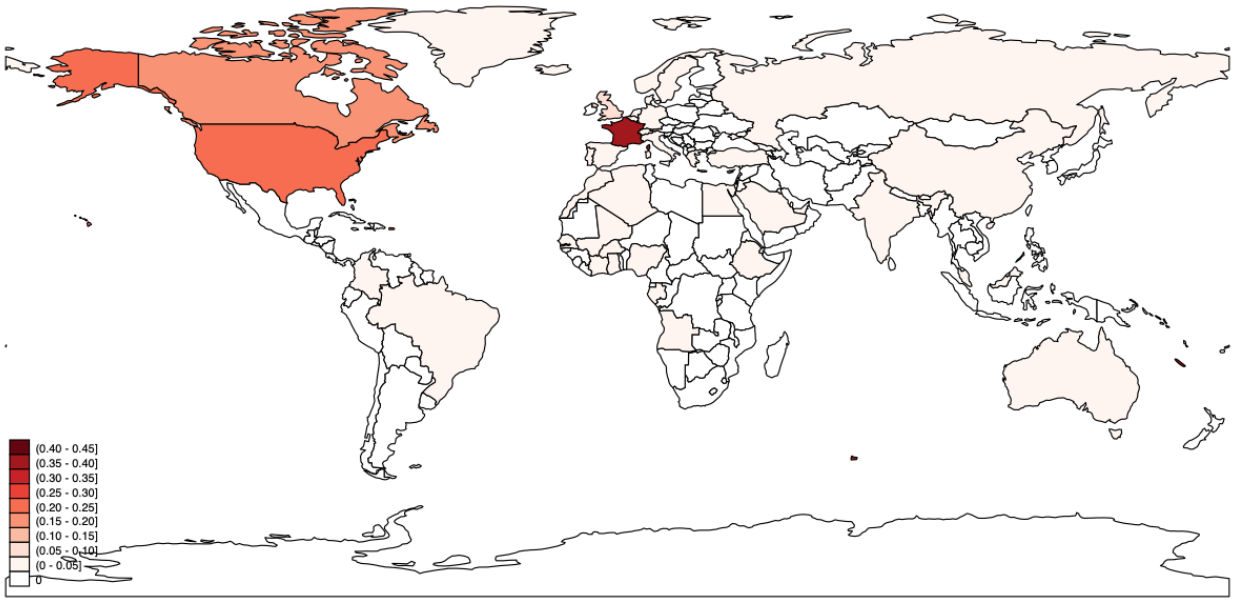
Figure A5: Impact on the distribution of the Risk and Economic Beliefs Indexes



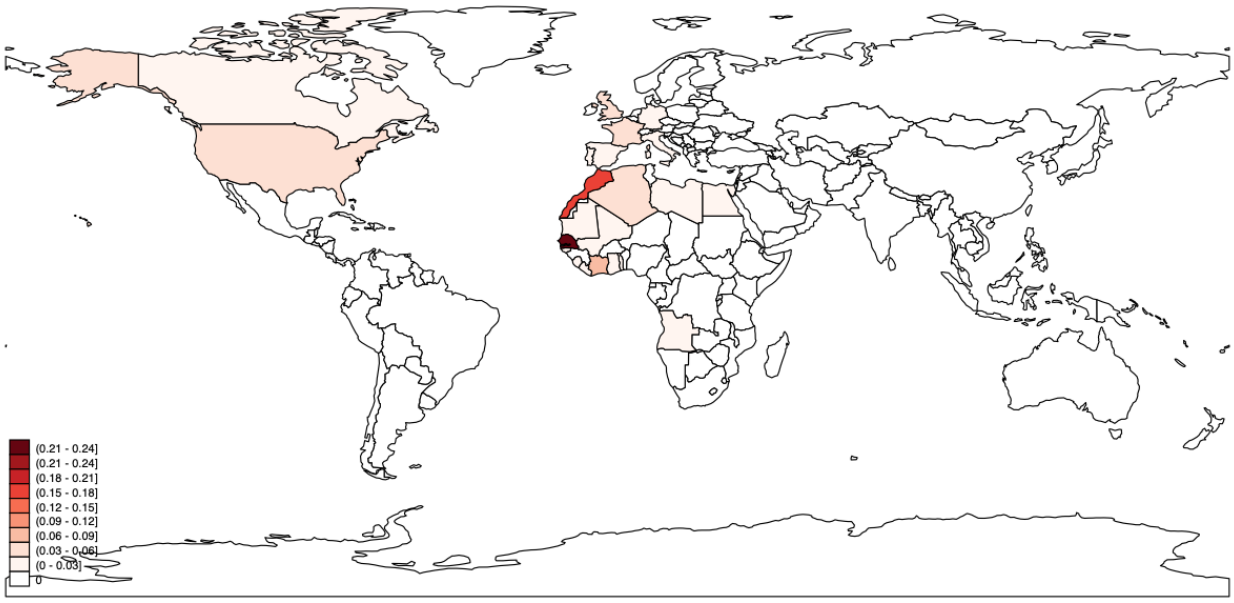

*Notes:* Distribution of the PCA index of risk beliefs (Panel A) and economic beliefs (Panel B) measured one month after the intervention, by treatment status. The black solid line represents the control group. The green, blue, and red dashed lines represent, respectively, the distributions for T1 (Risk Treatment), T2 (Economic Treatment), T3 (Combined Treatment). The Kolmogorov-Smirnov test rejects the null of equality between each treated distribution and the control one, with p-values smaller than 0.001 in all cases.

Figure A6: Maps of migration intentions and migration decision

(a) Map of migration intentions for individuals wishing to migrate




(b) Map of migration destinations




*Notes:* Share of respondents reporting a country as the country where they wish to migrate at baseline (Panel A) and where they migrated at endline (Panel B).

Table A1: Number of observations by treatment and survey round

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | | Control | | $T1$ - Risk | | $T2$ - Econ | | $T3$ - Combined | |
| **Baseline** | | | | | | | | | | |
| In-Person | 7295 | - | 1800 | - | 1846 | - | 1899 | - | 1750 | - |
| **Midline** | | | | | | | | | | |
| In-Person | 4438 | .608 | 1164 | .647 | 1078 | .584 | 1155 | .608 | 1041 | .595 |
| **Endline** | | | | | | | | | | |
| In-Person | 2375 | .326 | 660 | .367 | 534 | .289 | 598 | .315 | 583 | .333 |
| + Phone (Respondent) | 7060 | .968 | 1747 | .971 | 1796 | .973 | 1821 | .959 | 1696 | .969 |
| + Phone (Contact) | 7165 | .982 | 1772 | .984 | 1816 | .984 | 1853 | .976 | 1724 | .985 |
| + School survey | 7266 | .996 | 1793 | .996 | 1836 | .995 | 1893 | .997 | 1744 | .997 |

*Notes:* Odd columns report the number of observations in each treatment arm and survey round. Even columns report the same as a share of baseline numbers for each treatment arm. By "school survey" we refer to the in-person survey conducted with students and members of the administration about the migration status of students absent from school at endline.

Table A2: Attrition by treatment groups

| | y = attrited at survey | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Midline | Endline | | | |
| | In-Person Survey | In-Person Survey | In-Person + Phone Surv. w/ Respond. | In-Person + Phone Surv. w/ Respond. or Contact | In-Person + Phone Surv. w/ Respond. or Contact + School Surv. |
| $T1$ - Risk | 0.064** | 0.078* | -0.002 | 0.001 | 0.002 |
| | (0.029) | (0.042) | (0.007) | (0.005) | (0.003) |
| $T2$ - Econ | 0.039 | 0.052 | 0.012 | 0.009 | 0.000 |
| | (0.035) | (0.041) | (0.008) | (0.007) | (0.002) |
| $T3$ - Combined | 0.051 | 0.033 | 0.001 | -0.001 | 0.000 |
| | (0.034) | (0.045) | (0.006) | (0.006) | (0.003) |
| $T1 = T2$ *(p-value)* | 0.432 | 0.525 | 0.076 | 0.190 | 0.556 |
| $T1 = T3$ *(p-value)* | 0.668 | 0.312 | 0.559 | 0.792 | 0.602 |
| $T2 = T3$ *(p-value)* | 0.743 | 0.660 | 0.171 | 0.140 | 0.990 |
| $N$ | 7295 | 7295 | 7295 | 7295 | 7295 |
| Mean dep. var. control | 0.354 | 0.633 | 0.029 | 0.016 | 0.004 |

*Notes:* OLS estimates and standard errors in parenthesis clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. The dependent variable in all columns is a dummy taking value 1 if the student attrited for a given survey. Col.1 refers to the midline while Cols.2-5 refer to the endline. Cols.1-2 report results for the in-person survey performed at school; Col.3 adds phone surveys with respondents; Col.4 adds the phone survey with contacts; col.5 adds the survey performed at school with other students and with the administrative staff. For each methodology, we define a student as attrited if we do not have information on the student's migration status from that methodology nor from the preceding columns. For example, a student is considered attrited in the phone survey with contacts (Col. 4) if we did not receive information on them from their contacts and were unable to collect the student's own response both in-person (Col. 2) and over the phone (Col. 3).

Table A3: Impacts on Kling et al. (2007) indexes at midline

| | (1) Kling Cost- Index | (2) Kling Cost+ Index | (3) Kling Econ Index |
|---|---|---|---|
| ***Panel A*** | | | |
| Any treatment | 0.24*** | 0.23*** | 0.15*** |
| | (0.02) | (0.02) | (0.02) |
| ***Panel B*** | | | |
| $T1$ - Risk | 0.25*** | 0.25*** | 0.10*** |
| | (0.03) | (0.03) | (0.03) |
| $T2$ - Econ | 0.18*** | 0.17*** | 0.15*** |
| | (0.03) | (0.03) | (0.03) |
| $T3$ - Combined | 0.29*** | 0.27*** | 0.22*** |
| | (0.04) | (0.04) | (0.03) |
| $T1 = T2$ *(p-value)* | 0.027 | 0.005 | 0.154 |
| $T1 = T3$ *(p-value)* | 0.439 | 0.683 | 0.003 |
| $T2 = T3$ *(p-value)* | 0.005 | 0.006 | 0.054 |
| $N$ | 4278 | 4278 | 4278 |
| Mean dep. var. control | -0.096 | -0.057 | -0.071 |

*Notes:* OLS estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. The dependent variable in col. 1 is an aggregator of risk beliefs based on Kling et al. (2007) using positive cost, col. 2 uses negative cost, averaged between the Italian and Spanish route. Col. 3 is Kling aggregator for perceptions about economic outcomes. The mean dependent variable in the control group is measured during the midline. Individual and school controls are described in Table 2 and 4.

Table A4: Asking visa and durables index

| | y = Asked visa to migrate | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Durables index | 0.348*** | 0.212** | 0.247** | 0.146 |
| | (0.114) | (0.101) | (0.113) | (0.105) |
| Preparing to migrate | | 35.023*** | | 34.713*** |
| | | (2.748) | | (2.720) |
| Individual controls | No | No | Yes | Yes |
| School X Grade X Curriculum FEs | Yes | Yes | Yes | Yes |
| $N$ | 6781 | 6781 | 6781 | 6781 |
| Mean dep. var. control | 2% | | | |

*Notes:* OLS estimates and standard errors (in parentheses) clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. The dependent variable in all specifications is a dummy variable taking value one if the respondent has asked a visa for migrating at the baseline survey. The main independent variable is a PCA aggregate of durable goods owned by the respondent's household. Specifications (2) and (4) include as a control a dummy taking value one if the individual says she is preparing for migration. All columns include School X Grade X Curriculum FEs. Individual controls are listed in Table 2.

Table A5: Comparison between migration intentions in our sample and in the Afrobarometer survey

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Our sample | Afrobarometer: all sample | | | Afrobarometer: young (18-21y) | | |
| | Mean | Mean | Δ | *p-value* | Mean | Δ | *p-value* |
| Plans | 0.20 | 0.19 | -0.01 | 0.33 | 0.25 | 0.05 | 0.13 |
| Prepares | 0.05 | 0.04 | -0.01 | 0.05 | 0.03 | -0.02 | 0.29 |
| $N$ | 7266 | 1194 | - | - | 147 | - | - |

*Notes:* This table reports the fraction of respondents interviewed in the Afrobarometer (Round 7) answering "Yes" to questions about their migration intentions, compared to fractions in our sample answering similar questions. Specifically, the first row reports the fraction of respondents who plan to migrate and the second row reports those who has made some preparations to move. Col.1 reports such fractions in our sample; Cols.2 and 5 report them for different samples of the interviewed population in the Afrobarometer. Cols.3 and 6 report the respective differences between Afrobarometer sample and our sample and Cols. 4 and 7 report p-values.

Table A6: Balance table on other students' characteristics

| Variable | (1) Control Mean | (2) Risk-Control | (3) Econ-Control | (4) Combined-Control | (5) $N$ |
|---|---|---|---|---|---|
| Mother worked in the last 12 months | 0.346 | -0.012 | 0.020 | -0.008 | 7295 |
| | (0.476) | (0.024) | (0.022) | (0.021) | |
| Mother no education | 0.579 | -0.040 | -0.016 | -0.038 | 7295 |
| | (0.494) | (0.033) | (0.027) | (0.028) | |
| Mother completed primary school | 0.126 | -0.010 | 0.002 | -0.010 | 7295 |
| | (0.332) | (0.011) | (0.011) | (0.013) | |
| Mother completed secondary school | 0.180 | 0.040** | 0.022 | 0.050*** | 7295 |
| | (0.384) | (0.018) | (0.016) | (0.018) | |
| Mother completed higher education | 0.082 | 0.003 | -0.006 | -0.013 | 7295 |
| | (0.274) | (0.017) | (0.014) | (0.015) | |
| Father worked in the last 12 months | 0.537 | -0.016 | 0.018 | -0.009 | 7295 |
| | (0.499) | (0.024) | (0.025) | (0.024) | |
| Father no education | 0.409 | 0.003 | -0.026 | -0.028 | 7295 |
| | (0.492) | (0.032) | (0.031) | (0.028) | |
| Father completed primary school | 0.085 | 0.002 | -0.002 | 0.002 | 7295 |
| | (0.279) | (0.010) | (0.010) | (0.010) | |
| Father completed secondary school | 0.195 | 0.003 | 0.009 | 0.013 | 7295 |
| | (0.396) | (0.015) | (0.014) | (0.014) | |
| Father completed higher education | 0.259 | -0.010 | 0.025 | 0.010 | 7295 |
| | (0.438) | (0.030) | (0.026) | (0.024) | |
| # brothers | 2.524 | -0.031 | 0.022 | 0.017 | 7295 |
| | (1.953) | (0.081) | (0.082) | (0.081) | |
| # sisters | 2.442 | 0.062 | 0.048 | 0.057 | 7295 |
| | (1.740) | (0.077) | (0.076) | (0.067) | |
| # classmates who migrated | 1.363 | 0.063 | 0.137 | 0.498 | 6778 |
| | (4.571) | (0.179) | (0.251) | (0.373) | |
| Daily television usage | 0.572 | -0.016 | 0.005 | -0.017 | 7295 |
| | (0.495) | (0.030) | (0.025) | (0.026) | |
| Weekly or less television usage | 0.099 | -0.004 | -0.006 | -0.009 | 7295 |
| | (0.299) | (0.013) | (0.012) | (0.013) | |
| Daily internet usage | 0.271 | 0.015 | -0.019 | 0.008 | 7295 |
| | (0.444) | (0.022) | (0.020) | (0.020) | |
| Weekly or less internet usage | 0.247 | -0.012 | 0.009 | -0.010 | 7295 |
| | (0.431) | (0.020) | (0.018) | (0.019) | |
| Experimental Sciences Curriculum | 0.182 | -0.008 | -0.010 | 0.007 | 7294 |
| | (0.386) | (0.027) | (0.026) | (0.026) | |
| Social Sciences Curriculum | 0.384 | 0.058 | 0.029 | 0.055 | 7294 |
| | (0.486) | (0.037) | (0.038) | (0.042) | |
| Mathematical Sciences Curriculum | 0.434 | -0.050 | -0.019 | -0.062* | 7294 |
| | (0.496) | (0.034) | (0.036) | (0.037) | |

*Notes:* Col.1 reports the control mean of the variable and its standard deviation in parenthesis. Cols.2-4 show differences between T1, T2, T3 and the control group, with OLS estimates and standard errors in parentheses clustered at the school level. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. Variables are described in Section 5.

Table A7: Balance table for school characteristics

| Variable | (1) Control Mean | (2) Risk-Control | (3) Econ-Control | (4) Combined-Control | (5) $N$ |
|---|---|---|---|---|---|
| Big school | 0.500 | 0.000 | 0.000 | 0.000 | 160 |
| | (0.506) | (0.113) | (0.113) | (0.113) | |
| School fees > median | 0.450 | -0.000 | 0.150 | 0.050 | 160 |
| | (0.504) | (0.113) | (0.112) | (0.113) | |
| Repeating students | 53.216 | -3.391 | 25.209 | -9.304 | 151 |
| | (84.372) | (24.435) | (35.687) | (22.555) | |
| Transfer students | 130.351 | -19.151 | -22.401 | -32.851 | 151 |
| | (174.415) | (33.682) | (33.618) | (32.097) | |
| Female students ratio (upper secondary) | 0.486 | 0.006 | -0.011 | -0.060** | 160 |
| | (0.139) | (0.029) | (0.031) | (0.028) | |
| Student-teacher ratio | 19.404 | 1.915 | -1.321 | -0.619 | 160 |
| | (10.370) | (2.558) | (2.359) | (2.554) | |
| Student-admin staff ratio | 143.658 | 41.541 | 74.037 | -31.235 | 97 |
| | (118.246) | (43.524) | (61.281) | (30.708) | |
| Student-classes ratio | 38.009 | 2.957 | -1.186 | -1.980 | 160 |
| | (15.189) | (3.590) | (3.479) | (3.455) | |
| % male teachers | 1.003 | -0.025 | -0.033 | 0.005 | 116 |
| | (0.141) | (0.028) | (0.029) | (0.039) | |
| % teachers w/ master's degree | 0.488 | -0.124 | 0.086 | 0.012 | 116 |
| | (0.485) | (0.130) | (0.128) | (0.123) | |

*Notes:* Col. 1 reports the control mean of the variable and its standard deviation in parenthesis. Cols. 2-4 report differences between T1, T2, T3 and the control group, with OLS estimates and standard errors in parentheses clustered at the school level. Col. 5 reports the number of observations available for each variable. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. Variables are described in Section 5.

Table A8: Balance table on beliefs

| Variable | (1) Control Mean | (2) Risk-Control | (3) Econ-Control | (4) Combined-Control | (5) $N$ |
|---|---|---|---|---|---|
| ***Panel A: Risk beliefs (route through Italy)*** | | | | | |
| Duration of the journey | 2.061 | 0.028 | -0.034 | 0.073* | 7259 |
| | (0.916) | (0.040) | (0.045) | (0.043) | |
| Being beaten | 58.270 | -1.205 | -0.986 | -1.681 | 7252 |
| | (28.691) | (1.446) | (1.397) | (1.430) | |
| Being forced to work | 56.867 | -0.044 | 0.577 | -0.350 | 7250 |
| | (31.278) | (1.372) | (1.429) | (1.489) | |
| Cost of the journey | 15.721 | -0.228 | -0.047 | -0.285 | 7216 |
| | (4.192) | (0.207) | (0.195) | (0.214) | |
| Being held | 50.704 | -0.695 | -0.155 | -0.574 | 7250 |
| | (31.065) | (1.324) | (1.432) | (1.505) | |
| Death before boat | 40.202 | -0.033 | 0.619 | -1.006 | 7249 |
| | (28.738) | (1.178) | (1.217) | (1.338) | |
| Death in boat | 45.023 | -0.040 | 1.779 | 0.076 | 7246 |
| | (29.740) | (1.196) | (1.395) | (1.442) | |
| Being sent back | 38.404 | 0.174 | 0.587 | 0.525 | 7249 |
| | (29.644) | (1.287) | (1.379) | (1.353) | |
| Risk Beliefs Index for Italy (Kling et al., 2007) | -0.013 | 0.005 | 0.008 | 0.006 | 7196 |
| | (0.590) | (0.026) | (0.030) | (0.029) | |
| ***Panel B: Risk beliefs (route through Spain)*** | | | | | |
| Duration of the journey | 2.030 | -0.024 | 0.006 | 0.027 | 7252 |
| | (0.902) | (0.042) | (0.048) | (0.045) | |
| Being beaten | 49.570 | 0.083 | 1.256 | -0.318 | 7243 |
| | (29.921) | (1.357) | (1.474) | (1.517) | |
| Being forced to work | 50.444 | -1.354 | 0.375 | 0.149 | 7243 |
| | (31.345) | (1.239) | (1.400) | (1.434) | |
| Cost of the journey | 15.645 | -0.132 | 0.017 | -0.189 | 7207 |
| | (4.372) | (0.213) | (0.186) | (0.213) | |
| Being held | 47.071 | -1.973* | -0.505 | -0.986 | 7241 |
| | (30.777) | (1.132) | (1.266) | (1.296) | |
| Death before boat | 38.330 | -1.129 | -0.212 | -0.236 | 7236 |
| | (28.899) | (1.066) | (1.155) | (1.258) | |
| Death in boat | 41.417 | -0.790 | 0.570 | 0.330 | 7234 |
| | (29.020) | (1.218) | (1.206) | (1.267) | |
| Being sent back | 38.364 | -0.329 | -0.333 | 0.261 | 7234 |
| | (28.789) | (1.149) | (1.202) | (1.230) | |
| Risk Beliefs Index for Spain (Kling et al., 2007) | -0.006 | -0.022 | 0.006 | 0.003 | 7181 |
| | (0.634) | (0.026) | (0.029) | (0.029) | |
| ***Panel C: Econ beliefs*** | | | | | |
| Finding a job | 33.996 | -0.492 | -0.908 | -0.074 | 7206 |
| | (27.355) | (0.985) | (1.009) | (1.009) | |
| Expected wage at dest. | 15.154 | -0.022 | -0.035 | 0.114 | 7197 |
| | (2.390) | (0.104) | (0.103) | (0.100) | |
| Continuing studies | 29.518 | -1.156 | -1.534 | 0.098 | 7192 |
| | (26.345) | (1.368) | (1.316) | (1.377) | |
| Getting asylum, if requested | 33.097 | -1.285 | -1.747 | -1.646 | 7165 |
| | (28.266) | (1.245) | (1.188) | (1.326) | |
| Becoming citizen | 31.941 | -0.638 | -0.570 | 0.321 | 7190 |
| | (28.547) | (1.270) | (1.304) | (1.392) | |
| Not having returned after 5yrs | 29.433 | 0.026 | 0.282 | 1.623 | 7181 |
| | (27.577) | (1.333) | (1.411) | (1.452) | |
| Receiving financial help | 34.645 | -1.259 | -1.250 | 0.399 | 7170 |
| | (32.915) | (1.355) | (1.297) | (1.746) | |
| Expected liv. cost at dest. | 7.527 | 0.032 | 0.046 | -0.044 | 7109 |
| | (1.894) | (0.079) | (0.072) | (0.072) | |
| % in favor of migr. at destin. | 39.461 | 0.049 | -0.921 | 0.472 | 7138 |
| | (28.615) | (1.155) | (1.215) | (1.302) | |
| Economic Beliefs Index | -0.011 | 0.017 | 0.026 | 0.011 | 7068 |
| | (0.487) | (0.022) | (0.022) | (0.024) | |

*Notes:* Col. 1 reports the control mean of the variable and its standard deviation in parentheses. Cols. 2-4 report differences between T1, T2, T3 and the control group, with OLS estimates and standard errors in parentheses clustered at the school level. Col.5 reports the number of observations available for each variable. *, **, and *** denote significance at 10, 5 and 1 percent level, respectively. Variables are described in Section 5.

# Appendix B

## B1 Poof of Result 1

The optimal safety investment solves:

$$-\tilde{\kappa}_I \sigma'(s^*) = \int u'(\tilde{y_I}\varepsilon_y + w - p_I - s^*) dF_I(\varepsilon_y).$$

Define $G$ as follows:

$$G = \int u'(\tilde{y_I}\varepsilon_y + w - p_I - s^*) dF_I(\varepsilon_I) + \tilde{\kappa}_I \sigma'(s^*).$$

Implicit differentiation gives

$$\begin{aligned}
\frac{\partial G}{\partial \tilde{y}_I} &= \int \varepsilon_I u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I), \\
\frac{\partial G}{\partial s^*} &= -\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I) + \tilde{\kappa}_I \sigma''(s^*).
\end{aligned}$$

Then, we can write

$$\frac{\partial s^*}{\partial \tilde{y}_I} = -\frac{\frac{\partial G}{\partial \tilde{y}_I}}{\frac{\partial G}{\partial s^*}} = \frac{\int \varepsilon_I u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I)}{\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma''(s^*)}. \tag{5}$$

The numerator and all the addends in the denominator are negative. So, we have:

$$\frac{\partial s^*}{\partial \tilde{y}_I} > 0.$$

Applying the same reasoning, we also prove two inequalities that we will use in the Nash Bargaining extension below. The derivative of optimal safety in expected risk is given by:

$$\frac{\partial s^*}{\partial \tilde{\kappa}_I} = -\frac{\frac{\partial G}{\partial \tilde{\kappa}_I}}{\frac{\partial G}{\partial s^*}} = \frac{-\frac{\partial p_I}{\partial \kappa_I}\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I) + \sigma'(s)}{\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma''(s^*)} > 0,$$

and the derivative of safety in the price of the journey is given by:

$$\frac{\partial s^*}{\partial \tilde{p}_I} = -\frac{\frac{\partial G}{\partial \tilde{p}_I}}{\frac{\partial G}{\partial s^*}} = \frac{-\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I)}{\int u''(\tilde{y_I}\varepsilon_I + w - p_I - s^*) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma''(s^*)} < 0.$$

The numerator in the expression above is lower in absolute value than the numerator, so we also have

$$\frac{\partial s^*}{\partial \tilde{p}_I} > -1.$$

Notice that the last two derivatives do not depend on the realization of $\varepsilon_I$. Intuitively, prices and safety choices are formed before the resolution of uncertainty on the income abroad.

**Liquidity constraints.** If we assume that an agent can only borrow using a fraction $\gamma$ of their future income as collateral, we have two possible cases, based on the parameters: (1) $\rho + s^* < \gamma\tilde{y}_I + w$ and (2) $\rho + s^* \geq \gamma\tilde{y}_I + w$. In case (1), the previous proof holds. In case (2), we can show that the safety investment

increases in the future income by just noticing that the safety investment is now given by $\hat{s} = \gamma\tilde{y}_I - \rho$.

## B2 Extension: Nash Bargaining

The variables $\tilde{y}_I$ and $\tilde{\kappa}_I$ represent the agent's beliefs about the economic returns and about the risk of irregular migration, respectively. However, in order to understand how beliefs affect migration choice, we have to analyze how they affect the expected price of irregular migration, $p_I$. We assume that this price is Nash bargained by migrants and smugglers, who have bargaining power $\alpha \in [0, 1]$. Such bargaining weight represents a reduced form for the structure of the market, with $\alpha = 0$ representing perfect competition and $\alpha = 1$ representing monopoly. If smugglers have at least some market power, they can appropriate some of the surplus arising from better future economic prospects. This will also mean that the price of migrating irregularly increases in larger expected gains.

**Proposition 1.** *Suppose that smugglers rent out the smuggling technology at a price determined by Nash Bargaining and that they have bargaining power alpha* $\in [0, 1]$*. Set* $\gamma = 1$ *for simplicity. Then, the price of irregular migration is given by* $p_I = \rho + \mu S_I$*, with* $\mu = \alpha/(1+\alpha)$*, and it is increasing in the expected income abroad* $\tilde{y}_I$ *if smugglers have some market power (*$\alpha = 0$*).*

**Proof.** By Nash Bargaining,

$$p_I = \underset{p_I}{\operatorname{argmax}} \left(U_I(p_I) - U_{-I}\right)^{1-\alpha} \left(p_I - \rho\right)^{\alpha}.$$

By concavity of $U_I$ (its second derivative in $p_I$ is concave as we show below), we can write

$$p_I = \underset{p_I}{\operatorname{argmax}} (1-\alpha) \ln \left(U_I(p_I) - U_{-I}\right) + \alpha \ln \left(p_I - \rho\right).$$

First Order Conditions give

$$\begin{aligned} p_I &= \rho - \frac{\alpha}{1-\alpha} \frac{U_I(p_I) - U_{-I}}{U'(p_I)} = \\ &= \rho - \frac{\alpha}{1-\alpha} \frac{U_I(p_I) - U_{-I}}{-\left(1 + \frac{\partial \hat{s}}{\partial p_I}\right) \int u\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma'(\hat{s}) \frac{\partial \hat{s}}{\partial p_I}}. \end{aligned}$$

For all agents, we can define the derivative of surplus with respect to price as

$$\begin{aligned} \frac{\partial \left(U_I(p_I) - U_{-I}\right)}{\partial p_I} &= -\left(1 + \frac{\partial \hat{s}}{\partial p_I}\right) \int u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma'(\hat{s}) \frac{\partial \hat{s}}{\partial p_I} = \\ &= -\int u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I), \end{aligned}$$

and the derivative of surplus with respect to income as

$$\begin{aligned} \frac{\delta \left(U_I(p_I) - U_{-I}\right)}{\delta \tilde{y}_I} &= \int \varepsilon_I u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) - \frac{\partial \hat{s}}{\partial \tilde{y}_I} \int \varepsilon_I u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma'(\hat{s}) \frac{\partial \hat{s}}{\partial \tilde{y}_I} = \\ &= \int \varepsilon_I u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I). \end{aligned}$$

In the same way, we can define the double derivative with respect to price as

$$\frac{\partial^2 \left(U_I(p_I)\right)}{\partial p_I \partial p_I} = \left(1 + \frac{\partial \hat{s}}{\partial p_I}\right) \int u'' \left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I),$$

and the cross-derivative in price and income as

$$\frac{\partial^2 \left(U_I(p_I)\right)}{\partial p_I \partial \tilde{y}_I} = -\int \varepsilon_I u'' \left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) + \frac{\partial \hat{s}}{\partial \tilde{y}_I} \int u'' \left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) > 0,$$

where the inequality follows from Expression 5.

Let us get back to implicit differentiation of the FOC. Applying derivative of product we get:

$$\frac{\partial G}{\partial p_I} = -\frac{\alpha}{1-\alpha} + \frac{\alpha}{1-\alpha} \frac{U_I(p_I) - U_{-I}}{(U'(p_I))^2} U''(p_I) - 1 < 0,$$

and

$$\begin{aligned}\frac{\partial G}{\partial \tilde{y}_I} &= -\frac{\alpha}{1-\alpha} \frac{\frac{\partial U(p_I)}{\partial \tilde{y}_I}}{\frac{\partial U(p_I)}{\partial p_I}} + \frac{\alpha}{1-\alpha} \frac{U_I(p_I) - U_{-I}}{(U'(p_I))^2} \frac{\partial^2 U(p_I)}{\partial p_I \partial \tilde{y}_I} = \\ &= \frac{\alpha}{1-\alpha} + \frac{\alpha}{1-\alpha} \frac{U_I(p_I) - U_{-I}}{(U'(p_I))^2} \frac{\partial^2 U(p_I)}{\partial p_I \partial \tilde{y}_I} > 0,\end{aligned}$$

Where $U'$ and $U''$ indicate first and second derivative with respect to price.

So that we have

$$\frac{\partial p_I}{\partial \tilde{y}_I} > 0.$$

## B3 Poof of Result 2

To prove the first part of the Result, we just need to notice that the expected utility of migrating irregularly increases in $\tilde{y}_I$ and decreases in $\tilde{\kappa}_I$, while the utility of the alternatives (staying in the home country or migrating regularly) are unaffected.

Here, it is useful to notice that a positive surplus from migration implies feasibility of irregular migration for agents with savings lower than $p_R - \tilde{y}_R$, since

$$\begin{aligned}\int u \left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \tilde{\kappa}_I \sigma(\hat{s}) &\geq u(y_H + w) \\ u \left(\tilde{y_I} + w - p_I - \hat{s}\right) - \tilde{\kappa}_I \sigma(\hat{s}) &\geq u(y_H + w) \\ u \left(\tilde{y_I} + w - p_I - \hat{s}\right) &\geq u(y_H + w) \\ \tilde{y_I} + w - p_I - \hat{s} &\geq y_H + w \\ \tilde{y_I} + w &\geq p_I + \hat{s} + y_H \\ \tilde{y_I} + w &\geq p_I,\end{aligned}$$

where the second inequality follows from concavity and the fact that $\mathbb{E}(\varepsilon_I) = 1$. Our assumption that the expected utility of migrating regularly is larger than the expected utility of staying in the home country also

implies that feasibility follows from optimality for agents with savings higher than $p_R - \tilde{y}_R$.

Let us consider the function equalized at indifference between migrating irregularly and not migrating irregularly:

$$G = \int u\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \tilde{\kappa}_I\sigma(\hat{s}) - U_{-I}.$$

The derivative in income is positive and given by

$$\frac{\partial G}{\partial \tilde{y}_I} = \int \varepsilon_I u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) > 0.$$

Let us define the derivative of the implicit function in the expected risk

$$\frac{\partial G}{\partial \tilde{\kappa}_I} = -\frac{\partial \hat{s}}{\partial \kappa_I}\int u'\left(\tilde{y_I}\varepsilon_I + w - p_I - \hat{s}\right) dF_I(\varepsilon_I) - \sigma(\hat{s}) - \tilde{\kappa}_I\sigma'(\hat{s})\frac{\partial \hat{s}}{\partial \kappa_I}. \tag{6}$$

For the unconstrained agent, the first and the last term in the expression cancel out. Then, we have

$$\frac{\partial G}{\partial \tilde{\kappa}_I} < 0.$$

Applying implicit differentiation we prove the statement.

Define a threshold such that migrating is better than the outside option for constrained agents, call it $\bar{y}_H(\tilde{\kappa}_I)$. Using the same line of reasoning, we can show that $\bar{y}_H(\tilde{\kappa}_I)$ is increasing.

**Liquidity constraints.** To extend the result to the case of liquidity constraints, notice that, for the unconstrained agent, $U_I$ remains an increasing function of $\tilde{y}_I$. Now, a positive surplus from irregular migration does not imply feasibility anymore, since $\gamma$ can be arbitrarily low. However, $U_I$ remains increasing for the constrained agent, since safety increases in $\tilde{y}_I$, leaving consumption unchanged. To prove the second part of the statement, we first notice that, for the constrained agent, the first and the third term in Equation 6 disappear since the derivative of the safety investment in $\tilde{\kappa}$ is 0. This, together with the fact that $U_I$ increases in $y_I$ proves that income thresholds increase in expected risk when the feasibility constraint does not bite. Since $U_I$ decreases with $\tilde{\kappa}_I$ also for a fixed safety investment, the statement holds also when the feasibility constraint bites.