(How) Do Information Campaigns Influence Migration Decisions?

Supplementary Material
(Online Appendix)

Abstract

One European policy response to the so-called migration crisis is an accelerated implementation of information campaigns in potential origin countries. Whether and how these campaigns can influence decisions about irregular migration, however, remains under explored. I argue that information campaigns reduce intentions to migrate irregularly and expect the effects to be more substantial when anxiety-inducing messages are used. Based on a field experimental RCT study (N=1,500) of an actual European information campaign in Nigeria, I provide supportive evidence for this expectation: The information campaign reduced respondents' intentions to migrate irregularly with a more decisive effect when using an anxiety-triggering campaign message.

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Appendices

A. Research Setting: Emigration in Nigeria

For West Africans, the main route of irregular migration to Europe is via Niger and Libya by sea to Italy. Exact numbers of irregular migration from Nigeria do not exist. When using irregular *immigration* data to approximate irregular *emigration* statistics, we calculate conservatively, since many people get lost on the irregular migration journey. In relative terms, from 2015 until the first half of 2018, Nigerians were by far the largest West African national group arriving in Italy by sea (The World Bank Group 2018). The majority of irregular migrants from Nigeria are from large cities, and most from Benin City. The study presented here was conducted in Benin City, due to its exceptional migration history (ibid.).

The majority of Nigerian emigrants taking the irregular migration path are adolescents and young adults (see UNHCR Operational Portal for statistics). This over-representation of young people results from the accumulation of push factors in this age group. First, young people have a long future horizon and a low level of unmovable investments. Second, they have a strong desire to "become an adult" in the sense of living on one's own and, in the Nigerian context, financially supporting the family for the first time. Third, young adults have this moment of "opportunity" through a major life transition, i.e., after the completion of the educational stage (school or university) and at the entry into the labor market. Reasons for choosing the irregular and not the regular migration path are assumed to result from the limited legal opportunities to do so. To reach a relevant audience, this research focuses on young adults in secondary schools and university.

Regarding the level of education we could observe a shift in irregular migration research. Whereas it was long said that irregular migrants tend to have no or rather an informal education, the current insights suggest rather the average educated, with primary and secondary school and first university degrees, to be the average migrant (Idemudia & Boehnke 2020). This stands in line with the expectations known from migration decision theory(De Haas & Fokkema 2010), since the level of education is highly correlated with the socioeconomic status of an individual or his or her family. Hence, not the individuals with lower socioeconomic status nor the elite are the ones that migrate, but those in-between. Following this elaboration, the secondary school students are the more relevant target

group, as most university students already belong to the upper bond in the socioeconomic middle.

From a policy perspective, there is a need for migration management policy making in the Nigerian context due to a high irregular emigration rate and a low probability of obtaining legal refugee status in Europe based on nationality (European Commission 2015). Therefore, several information campaigns on migration are implemented in Nigeria, financed by different European governments (European Commission 2017). One of these campaigns is the campaign under study.

Figure 1: Visualization of EU Migration Information Campaign Destinations; Own visualization based on content from the European Commission (ibid.); figure represemts a lower bound of recent information activities, as based on voluntary reports from EU national countries (GER, FI, FR, HU, IE, IT, LU; NL; NO, PT, SE, UK, BEL); geocodes from Geocodedata.

B. Treatment Manipulation check Topic versus Emotion

Like described in the article the videos are not just framed and designed to trigger different emotions, they also are about different topics. To recap, video 1 focuses on the risk of the journey by showing drastically what might happen on the path of irregular migration and video 2 refers to the circumstances in a potential destination country with a primary focus on the narratives of a Nige-

rian returnee.

Figure 2: Example MTurk Implementation Screenshot; Note in the original MTurk study the eyes
are not black-boxed.
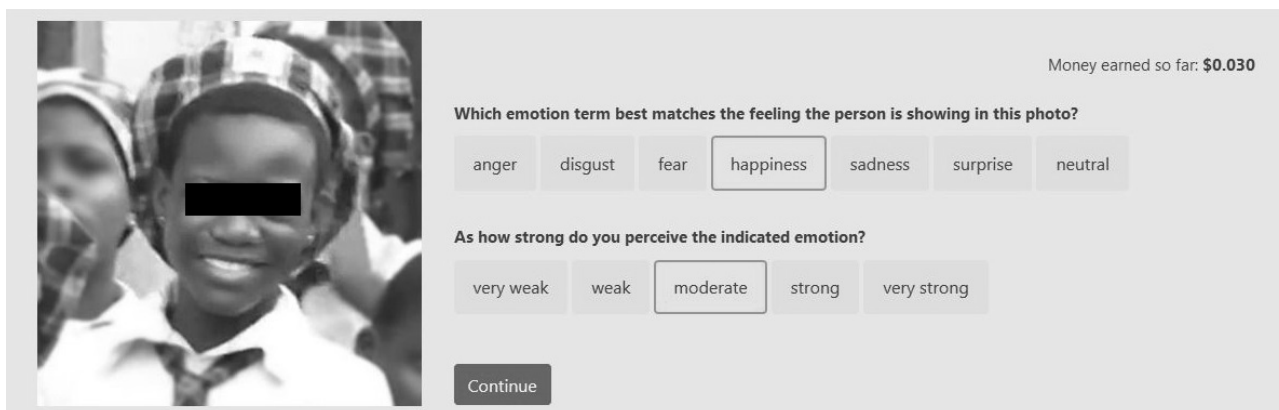
To test this, an additional study is conducted with a convenient sample of MTurk participants. It is irrational to assume that the convenient sample of generally western MTurk-participants would experience the same feelings like Nigerian students when seeing the videos. Therefore, the facial expressions from the video recordings of the information events is shown to the MTurk-participants and they are expected to code the emotion expressed. This speaks to the 'outside in' approach in emotion research, where emotions are inferred from observations of expression and behaviour (Brader & Marcus 2013). However, also in this path of literature the universality of emotion inferences from facial expressions across cultures is discussed controversially (Russell 1994). Elfenbein & Ambady (2002) show in a meta-analysis that emotion recognition diminishes across cultures compared to within cultures, but is still valid, especially in the case of basic emotions.

The classification task is implemented as part of a larger psychological research study on MTurk. During a waiting time in which groups are matched for the actual study task, the MTurk participants are asked to classify the emotional expressions from pictures. Therefore, each participant rated a varying number of pictures. The pictures are cut in a 10 second rhythm from the videos during the treatment videos. Exclusions where made if no clear student participant is on the picture (this implies that once the camera shifts for a moment to the teacher/NGO-audience the first picture once a student appears again is taken and then the 10 second rhythm starts from the beginning) or the

picture quality was particularly worse compared to the others (this happened generally when the 10second shot happened to be in a transition moment of the camera from one student to another). In a next step the pictures with more than one full shown face of a student on it where duplicated and cut to focus only one single person per picture. Additionally, the background of the pictures was blurred to have only one face per picture for evaluation and reduce any ambiguities. The pictures are rated on (1) "Which emotion term best matches the feeling the person is showing in this photo?" with the six basic emotions - anger, disgust, fear, happiness, sadness, surprise - plus a neutral option to choose from. (2) the students are asked as how strong they indicate that emotion (see example in figure below).

Table 1: Coefficients of each Emotion being in the Anxiety-video group compared to the calmness video group; results are based on individual logistic regressions identifying the treatment effect on each emotion in comparison to the neutral group; robust standard errors; dependent variable scale from 0-1; *p<0.1; **p<0.05; ***p<0.01. The regression output is the basis for the visualization in Figure 3, main text.

	Anger	Disgust	Fear	Happy	Sad	Surprise
Treatment	-0.07	0.39^{***}	0.25^*	-0.60^{***}	0.08	0.08
	(0.14)	(0.12)	(0.15)	(0.10)	(0.09)	(0.09)
N	4,101	4,534	4,179	4,498	5,194	5,194

C. Documentation prior to study implementation

C.1. Pre-Analysis-Plan (PAP)

Note: The PAP was registered prior to field implementation on EGAP. All registrations have now been migrated to OSF (Open Science Framework) and can be accessed here: https://osf.io/uc6as/?view$_o$nly = 6757973368ef485b96ffe47d075a2121. I understand the purpose of a PAP as a plan to publish in advance to avoid Cherry-picking and foster transparency in research. I do not refrain from deviations from the PAP, but see it as crucial to name them in the manuscripts' text. I acknowledge that PAPs that are published today are more detailed than mine is from that time. However, it would decrease its value and usefulness to update it now. Hence, the original PAP in the following.

I. Setting Experimental Design

The randomized field experiment assesses the effect of politically transmitted information in form of a specific information campaign, on young Nigerians. This is the campaign by a Nigerian-German NGO co-funded by the Federal Foreign Office Germany (Auswaertiges Amt). Concept of the campaign is to create mass-events in schools and universities to educate about unplanned migration abroad. To investigate on the effectiveness of these campaigns and to understand this way of information transmission further the research study is structured in two. In a first sub-study the effect of the campaign is assessed conducting a pre- post treatment panel study with around 200 students in a university in Abuja, the capital of Nigeria. In the second sub-study, the campaign is split in two treatment arms (treatment probability each arm: 1/3) with different messages being transmitted and one control group (probability 1/3). The treatment arms are (T1) a video message regarding the risks of the journey and (T2) a video message regarding the circumstances in the destination narrated by a returnee. The 1,000 students of each school are allocated randomly to the defined groups. This allows to investigate the mechanism of persuasion through information in greater detail. This second sub-study is implemented in two secondary schools in Benin City, the main place of origin regarding irregular migration from Nigeria to Europe.

Dependent Variable

The dependent variable, migration behavior, is a sensitive topic and difficult to capture. Therefore, the main dependent variable is captured in various ways:

1. Migration intensions (in general; irregular way of migration)

2. Pseudo migration behavior through a case conjoint assessment

3. Actual migration behavior (by keeping in touch through online channels)

A second order dependent variable is:

1. Knowledge on the topic of migration (in general; irregular way of migration)

II. Analytical Evaluation

Before engaging in the analytical evaluation, a formalization of what is the aim to measure is advisable. The first estimand of interest is

(1) $\tau = E[treatment - control]$

indicating the effect of a treatment instead of no treatment. The second estimand of interest is regarding the different effects depending on the message transmitted (T1, T2). The effect of treatment T1 instead of treatment T2, the estimand of interest, is formalized as:

(2) $\tau = E[messageA messageB]$.

An OLS model is conducted to estimate the sample average treatment effects (ATE). The model is implemented first without covariates (see list below) and second including them. The model has the following formalization, with k indicating a vector of the before mentioned covariates being zero in the first calculation of the model:

$MigrationBehavior_i = \alpha_0 + \beta_1 * Treatment_i + k_i$.

Investigating the university sub-study, the 'Treatment-Variable' is the dummy variable of pre- and post- treatment measurement and the treatment (T1/T2) and control group measurement in the school sub- study. For the in-depth investigation, the 'Treatment-Variable' is a dummy variable indicating the type of treatment (T1 or T2).

Heterogenous Effects

Analytically additionally the appearance of heterogenous effects is studied, given respective power. The following theoretical concepts are interacted analytically with the relation under study.

1. Trust in the information (operationalized through trust in various sources and the indication of the organization who transmitted the information)

2. Information sources and frequency regarding the topic of migration, latter in relation to overall news consumption

3. Level of pre-knowledge (only from Baseline survey in University) .

Covariates

The vector of covariates k includes the following variables: 1. Age 2. Gender 3. Ethnic group 4. Religion 5. Level of education 6. Place of living (centre-rural) 7. Socio economic characteristics (transport usage, House standards, Technology) 8. Own migration history and (in general; international migration) 9. Migrant network 10. Perceived difficulty to cross borders 11. Potential destination (only from Baseline survey in University) 12. Reason for emigration (only from Baseline survey in University) .

II.I Analytical Evaluation conjoint cases

To capture pseudo behaviour a case conjoint approach is induced. The data of this lab-in-the-field experiment is additionally evaluated. The dependent variable is own hypothetical migration behaviour. The model has the following formalization:

$MigrationBehavior_i = \alpha_0 + \beta_1 * RisksHigh_i + \beta_2 * ResidencePermitHigh_i + \beta_3 * LocalJobFutureHigh_i + \beta_4 * RisksHigh_i * ResidencePermitHigh_i + \beta_5 * RisksHigh_i * LokalJobFutureHigh_i + \beta_6 * ResidencePermitHigh_i * OriginJobFutureHigh_i + k_i,$

where $RisksHigh_i$ takes value 1 if the person in the hypothetical situation has a high risk of dying on the route of irregular migration, $ResidencePermitHigh_i$ takes value 1 if the person in the hypothetical situation has a high probability of obtaining a legal residence permit, and $LocalJobFutureHigh_i$ takes value 1 if the person in the hypothetical situation has a high chance of a good employment in the country of origin (here Nigeria).

Heterogenous Effects

Analytically additionally the possibility of heterogenous effects is studied, given respective power. The following theoretical concepts are interacted with the relation under study.

1. Known probability of risks on journey

2. Known probability of getting legal residence permit

3. Perceived future job prospects

Covariates

The vector of covariates k includes the same variables as in the foregoing equation.

C.2. Power Calculation

Note: The Power Calculation was conducted prior to funding application at the University of Konstanz. The following text is the original text from this moment. Unfortunately, I did not upload my power calculation in the pre-registry back then. However, I indicated -rightfully- that I conducted a power calculation prior to study implementation. In line with the PAP above, I acknowledge that PAPs that are published today are more detailed than mine is from that time, and definitely include a power calculation as part of the PAP. However, like above, it would decrease its value and usefulness to update it now.

The population under study are adolescents in Nigeria. These have a high potential to migrate irregularly. This can be seen by the statistical numbers (e.g. UNHCR operational portal [1]), but also explained through the accumulation of several push factors for Nigerian adolescents, being a lack of information, money and documents, combined with a long future horizon and the strong wish to support the family for the first time (The World Bank Group 2018).

Due to practical limitations the sample are non-random selected schools and a university. The implementing NGO selects the locations (a) through direct inquiries by the locations (self-selection bias) and within these (b) as noted by the organization by feasibility, cooperation and need. Thus, systematic differences between the selected places and overall education institutions are highly plausible and thus limit the generalizability. To test this assumption and to potentially prove it wrong, demographic covariates of the sample are compared with the demographic values of the Afrobarometer wave 7 conducted in Nigeria in the year 2017[2]. This gives insights on systematic differences and thus the generalizability of the results.

University in Abuja

Around 200 university students are selected for a pre- and post- treatment measurement. The selection procedure is merely quasi random. Several professors are contacted whether they agree to participate with their class. Then, two classes/professors are randomly selected. Each class consists of around 100 students.

Power calculation. Assessing the power of the experiment is relevant to engage in what is needed to be able to reject the null hypothesis of no treatment effect (Gerber & Green 2012). Following

the sample selection 200 students are in the before treatment and 200 students (the same students; panel study) are in the after treatment survey group. To get a point of reference for the power calculation estimates, values of the article by Gerber et al. (2009) are used[3]. Using balanced groups with the sample number of 200 each, the estimates by Gerber et al. (Ibid.), and a significance level of 0.05 in 10,000 simulations reveals a power of 5.49. This implies a really low probability (5.49 percent) of generating results that lead to the rejection of the null hypothesis in the presence of a true treatment effect. Since an increase in the number of participants in unfeasible, either the treatment effect can be hypothetically increased or the noise in form of assumed standard deviations be reduced. Several tests reveal, increasing the effect size of 13pp or diminishing the noise to really small standard deviations (0.03) are needed to reach an acceptable power level of over 80.

Public Secondary Schools in Benin City

No sample selection is conducted within the schools under study, all students are defined as units under study.

Power calculation. Following the indication of Rarduja International around 1000 students participate in each event. Divided by three color-groups of treatment this leads to around 333 students per group, two treatment groups and one control group. Similar to the forgoing power calculation the estimates of the article by Gerber et al. (Ibid.) are used as point of reference. However, using balanced groups with the sample number of 333 each, the heterogenous effect estimates by Gerber et al. (Ibid.), and a significance level of 0.05 in 10,000 simulations reveals a power of 9.02. Similar to the foregoing case the participant number cannot be increased. Deviating in the effect size or the standard deviation from the estimates obtained by Gerber et al. (Ibid.) shows that either an effect size of 10pp or a reduction to really small standard deviations (0.09) is needed to reach an acceptable power level. This highlights the need for a suited measurement, extracting the effect as clear as possible.

C.3. Ethical Approval (i.e. IRB)

I follow the ethical standards of the Declaration of Helsinki and its later amendments. An ethical approval was received from the University of the first author at the time of the project planning and implementation, the University of Konstanz.

D. Operationalisation - Survey Questions

Table 2: Original text from Survey Questions as registered with the PAP

Survey Questions	
I. Dependent Variables	
Irregular Migration Intention	
How much, if at all, do you consider moving to another country to live through the backdoor ("illegally")? Please rate your answer on a scale from 1 "never considered" to 10 "it is constantly on my mind".	Scale 1-10 from 1 "never considered" to 10 "it is constantly on my mind"; Don't know

Continued on next page

Table 2 – *Continued from previous page*

Survey Questions

Hypothetical Migration Behaviour

Now, let's think about a couple of hypothetical situations. In the following 3 tables, you will see descriptions of 2 Nigerians in your age group. Please read the descriptions in the table carefully. Then, please answer the corresponding questions. Reading Example for the table: In the first column you have the categories of information you have of the situation, in the second column you have Person A with the individual situation description in the rows below, same holds for Person B in the third column.

In this table you see a description of the hypothetical situations of Person A and Person B. Please read the descriptions in the table carefully. Person [A,B,C, D] has a [low / high] chance of dying on the route. Person [A,B,C, D] has a [low / high] chance of obtaining a residence permit in Europe. Person [A,B,C, D] has a [low / high] chance of obtaining good employment in Nigeria.

Now, please indicate what you would recommend each of them regarding their decision to migrate through the backdoor. How would you rate your recommendation? Please rate your answer on a scale from 1 "you would recommend definitely not to migrate through the backdoor" to 10 "you would recommend definitely to migrate through the backdoor".

[scale 1-10 from 1 "you would recommend definitely not to migrate through the backdoor" to 10 "you would recommend definitely to migrate through the backdoor"; Don't know]

Table 2 – *Continued from previous page*

Survey Questions

As you know, things that apply to others do not always apply to oneself. In a next step, please imagine yourself being in the situation of the described persons. What would you do being in each situation? Please rate your answer on a scale from 1 "you would recommend definitely not to migrate through the backdoor" to 10 "you would recommend definitely to migrate through the backdoor".	[scale 1-10 from 1 "you would recommend definitely not to migrate through the backdoor" to 10 "you would recommend definitely to migrate through the backdoor"; Don't know]

II. Covariates

<u>Gender</u>

Are you ...	Female, Male

<u>Age</u>

How old are you?	[open]

<u>Ethnicity</u>

What is the name of your ethnic group?	Hausa; Igbo; Yoruba; Efik; Ebira; Fulani; Isoko; Ibibio; Kanuri; Tiv; Nupe; Ijaw; Edo; Igala; Urhobo; Idoma; Itsekiri; Ikwere; Awori; Tapa; Kalabari; Birom; Shuwa-Arab; Jukun; Gwari; Nigerian only, or "doesn't think of self in those terms"; Refuse to answer; Don't know

Table 2 – *Continued from previous page*

Survey Questions

Religion

What is your religion, if any?   [open]

Education

What is your current level at the school / university?   [open]

Place of living

How would you describe the place you live in?   City center, city surroundings, city suburbs, village outside the city, village in a rural area

Socioeconomic Characteristics: Ownership

Which of these things do you personally or somebody else in your household own? A. Radio, B. Television , C. Motor vehicle or motorcycle, D. A Computer, E. Bank Account, F. Mobile phone (without internet access), G. Mobile phone (with internet access)   Personally own; Someone else in household owns; No one in household owns; Don't know

Socioeconomic Characteristics: House Standards

Do you have an electric connection to your home from the mains?   yes; no; don't know

Migration history/experience

During the past three years, have you or anyone in your household gone to live in another country outside Nigeria for more than three months?   No; Yes, only me; Yes, someone in my household; Yes, me and someone in my household; Don't know

Migrant Network: Remittances

Does your household receive remittances, such as money sent from abroad to support your household?   yes; no; Don't know

Difficulty to move across borders

Table 2 – *Continued from previous page*

Survey Questions

In your opinion, how easy or difficult is it for people in West Africa to cross international borders in order to work or trade in other countries? Please rate your answer on a scale from 1 "Very easy" to 10 "Very difficult".	Scale 1-10 from 1 "Very easy" to 10 "Very difficult"; Don't know

Potential Destination

If you were to move to another country, where would you be most likely to go?	Ghana; Another country in West Africa; Elsewhere in Africa; Europe; North America (ie, USA or Canada); Central/South America; Middle East; Asia; Australia; Outside of Africa (place not specified); Don't know

Reason for emigration

There are several reasons why people leave their home to live in another country. What about you. What is the single most important reason why you would consider moving from Nigeria? Please select only one reason over all.	[see Afrobarometer wave 7 categories]

Variables heterogeneous effects

Information source trust

Table 2 – *Continued from previous page*

Survey Questions	
How much do you trust the following information sources? Please rate your answer on a scale from 0 "Not at all" to 10 "A lot". A. Radio B. Television C. Newspapers D. Internet E. Social media such as Facebook or Twitter F. Family/Friends living in Nigeria G. Family/Friends living outside of Nigeria H. The Nigerian national Government I. Governments in general J. Intergovernmental Organisations (IGOs) K. Non Governmental Organisations (NGOs) L. Humanitarian Organisations	Scale 1-10 from 1 "Not at all" to 10 "A lot"; Don't know

Information frequency

How often do you get news from the following sources? A. Radio B. Television C. Newspapers D. Internet E. Social media such as Facebook or Twitter	A few times a week; A few times a month; Less than once a month; Never; Don't know

E. Ethical Considerations

The topic of migration is in itself a sensitive one, often loaded with emotions. The sensitivity intensifies for irregular migration and even more when power asymmetries, colonial ties or 'western' and 'non-western' or 'developed' and 'undeveloped' countries are involved. All that is the case for the European policy of migration information campaigns. Although this is over the scope of the present research, I therefore want to dedicate space to discussing some ethical aspects regarding migration information campaigns. First (1), I want to dive into the ethics of migration information campaigns as such, since these are widely discussed in the literature (Fiedler 2020; Haas 2020; Schans & Optekamp 2016). Since the literature on this issue is often unsystematic or ideologically laden, I try to bring some overall clarity in this current state and add my perceptions on the ethics of migration information campaigns. Second (2), I want to discuss ethics of research, and in particular my research, on migration information campaigns.

A starting point for the discussion about (1) ethics on migration information campaigns is the paradox of information. As indicated in the section of the state of the art of literature, the prevalence of missing information and misinformation is discussed, and given the current basis of data it is hard to prove one of the sides wrong. Yet it should not be neglected that for an irregular migration journey, specialised information is needed, like information regarding rights, duties, and language in the political systems in transit and destination, so that one does not find oneself in an state of 'information precarity' (Wall 2019), which enforces power asymmetries. This leads to the task at hand: to enable access to reliable information (Belloni 2019). But then it's said when the 'west' is providing the 'rest' with information, paternalistic and colonial world views awaken (Haas 2020), reinforcing and legitimising the binary 'us' versus 'them' (Musaro 2019), which then again reinforces power asymmetries.

From my point of view, this circle of ethical judgement sums up to the necessity that two aspects of migration information campaigns be ethically justifiable: (A) the intention behind the campaign implementation, and (B) the unbiasedness of the information. In the literature, unethical (A) intentions behind migration information campaigns are described based on the assigned intention of

these campaigns or their implementer, to educate the supposedly irrational and unintelligent (Bemmel 2020), implying a certain hierarchy. To implement migration information campaigns with the intention to foster informed decision making, on the other hand, would be judged as moral. The intention behind a migration information campaign also solves the discussion about denying a potential migrant's agency with these campaigns (Fiedler 2020) versus fostering agency through providing information.

To foster the potential migrant's agency through informed decision making, the (B) unbiasedness of information is key. However, assessing unbiasedness is difficult. It is a balancing act to decide between providing migrants with information about risks, deterring them, and scaring them off (I leave 'deterring' by intention in the middle of the scale described, since deterrence is generally used in the respective literature as synonymous with scaring off, although it would actually be rather an equivalent to informing about risks (Kent et al. 2019).). What makes information unbiased is its reliability and honesty, two cornerstones, as the communicated aim is to combat misinformation (Fiedler 2020). Following Carling & Talleraas (2016), the variety of information is what makes it more reliable, including input (for example) on risks of the journey, legal opportunities, and, as Alpes & Sørensen (2015) add, information on protection along the irregular journey. However, especially for the latter aspect, one needs to take care not to switch from a potential scaring off mode to a pushing mode which would again hamper unbiasedness.

That being said, I want to discuss the (2) ethics of my research on migration information campaigns. In particular, I want to elaborate on three aspects of interest. First, I want to introduce my thoughts on ethics with regard to the decision to study migration information campaigns. Second, I focus on my ethical guided behaviour in the research design of the studies. Third and last, I share my ethical concerns with regard to potential misuse of the knowledge generated in this research.

My ethical take regarding the consideration to study migration information campaigns is the lack of knowledge on this topic in the literature combined with a societal need for this information. Independent of whether migration information campaigns are in the end ethical or not, it is in my view crucial to generate well-identified causal evidence regarding whether and how these campaigns

work, since more societal parties are involved than the ones deciding on the policy. The policy implementation of migration information campaigns is paid for by the general taxpayers within the implementing country; often local or international NGOs are commissioned to implement the campaigns, and the target audience of these campaigns is the last societal party involved. Thus, the ethics of doing research in this field is based strongly on the big real-world practical need of knowledge.

Regarding ethical considerations in the study design I elaborate on three elements: (A) the treatment, the (B) treatment allocation, and (C) the survey design. The treatment (A) is implemented by the NGO without the researcher having any substantial influence - the mere exception and hence the researcher influence is that generally both videos would have been shown one after another in all groups and that the individuals would not have been randomly allocated to the groups. The messages used in the information campaign are real-world messages and are decided upon by the NGO and the funding organisation. Cultural appropriateness in the treatment can be assumed to be assured by the Nigerian roots of the NGO staff. Although I, as a researcher, did not have any say in the treatment design, I did check the material beforehand to make sure it is in line with my moral standards. Yet, I still assume one of the videos to trigger the emotion of anxiety in the audience. On the one hand, this made it particularly relevant to study this video, since unjustified anxiety triggering would not only be even more questionable from an ethical point but also inefficient and hence be reduced in the future. On the other hand, I had the responsibility to evaluate whether I as a researcher had enough tools set in place to allow the audience to cope with this anxiety in the aftermath of the campaign. Most centrally, student participants undergo a debriefing through mind-freeing activities after the event (dancing, refreshments). Additionally, their teachers, the NGO, and myself offered to be reached out to. Most central for the treatment allocation (B) is that I did refrain from forming a pure control group. Although a pure control group is of high academic interest I decided against it to reduce the interference of my research with the real world setting to a minimum. I decided that it is important from an ethical point of view to give all students the opportunity to receive at least the factual part of the information from the campaign. This decision was also in line with the distribution of incentives, since I did not have to exclude any student from receiving his or her snack and beverage after participation. Besides the refreshment, the extra effort and time invested in the university context is valued with a small financial compensation[4]. The design of the paper survey

(C) is constructed with a strong emphasis on the principles of informed consent and confidentiality. Informed consent is ensured by presenting the research project and the research institution, providing contact information for questions and concerns, emphasizing voluntary participation, and guaranteeing data protection. Additionally, the survey questions were reviewed by locals to ensure cultural appropriateness. With regard to the wording, for example, the term "migration through the backdoor" is used instead of "irregular migration." In addition, all survey questions include the option for a "don't know" and/or "refuse to answer" escape to reduce psychological pressure and respect personal autonomy. Confidentiality is guaranteed though the high standards of the EU data protection law (European General Data Protection Regulation, GDPR). In accordance with this legal framework, no data is collected that could identify the individual. Survey data from different waves is matched by an identifier created by the students.

Lastly, I want to engage in the possibility of misuse of the knowledge generated with this research. Interpreted with bad intentions, the outcomes of my studies could bring more harm than support to parts of the societies I had in mind when justifying the need for research on migration information campaigns. The activated mechanisms I reveal in order to foster the impact of information on behaviour change may be used against the target audience in my studies within migration information campaigns with bad intentions. With bad intentions, it might also be attributed to related or different topics and taken as representative of first insights with regard to anxiety and credibility creation in political election campaigns, or political mobilisation in form of social movements, to name a few. Unfortunately, I am aware of this possibility, but I do not see a way to protect these insights from misuse.

F. Pre-Post-Treatment Study

Prior to the RCT study reported in the main paper, I conducted a descriptive pre-post treatment study to establish whether there is general effect of the information campaign under study and the direction of this effect. In other words, this study was more about investigating the "whether" and the one reported in the main paper about the "how". Both studies were preregistered. The pre-post-treatment study was implemented in a different setting: a university in Abuja, the capital of Nigeria. In the Un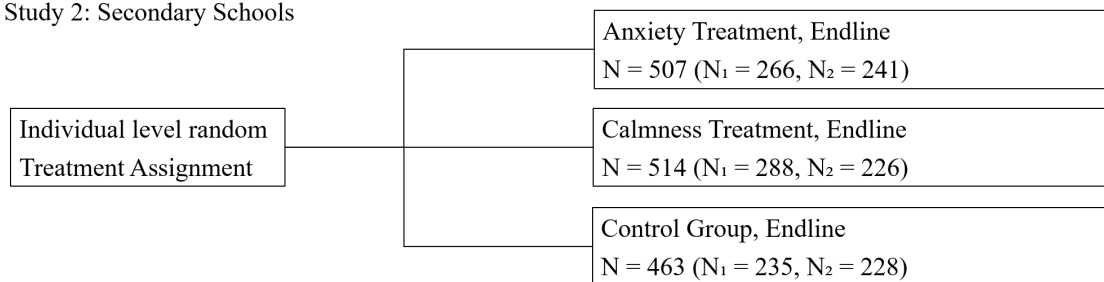iversity study in Abuja, the treatment is not split, i.e., the participants see both treatments, one video condition after the other. This study primarily aims to provide insights whether migration information campaigns have an effect on irregular migration decision making in the overall.

Figure 3: Overview Study Designs with number of participants (N) per survey; N = total number of participants, N_1 and N_2 = number of participants per school.

Study 1: University

Baseline	Full Information Campaign	Endline
N = 199	Treatment	N = 212
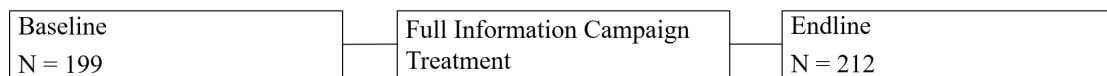
Study 2: Secondary Schools

Individual level random Treatment Assignment	Anxiety Treatment, Endline N = 507 (N_1 = 266, N_2 = 241)
	Calmness Treatment, Endline N = 514 (N_1 = 288, N_2 = 226)
	Control Group, Endline N = 463 (N_1 = 235, N_2 = 228)

F.1. Sample Descriptives

All university students had the opportunity to receive the treatment and around 1000 students participated. A volunteer subgroup of approximately 200 students took part in the two surveys. The average age of the university sample is 21.33 years with the gender distribution slightly over-representing men (62%). To set the study sample in relation to the overall Nigerian population, I compare it to the representative Afrobarometer wave 7 data. The comparison indicates a higher socioeconomic

status of the present student sample then the general population, which is in line with the definition of campaigns' target group, based on the higher probability of emigration. The sub-group of the around 200 students participating is the surveys surrounding the treatment is based on a self-selection into study by the students. This could produce systematic differences between the sample studied and the intended sample, which is relevant with regard to generalizability claims. Given the information distributed prior to participation, variables that have a relevant probability influencing the selection can be divided into two groups: (a) the communication preferences of the professors informing their students about the baseline evaluation participation and (b) students' self-selection based on the motivation to contribute to research, hope for incentives, or simple geographic proximity (e.g., students living on campus). Following these expectations for selection procedures, I would refrain from making strong generalizability claims about students as such but a generalization to university students interested in the event is reasonable.

Results Pre-Post-Comparison Campaign Treatment

Within the sample only a subgroup (60%) could be matched uniquely by their individual identifier[5], connecting the pre- and post-estimation. Although this decreases the number of participants and hence the statistical power, I stick to this measurement in the vein of the PAP. However, I additionally apply a fuzzy matching technique[6] which increases the matched sample to 80%, and a balance test ensures the comparability of the full (100%) sample (see Table 3).

Table 3: Information Campaign Effect Pre–Post Treatment Comparison; Due to obstacles in ID matching, besides the panel calculations (PAP, FE_i = fixed by individual respondent), a fuzzy panel matching and the full sample are reported for the intention estimate of the university sample; dependent variable scale: 1–10; robust standard errors; N = number of observations; n = number of observations pooled; $pooled_i$ = pooled by individual respondent; $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$.

	Irregular Migration Intentions -panel-	Irregular Migration Intentions -fuzzy-	Irregular Migration Intentions -full-	Hypothetical Irregular Migration -full-
Treatment	−0.01	0.04	0.17	−0.35***
	(0.02)	(0.17)	(0.21)	(0.12)
FE_i	YES	YES	NO	NO
$Pooled_i$	NO	NO	NO	YES
N	238	320	395	2,177
n				208

The overall influence of the campaign is tested with a pre–post treatment comparison–reported in Table 3. The fuzzy and panel estimations of reported irregular migration intentions are fixed by the individual. To analyze hypothetical migration behavior intentions, the complete unmatched data is used for calculating an average change prior and post the treatment. The results show no substantive or significant change in self-reported irregular migration intentions from pre- to post-treatment. Adding pre-registered covariates does not change the estimation. The absence of an observable change might be due to strategic answering behavior. Although the participation in the survey is anonymous, participants may be reluctant to report intentions to engage in irregular practices. The indirect measured hypothetical irregular behavior intention comparison indicates a highly significant negative change of the full sample before and after the campaign. The calculations with these larger sample (fuzzy matching, full sample) yield similar results as in the conservative analysis with exact panel matches.

Additional analyses are conducted to gain insight into two aspects: theoretically assumed heterogeneous effects and the persistence of effects. In accordance with the PAP, three baseline variables are expected to reveal heterogeneous effects: (1) trust in the information, (2) the amount of media information about migration, and (3) the prior level of migration knowledge. Only with regard to prior knowledge, the analyses show a significant interaction. A rather strong change on the intentions to migrate is found for those with low prior knowledge and a relatively small or no change

for those with high prior knowledge. Since both groups show a negative change direction, in line with the literature, a backlash effect among the more knowledgeable seems less plausible and the assumption that the less knowledgeable require further information is substantiated more (Guess & Coppock 2018). To determine the duration of the endline state of mind, a follow-up survey was implemented nine months after the information campaign event. Comparing migration intentions and hypothetical migration behavior in wave 1 to that in wave 2 does not yield significant differences, thus supporting some persistence. However, due to the relatively high attrition, the results must be interpreted as an indication that needs further research for verification.

F.1. Pre-registered additional conjoint-experiment

The analysis indicates a negative effect of a high probability to die on the irregular migration journey (A1.die). However, surprisingly this effect is not significant - neither in the baseline survey nor the endline survey. Intutively one would think that people would reduce their intentions to migrate irregularly in a scenario with high probability to die on the journey. At the same time, this result fits to the voices of NGOs working on the ground, highlighting that 'fear of the journey' or 'risks of the journey' are not relevant to the aspiring migrant. The probability to get a residence permit has in both surveys a significant and positive impact. Yet, the estimate is smaller in the endline survey, which gives some indication that the information campaign treatment might have played particularly on this attribute. The probability to get a good job at home has no significant effect. Similar to the first attribute, this observation holds for both surveys.

Table 4: Effect of Attributes (pre-registered analysis) in the baseline conjoint and in the endline conjoint survey; dependent variable scale: 1–10; robust standard errors; N = number of observations, i.e. scenarios; effects are fixed by individual respondent; each respondent had six scenarios; *p$<$0.1; **p$<$0.05; ***p$<$0.01.

	Baseline	Endline
A1.die	−0.07	−0.15
	(0.40)	(0.35)
A2.resid	1.40***	0.64**
	(0.32)	(0.29)
A3.home	0.08	−0.07
	(0.35)	(0.31)
A1.die:A2.resid	−0.92*	−0.60
	(0.49)	(0.44)
A1.die:A3.home	−0.03	0.09
	(0.53)	(0.47)
A2.resid:A3.home	−0.59	0.28
	(0.59)	(0.56)
A1.die:A2.resid:A3.home	0.85	0.18
	(0.79)	(0.73)
N	1,066	1,111

F.2. Robustness with Covariates

Table 5: Pre-Post Treatment Comparisions, with(out) Covariates

	Irregular Migration Intentions	Irregular Migration Intentions	H. Irregular Migration Self behavior
Treatment	−0.01	−0.02	−0.35***
	(0.02)	(0.02)	(0.12)
Covariates	NO	YES	NO
Pooled	NO	NO	YES
Obs.	238	238	2,177

Note: The calculation for irregular migration intention is based on the ID matching subset of the university sample: the variables are standardised, the standard errors are robust standard errors; Covariates included are only variables indicated in the pre-analysis plan; Pooled implies a clustering by respondent; *p<0.1; **p<0.05; ***p<0.01.

F.3. Heterogeneous Effects

Following the pre-analysis plan, three variables are expected to have heterogenous effects: (1) Trust in the Information, (2) Information about migration from different media sources, and (3) Level of knowledge regarding the topic of migration before the treatment. The variables are taken from the baseline survey.

Figure 4: Heterogenous effects by Amount of prior Information of the Migration Campaign

Treatment Effect
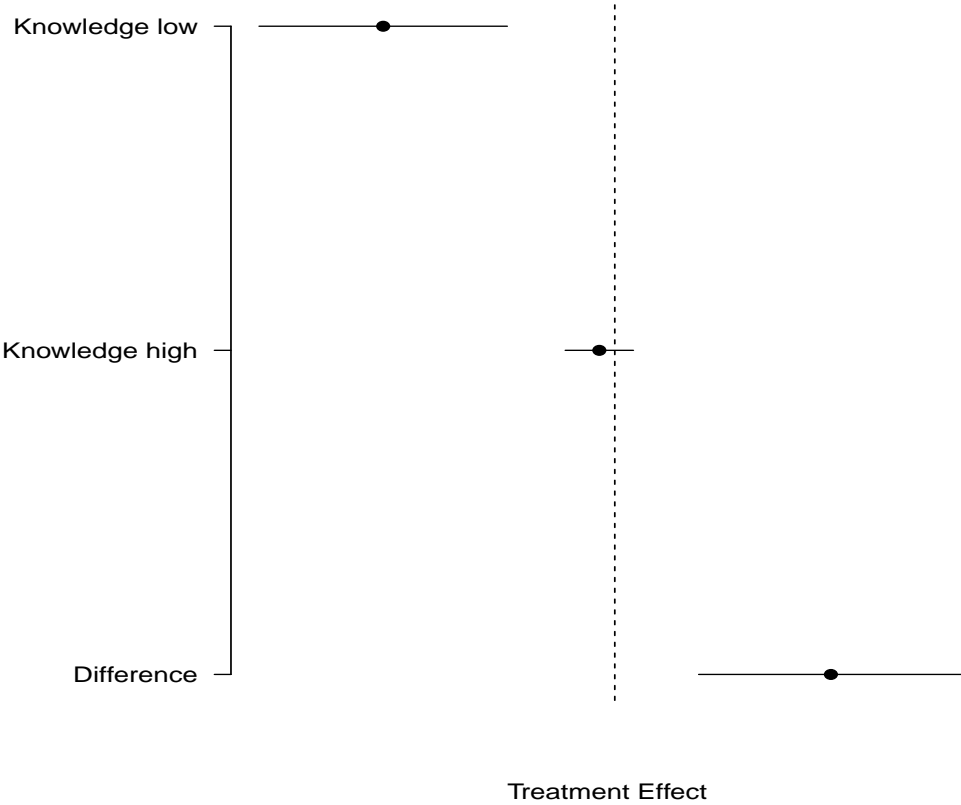
F.4. Validation of Assumptions

Table 6: Descriptive Statistics Baseline - Level of Knowledge & perceived borders

Statistic	Mean	St. Dev.	Min	Max
Knowledge Migration	6.81	2.47	1.00	10.00
Knowledge Irregular Migration	6.51	2.74	1.00	10.00
Probability Risk	59.81	23.50	10.00	100.00
Probability Residence	25.54	24.22	0.00	100.00
Perceived Borders	7.59	2.32	1.00	10.00

The stability assumption is hard to prove. Yet, it is highly relevant for the interpretation and the implications of the results of the university sample study. One indication that the stability assumption holds can be retrieved from stable variables in the pre-post comparison which can be defined as time varying in general but are assumed to be not influenced by the treatment. Only few variables fit this definition: the trust scale, i.e. questions about trust in different news sources, and the news frequency scale, i.e. questions about how often news are consumed from a certain medium.

Table 7: Stability between Pre- and Post-meassurement

	Baseline-Endline
Trust A - Trust L	−0.02 - 0.03
	(0.01 - 0.02)
News frequency A	0.03
	(0.03)
News frequency B	−0.06*
	(0.04)
News frequency C	−0.01
	(0.03)
News frequency D	0.01
	(0.05)
Observations	250
F Statistic	0.64 (df = 16; 233)

Note: Trust A=Radio, B=Television, C=Newspapers, D=Internet, E=Social media such as Facebook or Twitter, F=Family/Friends living in Nigeria, G=Family/Friends living outside of Nigeria, H=The Nigerian national Government, I=Governments in general, J=Intergovernmental Organisations (IGOs), K=Non Governmental Organisations (NGOs), L=Humanitarian Organisations; and News frequency A=Radio, B=Television, C=Newspapers, D=Internet; *p<0.1; **p<0.05; ***p<0.01.

F.5. Generalisation Indication - Afrobarometer Comparison

Since the aim of the intervention under study is to make claims about young Nigerians, the Afro-barometer data is restricted to an age group equal or younger than 35 years.

The variables chosen for comparison base one the one hand on theoretically expected relevance for the migration decision and on the other hand on availability.

The comparison of the University sample from the city Abuja to Nigeria in general reveals signif-

icant differences on several variables. This is not surprising, since it is common knowledge among Nigerians that Abuja, the capital, is different from the rest of the country. Most notably are the variables "HH phoneinternet" and "Electricity". The former suggests a higher amount of ownership of mobile phones with internet access among the university students from the capital compared to the rest of the country. The latter means that a higher level of direct access to electricity exists among the sample of the study compared to Nigerians in general.

However, when restricting the Afrobarometer data to the state Abuja, no significant differences between the sample of the study and the representative data for Abuja from the Afrobarometer exists. But the restriction brings the analysis into small N problems, which might bias the results. Therefore, the Nigeria-comparison seems more plausible in this case than the geographically more specific Abuja-comparison.

Figure 5: Coefficients of relevant variables, comparing the University sample and the Afrobarometer wave 7 data for Nigeria (STD)
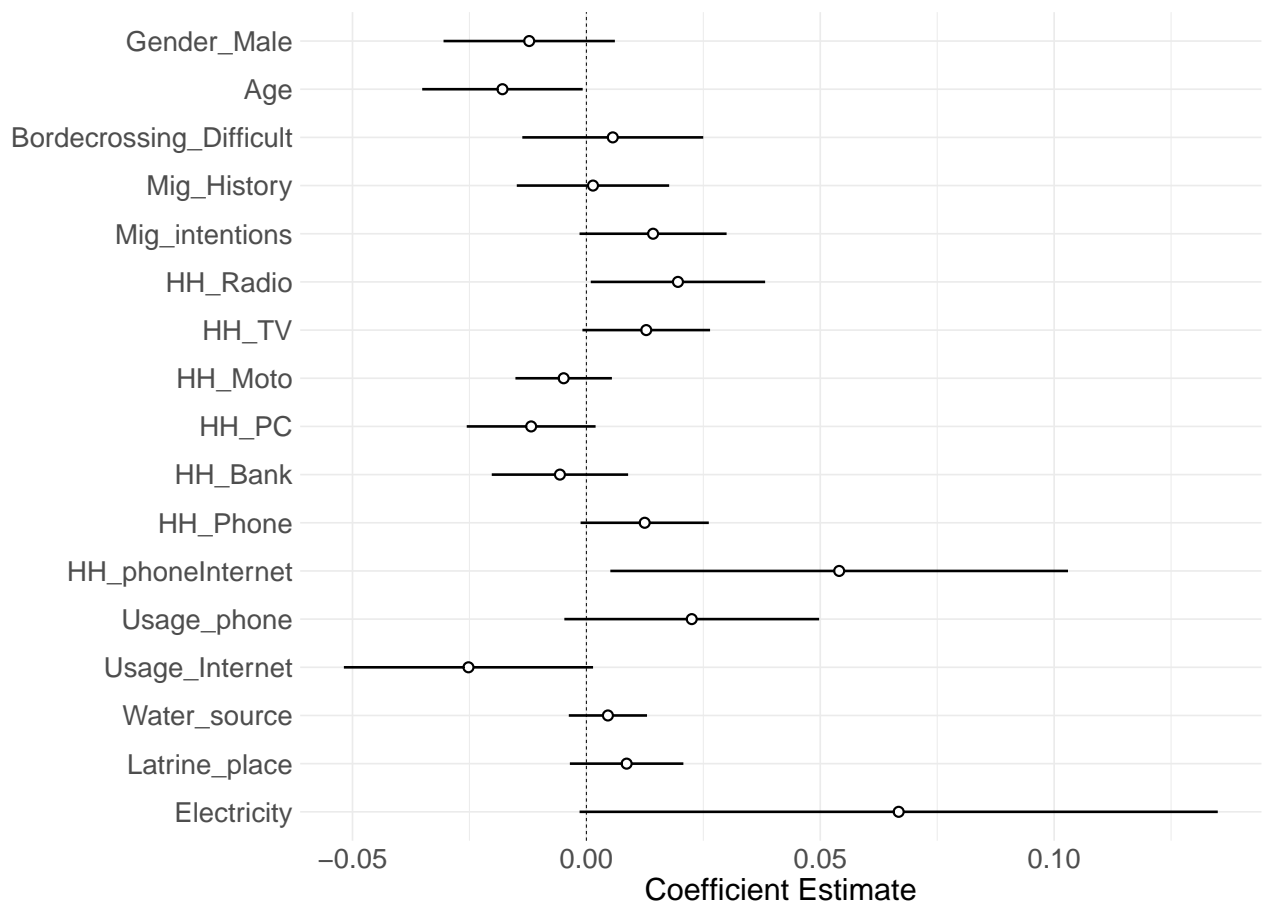
F.6. Persistence Indication - Follow-up Survey

For the university sample an online follow-up survey was implemented in July 2019, nine months after the on-set survey. The allowance to contact the students again was given by the students in the first survey wave including a WhatsApp contact number and the Facebook name. Out of the 218 contact sheets, 21 had to be excluded because of missing data (no WhatsApp contact number and no Facebook name), 53 because of wrong phone number, in 56 cases the WhatsApp message was not delivered and only 4 out of these who could not be contacted via WhatsApp where reachable via Facebook. Out of the resulting 92 contacted students 48 participated in the follow-up survey. This results in a response rate of around 52%, but a sample of 23%. Like in the Basline-Endline comparison of the wave 1 sample, the ability to match the waves based on the created identifier by the students is difficult. 21% (N=10) of the wave 2 sample could be connected to the endline data and 17% (N=8) of this sample to baseline and endline data of wave 1. Comparing covariates of the overall wave 2 sample with the overall wave 1 sample reveals no significant differences between the two samples, except on two covariates. The age of the students is significantly higher, which is reasonable based on the time lag of nine months, and the expected job prospects are slightly but significantly lower. An explanation for the latter would be pure guesswork. The distributions for the matchable sub-sample are similar.

Figure 6: Comparison Dependent Variables - Wave 1 Endline and Wave 2 (the follow-up survey) -
values not standardized
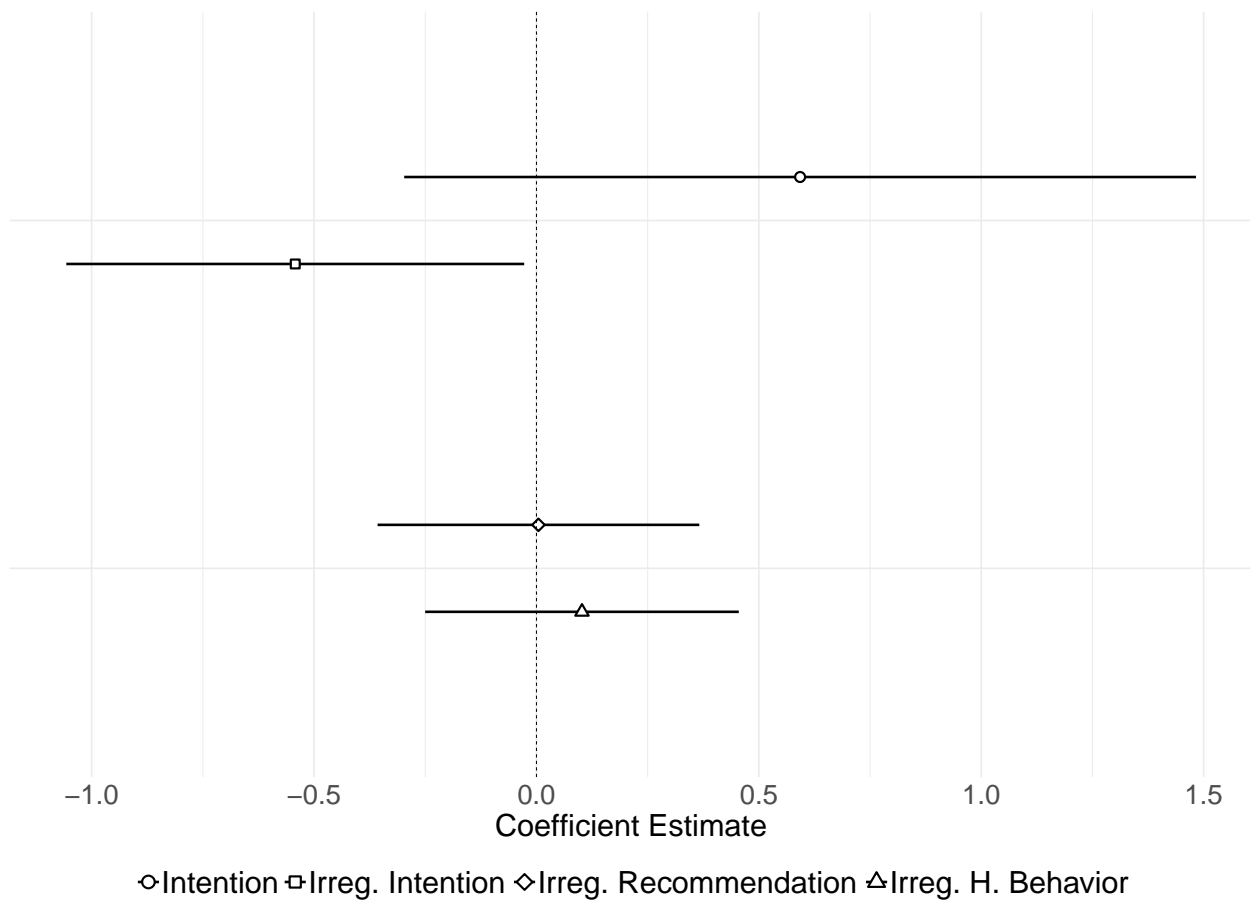
Comparing the key dependent variables from the wave 1 endline data with the wave 2 data shows no significant differences. The coefficient of general migration intentions is slightly higher, for irregular migration intentions slightly lower, for recommendation behaviour the difference is almost zero and a slight increase in hypothetical irregular migration behaviour is identifiable, although not significant. The level of knowledge, however, decreased on the topic of migration in general and irregular migration slightly but significant. Interestingly the expected probabilities to die on the migration journey (loss) decreased, the expected costs of the migration journey decreased and the expected probabilities of getting a legal residence permit (gain) decreased as well. A decrease in the expected loss and gain are likely to lead to a similar migration decision making calculation.

G. RCT Study

G.1. Secondary School Sample Descriptives and Treatment Allocation

The allocation of the participants to treatment groups is performed on the individual level by a random distribution of color bracelets in the courtyard before class. The color determines the subsequent treatment and time of workshop participation. Only the time of the workshop is communicated to the students. Before and after the workshop the students are kept busy by the teachers in separate classrooms to prevent any noncompliance or spillover mechanisms. The design setup is identical in both secondary schools under study.

Table 8: Average Mean per Treatment (T.) and Control Group for the Dependent Variables

	Mean Anxiety T. Group	Mean Calmness T. Group	Mean Control Group
Intend Irregular Migration			
Self-indicated	2.24	2.95	2.77
Hypothetical scenario measurement	3.68	3.70	3.92
Number of participants			
N	507	514	463

The average age in the Benin City Secondary School student samples is 15.08 years. The majority of students (89%) is male. Two potential reasons might explain this significant over representation. First, one of the schools was formerly a male only school, which could lead to the fact that there are no female students in the upper classes yet. The second reason might be that there are generally less female students regularly in school as they have to help at home more often. The largest ethnic groups are Edo (61%) and Igbo (17%). Like in the university sample the large majority indicated themselves as Christian (77%). The level of technological usage shows to be smaller in the school sample compared to the university sample. This might be explained by the younger age population. The level of electricity is similar to the university sample and hence also higher then the comparison group from the Afrobarometer wave 7 data. The number of students with migration experiences is, however, much higher in the present sample compared to the university sample but also in compar-

ison to the representative Afrobarometer data; an indication of the speciality of the city with regard to migration and the studied sample being a likely case.

Based on the individual-level randomization of the sample into treatment groups, no systematic difference is assumed. A balance test confirms this assumption for the overall treatment groups and the treatment groups per school. However, an unexpectedly high attrition can be observed between the number of students per treatment and the number of students I have complete data on. Additional tests indicate a random assignment conditional on X, with X indicating the age of the respondent. The younger the student the higher the probability of missingness in the data on survey questions later on in the questionnaire. This shifts the sample reported to a slightly older sample, but does not hamper inferences because its independence towards treatment assignment, outcome measures, or multiple observable variables (Gerber & Green 2012). Hence, no additional analytical adjustments are necessary.

Table 9: Balance Table; the treatments are regressed on the covariates

Balance table

	T1	T2	T3
Age	0.020***	−0.006	−0.014**
	(0.006)	(0.006)	(0.006)
Gender: male	0.046	−0.039	−0.006
	(0.042)	(0.043)	(0.041)
Ethnic: Igbo	0.001	−0.036	0.035
	(0.148)	(0.152)	(0.146)
Ethnic: Yoruba	0.138	−0.149	0.012
	(0.153)	(0.156)	(0.151)
Ethnic: Fulani	−0.150	−0.154	0.304
	(0.307)	(0.314)	(0.303)
Ethnic: Edo	0.070	−0.069	−0.0001
	(0.144)	(0.148)	(0.143)
Religion: muslim	−0.107	0.187	−0.081

Continued on next page

Table 9 – *Continued from previous page*

Balance table

	(0.127)	(0.130)	(0.125)
Religion: Jehovah's Witnesses	0.013	−0.259*	0.246*
	(0.143)	(0.146)	(0.141)
Religion: Nigeria	−0.219	0.261	−0.042
	(0.275)	(0.281)	(0.271)
Education: 2	0.178***	−0.009	−0.168***
	(0.035)	(0.036)	(0.035)
Living: urban	0.015	−0.024	0.009
	(0.037)	(0.038)	(0.037)
Living: rural	−0.017	−0.051	0.068
	(0.046)	(0.048)	(0.046)
Ownership	−0.017**	0.002	0.016*
	(0.008)	(0.009)	(0.008)
Level of connectedness	0.035***	−0.018	−0.017
	(0.012)	(0.012)	(0.012)
HH electricity	0.031	−0.018	−0.014
	(0.037)	(0.038)	(0.037)
National migration experience	−0.096***	0.060**	0.036
	(0.027)	(0.028)	(0.027)
International migration experience: self	−0.131**	0.124*	0.007
	(0.065)	(0.066)	(0.064)
International migration experience: HH	0.035	0.008	−0.043*
	(0.026)	(0.027)	(0.026)
International migration experience: self and HH	−0.036	−0.029	0.066

Table 9 – *Continued from previous page*

Balance table

	(0.065)	(0.066)	(0.064)
Migration network	0.051*	-0.086^{***}	0.034
	(0.030)	(0.031)	(0.029)
Difficulty crossing borders	0.001	0.006	-0.007
	(0.004)	(0.004)	(0.004)
Observations	1,484	1,484	1,484
R^2	0.085	0.045	0.064

| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

G.2. Pre-registered additional conjoint-experiment

Besides the effect of the treatment, the conjoint study gives insights on the effect of different attributes on hypothetical irregular migration intentions. In other words, one can causally distinguish the relevance of different attributes. In the present study, the participants received six scenarios that varied among three attributes with two manifestations each. The attributes per scenario were: the probability to die on the irregular migration journey (A1.die), the probability to get a residence permit in the destination Europe (A2.resid), the probability to get a good job at home (A3.home). The manifestations per attribute varied dichotomously between 'low probability' and 'high probability'. Hence, one example would be a scenario where the hypothetical person has a high probability to die on the journey, but a high probability to get a residence permit and a low probability to get a good job at home. Another example would be a low probability to die, a high probability for a residence permit, and a high probability to get a good job at home. For each scenario the respondent has to indicate on a 10-point-scale what they would do being in this situation, definitely not migrate irregular or definitely migrate.

The analysis in table 10 shows three models. Model 1 only indicates the effect of each attribute being high (1 instead of 0). Model 2 is how the analysis was pre-registered prior to data collection, it shows the effect of each attribute, but also their interactions. Model 3 indicates the single

effects of each attribute controlling for the scenario-sets. Due to power limitations when controlling for the scenario settings, no interaction effect calculations could be included. All three model analyses are pooled, i.e. pooled by the individual respondent with clustered standard errors by respondent. Therefore the table distinguishes between N observations, i.e., scenario observations and hence the unit under study here, and n being the number of participants. Be aware that the number of answered scenarios per participant may vary and that the number of participants that rated the scenarios is also significantly lower than the number of participants overall. Additional analysis showed a missingness by age, with more years in age being linked to more scenario ratings.

All three models show no significant or a negative effect for the attribute 'dying on route', meaning that a high probability of dying on the journey is either not sufficiently relevant or reduces the intentions to migrate irregularly. Given that model 1 and 2 are sufficiently powered, it is somewhat surprising that the probability to die is not seen as a crucial factor. Instead, the probability to get a residence permit seems highly relevant. This attribute is significant in all three models in the expected direction, showing that a high probability to get a residence permit increases the intentions to migrate irregularly. The probability to get a good job at home has, as expected, a migration intention reducing effect. Only when controlling for the scenarios this effect becomes insignificant. In model 2, only the interactions of probability to die and residence permit (negative additional effect) and the probability to get a good job at home and the residence permit (positive additional effect) are significant.

Table 10: Effect of Attributes on Hypothetical irregular migration intentions; dependent variable scale: 1–10; robust standard errors; N = number of scenarios rated, n = number of observations, i.e. respondents; effects are fixed by individual respondent; pooled$_i$ = pooled by the individual respondent with clustered standard errors by respondent; Scenario-control = scenarios included as covariates; *p<0.1; **p<0.05; ***p<0.01.

	Model 1	Model 2	Model 3
		(pre-registered analysis)	
A1.die	−0.13	0.31	−0.52*
	(0.11)	(0.24)	(0.30)
A2.resid	0.55***	0.43**	0.76***
	(0.11)	(0.19)	(0.22)
A3.home	−0.20*	−0.38*	−0.002
	(0.12)	(0.21)	(0.22)
A1.die:A2.resid		−0.50*	
		(0.30)	
A1.die:A3.home		−0.45	
		(0.32)	
A2.resid:A3.home		1.18***	
		(0.36)	
A1.die:A2.resid:A3.home		−0.35	
		(0.48)	
Pooled$_i$	YES	YES	YES
Scenario-control	NO	NO	YES
N	3,785	3,785	3,785
n	279	279	279
Adjusted R^2	0.01	0.01	0.01

G.3. Treatment Effect Comparison with covariates

The pre-registered covariate variables are age, gender, ethnic group, religion, education, area of living (rural or urban), socio-economic characteristics (ownership and closeness of necessities), migration history or experience, migration network, perceived difficulty in crossing borders, potential migration destination, and reason for migration. Due to practical limitations, a baseline survey was not possible, so covariates are measured after treatment. Including covariates into the analysis that are measured post treatment bears the potential for a post treatment bias (Montgomery et al. 2018), i.e., the issue that the covariates could also be influenced by the treatment. The variables age, gender, ethnic group, religion, education, area of living (rural or urban), socio-economic characteristics (ownership and closeness of necessities), migration history or experience, migration network, and difficulty of crossing borders are sufficiently stable variables so that the probability that the answering behaviour changed based on the treatment is sufficiently small. For the variables "potential migration destination, and reason for migration" the probability is, however, higher. Therefore, these two variables are excluded from the analyses.

Table 11: Average Treatment Effect - Anxiety versus Calmness Treatment; the calculation is based on the subset of treatment 1 and treatment 2 of the Secondary School sample: the variables are standardised, the standard errors are robust standard errors; Covariates included are only variables indicated in the pre-analysis plan; Pooled by hypothetical scenario; *p<0.1; **p<0.05; ***p<0.01.

	Irregular Migration Intentions	Irregular Migration Intentions	Hypothetical Irregular Migration Intentions	Hypothetical Irregular Migration Intentions
Treatment	-0.71^{***}	-0.60^{***}	-0.22^*	-0.035^*
	(0.21)	(0.22)	(0.12)	(0.25)
Covariates	NO	YES	NO	YES
Pooled	NO	NO	YES	YES
N	802	802	3,785	3,785
n			279	279
Adjusted R^2	0.01	0.07	0.01	0.05

Given that the random assignment (and full compliance in treatment taking) worked well in the experiment, I do not see it as necessary to include the covariates. The idea is more that the covariate inclusion visualizes or validates that the randomization worked well. Since we have to expect that some of the covaraites might be biased this validation comes with a higher uncertainty. However, given that it was stated in the pre-registration Table 11 shows the main estimation with a covariate inclusion.

G.4. Treatment Effect Comparison with standardized coefficients

Table 12: Average Treatment Effect - Anxiety versus Calmness Treatment; calculation based on the two treatment groups, a subset of the sample of secondary school; dependent variable is standardized, effects should be interpreted in standard deviations; robust standard errors; N = number of observations; n = number of observations pooled; pooled$_i$ = pooled by individual respondent; variation in number of observations is based on the multiple scenarios per respondent in the hypothetical-measurement and a attrition rate based on age of respondent; *p<0.1; **p<0.05; ***p<0.01.

	Irregular Migration Intentions	Hypothetical Irregular Migration
Anxiety Treatment	−0.08***	−0.02*
	(0.02)	(0.01)
Pooled$_i$	NO	YES
N	802	3,785
n		279

G.5. Treatment Effect Comparison with the Control Group

Due to the absence of a pure control group and the difficult justification that combining the results of treatment 1 and treatment two would be similar to receiving the full treatment, a clear focus is set on the comparison between the two treatment messages. For completeness reasons the analyses are still conducted and presented below. It need to be emphasized that the results are not comparable to the results of field study in the university. Reasons for non-comparability are: the different treatments, the different research designs (panel versus random allocation), the inherently different sample groups (e.g. geographic, education level, migrant network).

Comparing the treatment groups separately to the control group, reveals a significant positive effect of Anxiety compared to the control group and no effect of Calmness compared to the control group on knowledge regarding migration in general and irregular migration in particular. On migration intentions using the irregular path the treatment campaign 'Anxiety' has a significant negative effect and the treatment 'Calmness' has no effect compared to the control group.

Table 13: Irregular Migration Intentions - Comparison of both treatments with the Control Group

	Dependent variable: Irregular Migration Intentions			
	Anxiety vs Control	Anxiety vs Control	Calmness vs Control	Calmness vs Control
Treatment:Anxiety	−0.52**	−0.45**		
	(0.21)	(0.21)		
Treatment:Calmness			0.19	0.14
			(0.23)	(0.22)
Covariates	NO	YES	NO	YES
Observations	731	731	745	745
Adjusted R^2	0.01	0.08	−0.0004	0.09

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

G.6. Treatment Effect Comparison with Self-perceived topic knowledge as Dependent Variable

Table 14: Knowledge about Migration

|	Dependent variable: Knowledge about Migration			
Treatment Anxiety (1) vs control-group (0)	0.82***	0.26		
	(0.26)	(0.27)		
Treatment Calmness (1) vs control-group (0)			0.25	−0.02
			(0.27)	(0.27)
Covariates	NO	YES	NO	YES
N	756	756	740	740
Adjusted R^2	0.01	0.09	−0.0002	0.09

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

G.7. Test for systematic missigness

The reduction in N in the analysis of the university field study raises suspicion for a systematic missingness. This needs to be tested, especially regarding the dependent variables under study. The Variable 'Migration Intentions' reveals a value of 344 missings out of 1484 observations, around 100 per treatment group. A similar missing distribution can be found for the variable 'Migration Knowledge'. The test shows no significant missingness for knowledge, but significant regarding migration intention missingness on the variables gender and general migration history. Both values are relatively small and in a negative direction. This means Women and students without any migration experience, internal or international, have a slightly higher tendency to not answer the question regarding migration intentions.

G.8. Generalisation Indication - Afrobarometer Comparison

As for the University study Afrobarometer-Comparison, the Afrobarometer data is restricted to an age group equal or younger than 35 years and the variables chosen for comparison base one the one hand on theoretically expected relevance for the migration decision and on the other hand on availability.

Figure 7: Coefficients of relevant variables, comparing the Secondary School sample and the Afrobarometer wave 7 data for Nigeria
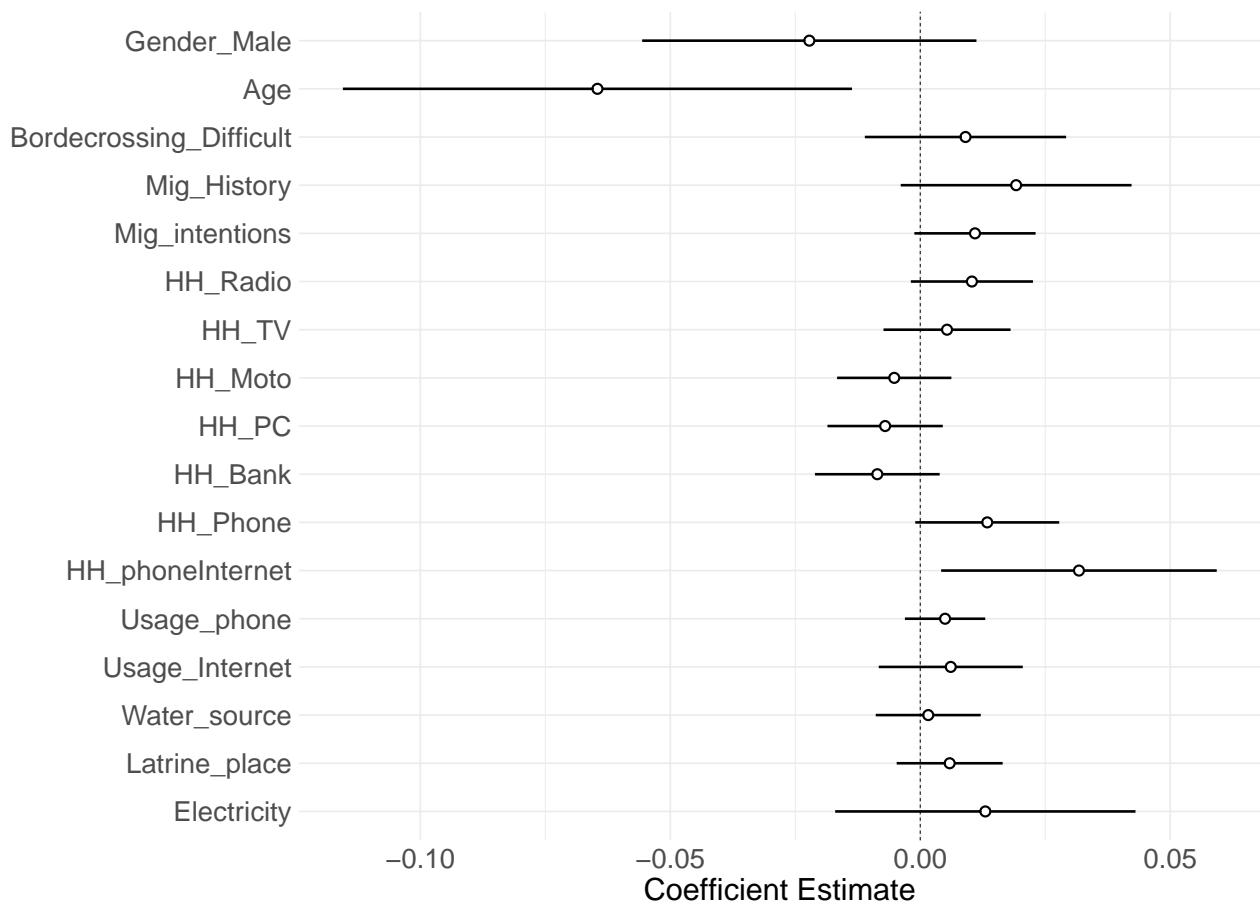
Comparing the sample from the Secondary Schools in Benin City to the overall data from Nigeria shows several smaller differences and one strong peak difference. The strongest difference is shown in the category age. Not surprising, the Secondary School students are overall significantly younger than the Afrobarometer data sample below 35 years. Additionally, in the sample under

study a slightly more Women than in the general population, they have a higher amount of people with internet access on their phone and a slightly higher share of migration history. Latter fits to the high amount of migrants arriving in Europe with Benin City as origin place.

Similar to the generalisation analysis for the university sample, restricting the Afrobarometer data to the exact geographic state district, small N issues appear. Believing the analytical results, reveals no meaningful difference between the sample under study and the general population of young Nigerians living in Benin City.

H. Validation of Assumptions

The fundamental assumption that justifies an implementation of information campaigns is a need for information. The empirical evidence from the baseline survey of the studied university sample supports this assumption. The descriptives indicate a slightly higher than medium level of knowledge about irregular migration (6.51, scale 1–10). Comparing these values to other data collections indicates a slightly lower level of knowledge (Gilbert & Koser 2006; IOM 2016; NOIPoll 2018). However, studying the level of knowledge within the content questions indicates a rather good level of knowledge. Students in the sample rather overestimate the probability of dying on the journey (59.81%, real value unknown but expected to be circa 40%) and somehow close to the true value to obtain a residence permit (25.54% versus 17.2% Eurostat). These rather contradictory measurements stand in line with the mixed results in prior literature. Both measurements come with shortcomings, be it a bias on self-assessment or a measurement error due to missingness. However, based on the operationlization of the knowledge-check I would argue this estimate to be less precise than the self-indication. A migration decision making is more multi-layered than these two aspects of journey death and residence permit and the same holds for workshop-based migration information campaigns.

With regard to the study design, the crucial assumption in a pre-post measurement design is the assumption of stability. Potential threats could be external in nature, but also the intrinsic desire to stay consistent or the willingness to demonstrate a change due to experimenter demand effects. Based on the setting and my observation as researcher I can exclude major extrinsic distractions,

but miss individual level and subjective changes. Testing for "change" among variables other than the ones of interest, but with a potential to change in general, i.e. non static covariates, does not reveal a significant change and hence gives a slight support for the stability expectation (Table see Appendix D.4). An additional point that speaks against an intrinsic desire shaping the answering behaviour is the relatively long time between the two surveys which may diminish the ability to reconstruct prior answers and normalizes the situation which in turn reduces the intent to show off. The challenge in personal ID creation for the matching procedure might work as an example for that. However, the pre-post design is still limited regarding its explanatory power in contrast to the randomized design in the other study.

Another assumption worth to discuss is the assumption of unbiased answering behaviour by the respondents. Although this assumption is generally not stated explicitly, it is worth to discuss given the sensitive topic and setting. The answer structure in the university study gives rise to the idea of strategic answering behaviour among the university students. For example, the descriptive statistics show that self-reported migration intentions are relatively high on average (7.64, scale 1–10), while intentions to migrate irregularly are almost nonexistent (1.89, scale 1–10)[7]. The data doesn't allow to validate this assumption, but anecdotal evidence suggests that university students might be reluctant to indicate behavioural intentions that conflict with governmental regulations. This behaviour of strategic government conform answering behaviour is shaped by age and level of education; both being higher in the university sample in contrast to the secondary school student sample. Hence, I interpret the self-indicated irregular migration aspirations rather with scepticism in the university sample and expect it to be more truthful in the school sample.

I. JEPS Reporting Guidelines Checklist

Table 15: JEPS Reporting Guidelines Checklist following (Gerber et al. 2015); n.a. = not applicable, tba = to be announced

	Items to report
✓	Eligibility and exclusion criteria for participants
✓	Details of recruitment and selection of participants, including incentives and any firms used
✓	Type of experiment (lab, survey, field), mode, location, and dates conducted
n.a.	Response rate or other participation metric (and how calculated), when possible
✓	Details of randomization procedure
n.a.	Baseline means and standard deviations for demographics and other pretreatment measures by experimental group
✓	Whether blinding took place and how it was accomplished
✓	Description of the treatment(s), as well as description of control group
✓	Details of experiment: Its duration, number of participants, within- versus between-subjects design, piggybacking/ ordering/ repetition of treatments, use of deception, use of incentives
✓	Evidence treatment delivered as intended, if available
✓	Definitions of outcome measures and covariates as well as noting if level of analysis differs from level of randomization
✓	Identification of analyses specified ex ante versus ex post exploratory analyses
.	Information in CONSORT participant flow diagram
n.a.	Sample means and standard deviations for outcome variables using intent-to-treat analysis
✓	Patterns of missing data, attrition, and methods of addressing these issues, if missing data and / or attrition are present
n.a.	Description of weighting procedures, if used
✓	IRB approval, preregistration, source of funding, conflict of interest
link tba	Availability of replication materials and dataset

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