

Pre-analysis plan:
Is intent to migrate irregularly responsive to recent
German policy adjustments?*

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November 25, 2023

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1 INTRODUCTION

In the face of an increasing stock of refugees and irregular migrants in Germany, state governments together with the federal government have agreed on policies to reduce the financial and logistic costs associated with providing accommodation and other social welfare benefits to asylum seekers. The agreement “Bund-Länder-Beschluss” is documented in detail [here](#).

In this project, we study the impact of the policy measures described in the agreement on the intent to migrate irregularly from Senegal. As the German political debate often revolves around the avoidance of irregular migration that is motivated by economic reasons, our study contributes to our understanding of whether the discussed and agreed policy measures can have such an impact on irregular migration. The asylum acceptance rate of Senegalese people in Germany was well below 10% in 2022, suggesting that many migrate who are not in search of refuge.

2 STUDY DESIGN

2.1 Choice experiment

We conduct a single choice experiment in which participants are presented with 3 migration policy profiles, containing 5 attributes—asylum chances, waiting time until asylum decision, application location, payment mode of government transfers during the application process, and waiting time until receipt of government benefits equivalent to those received by locals—each with two randomly varying values. The 5 attributes and 2 values are presented in Table 1 and result in 32 hypothetical combinations of policy profiles.

The participant is presented with a profile of randomly selected policy values and then asked to state their intent to migrate given the policy profile. In total, the participant is presented with three profiles. For a better understanding of the policy profiles they are visualized through icons shown on enumerators’ tablets and on printouts (see Supplementary Materials). After the choices were made participants receive a short debrief. The procedure is:

1. Introduction: “We will now show you three sets of policies that this European country could have in place. Given each set of policies, please indicate, how

interested you would be in trying to migrate irregularly (traveling without prior approval) to this country? [0 = Not at all. 10 = Very.]”

2. Profile 1, then: “Given this set of policies, how interested would you be in trying to migrate irregularly to this country? [0 = Not at all. 10 = Very.]”
3. Profile 2, then: “Given this set of policies, how interested would you be in trying to migrate irregularly to this country? [0 = Not at all. 10 = Very.]”
4. Profile 3, then: “Given this set of policies, how interested would you be in trying to migrate irregularly to this country? [0 = Not at all. 10 = Very.]”
5. Debrief: “The scenarios presented are hypothetical and are based on current political measures and discussions in Europe. We recommend that you carefully inform yourself about the actual numbers and processes if you consider migrating.”

Table 1: Attributes and values of choice experiment

Attribute	Value 1	Value 2
Chance that application to stay after arriving irregularly is granted:	5 out of 100	30 out of 100
Time to decision about application:	25 months	28 months
Location of application process:	Apply upon arrival in Europe in the destination country and wait there for decision	Apply outside of Europe, e.g., in an African country such as Rwanda or Tunisia, and wait there for decision
Monthly government benefits to cover basic necessities during application process in destination country (up to ca. 410 Euro or 270 000 CFA):	Paid in cash	Paid on a prepaid payment card
Waiting period to receive basic government benefits at same level as natives (ca. 500 Euro or 330 000 CFA):	18 months	36 months

2.2 Survey sampling

The study is conducted with a total sample size of 1000 individuals in four cities of Senegal: Dakar, Kaolack, St.Louis and Ziguinchor. In Dakar, St. Louis and Ziguinchor male participants aged 18 to 40 of a previous data collection in these locations conducted in 2022 are followed up, with 334, 222 and 222 individuals respectively. These individuals were randomly sampled, within a random selection of quartiers/neighborhoods as primary sampling units. In Kaoloack a new sample of 222 males aged 18 to 40 will

be created using a random walk selection procedure. Again, quartiers/neighborhoods serve as primary sampling units, within which a randomly selected set of individuals will be approached and asked for their participation. We focus on men aged 18–40 because this constitutes the demographic group in Senegal most likely to migrate, and we focus on these four cities because they are national and regional centers of migration.

2.3 Random assignment to attribute values

We randomly assign three treatment profiles to each individual, with each profile consisting of five attributes that take on one of two possible values, as shown in 1. Assignment is stratified by city. We use a re-randomization algorithm to ensure balance in subjects’ age across all treatment profiles. Random assignment of the fully articulated set of treatment profiles ensures random assignment of values for a particular attribute that is exactly balanced across all other attributes, i.e., the randomly assigned values are uncorrelated across attributes.

Each treatment profile is assigned at most once to each individual, i.e., subjects do not encounter the exact same profile multiple times. Overall and across subjects, each of the 32 treatment profiles is assigned the same (or nearly the same) number of times. This also means that each attribute value appears with the same frequency.

2.4 Sample sizes and power

Each of the 1000 participants is presented with three profiles, which means our sample for analysis consists of 3000 observations, with participants as clusters and a cluster size of 3. The minimum detectable effect size given these cluster sizes, number of clusters, power of 80%, a significance level of 5%, and an intracluster correlation coefficient of 0.1 is 0.11 standard deviations. Assuming an intracluster correlation coefficient of 0.5 implies a minimum detectable effect of 0.14 standard deviations.

2.5 Hypotheses

2.5.1 Primary hypotheses

We test the null hypothesis that the following policy has no effect on irregular migration intent against the alternative hypothesis that the policy impact is different from zero, using two-sided hypotheses tests:

1. Increase in the asylum approval rate from 5 in 100 to 30 in 100
2. Reduction in the time to decision about application from 28 months to 25 months
3. Change in the location of the application process from a country in Europe to a country outside of Europe
4. Change in the mode of payment of government benefits during the application process from cash to a prepaid payment card
5. An increase in the waiting period for government benefits at same level as natives from 18 to 36 months

2.5.2 Heterogeneous effects

We anticipate heterogeneous treatment effects for the following characteristics:

- High international migration intent
- Prior migration experience
- Feeling safe in the place of residence in Senegal
- Expects future livelihood to be adversely affected by climate change
- Socioeconomic status
- Training / education level
- Having dependents (children or wife)

2.6 Outcome measurement

Our outcome is the response to the question “Given this set of policies, how interested would you be in trying to migrate irregularly to this country?” measured on a scale from 0 (not at all) to 10 (very). The observed response values will inform us about subjects’ intent to migrate in absolute terms. In regression analyses we will standardize the outcome measure to a mean of 0 and a standard deviation of 1 to ease interpretation and comparability.

2.7 Timeline

The survey with the choice experiment is conducted at the end of November and December 2023.

3 ANALYSIS PLAN

3.1 Core specification

We will treat each choice as a separate observation, which means that the estimation sample size is about 3000 observations (with 1000 respondents). To estimate the effect of each policy measure, we regress normal standardized irregular migration intent on five indicator variables, one for each policy measure. The reference category (valued 0) will be the status quo policy, and values of 1 refer to the changed policy. In addition, we will control for strata fixed effects, prior migration intent, and control variables selected using LASSO. Standard errors are clustered at participant level. That is,

$$Y_{i,c} = \alpha + \sum_{p=1}^5 \beta_p Policy_{p,i,c} + X_i \beta + \varepsilon_i, \quad (1)$$

where $Y_{i,c}$ is the outcome of individual i in choice c , $Policy_{p,i,c}$ are the policy indicators, β_p coefficients are our estimands, and X_i refers to a set of covariates, which includes a pre-treatment measure of the outcome variable, strata indicators and any other control variables.

We report the results of two-sided t-tests for all hypotheses. In the case of missingness in covariates, we impute mean or zero values and use the missingness-indicator method, as described in [Zhao and Ding \(2022\)](#). We will calculate q-values for multiple hypotheses testing resulting from the heterogeneity analyses.

If treatment delivery, measured by the time spent on the choice, is insufficient, we will report results from an instrumental variable regression using assigned treatment as an instrument for actual treatment delivery.

3.2 Randomization checks

We will report the extent to which observable covariates are balanced across treatment conditions, using standard procedures.

3.3 Heterogeneous effects

We will report heterogeneous effects as indicated in Section [2.5.2](#).

3.4 Compliance and attrition

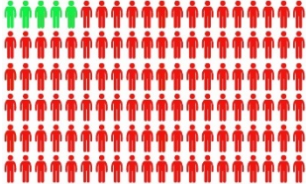
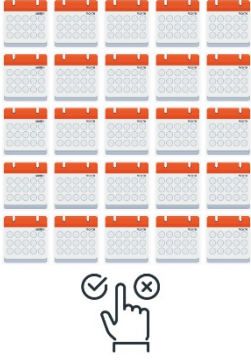
Since the experiment will be delivered as part of a survey, we expect that almost all subjects who complete the survey participate in the experiment as assigned. In some cases participation may be refused (but not participation in other parts of the survey instrument). We will check for differences between subjects that make a choice and those that do not, and report mean differences and associated statistics for the same set of baseline variables and baseline-available outcome measures used in balance tables.

In other cases participants may not engage with the choice as intended. To measure engagement we record the time that participants take to consider the policy profile and make a choice. In complier average causal effect analyses, we will use treatment assignment as an instrument for engagement time.

REFERENCES

- Zhao, Anqi, and Peng Ding.** 2022. “To Adjust or not to Adjust? Estimating the Average Treatment Effect in Randomized Experiments with Missing Covariates.” *Journal of the American Statistical Association*, forthcoming.

SUPPLEMENTARY MATERIALS

Attribut	Valeur 1	Valeur 2
Chance que la demande de séjour après une arrivée irrégulière soit acceptée :	5 sur 100 	30 sur 100 
Délai de prise de décision concernant la demande :	25 mois 	28 mois 
Lieu de la procédure de demande :	Demande à l'arrivée en Europe dans le pays de destination et attente de la décision 	Demande en dehors de l'Europe, par exemple dans un pays africain tel que le Rwanda ou la Tunisie, et attente de la décision 
Prestations gouvernementales mensuelles pour couvrir les besoins de base pendant le processus de demande dans le pays de destination (jusqu'à environ 410 euros ou 270 000 CFA) :	Payé en espèces 	Payé avec une carte de paiement prépayée 
Période d'attente pour bénéficier des prestations gouvernementales de base au même niveau que les autochtones (environ 500 euros ou 330 000 CFA) :	18 mois 	36 mois 