

MIRREM

Measuring Irregular Migration

www.irregularmigration.eu

Estimating the Irregular Migrant Population Through Social Media Surveys

MIRreM Briefing Paper

AUTHORS:

Jasper Tjaden

Alejandra Rodríguez-Sánchez



Funded by
the European Union

Co-funded by:



UK Research
and Innovation



Canada Excellence
Research Chair in
Migration & Integration

Deliverable Information:

Project Acronym:	Measuring irregular migration and related policies (MIRreM)
Project No.	101061314
WP	WP6 - Methods Innovation Lab
Deliverable Type:	Briefing Paper
Deliverable Name	D6.2 PS6 - Estimating the Irregular Migrant Population Through Social Media Surveys
Version:	1
Date:	07/04/2025
Responsible Partner:	University of Potsdam (UP)
Contributing Partners:	Jennifer van Hook (Penn State University)
Authors	Jasper Tjaden (UP) & Alejandra Rodríguez-Sánchez (UP)
Reviewers:	Denis Kierans (UOXF) & Jill Ahrens (UWK)
Dissemination Level:	Public

Revision History:

Version	Date	Author	Organisation	Description
1	18/12/2024	Jasper Tjaden Alejandra Rodríguez Sánchez	University of Potsdam	Draft version
1	19/12/2024	Jill Ahrens	UWK	Review and formatting check
1	23/01/2024	Denis Kierans	UOX	Review
1	11/03/2025	Jasper Tjaden	University of Potsdam	Final version
1	02/04/2025	Adriana Harm	UWK	Formatting check
1	07/04/2025	Alejandra Rodríguez Sánchez	University of Potsdam	Published version 1

Executive Summary

International migrants are a hard-to-reach population, which is often challenging to survey due to difficulties in capturing certain groups within standard sampling frames, such as population registers or censuses. Surveying irregular migrants is particularly complex given their heightened concerns about detection. In recent years, innovative approaches using social media platforms have shown promise in recruiting under-represented groups for online surveys. However, existing research has not systematically distinguished migrants by legal status, leaving unanswered questions about whether social media recruitment is a feasible and effective method for surveying irregular migrants.

This Briefing Paper outlines the design and implementation of an online survey targeting Mexican and Venezuelan migrants in four U.S. states, recruited through targeted Facebook advertisements. We discuss findings related to implementation, sampling, coverage, and the elicitation of legal status, comparing methods such as direct questions and list experiments. Our results demonstrate that Facebook surveys are a feasible, low-cost, and rapid approach to recruiting sizable samples of international migrants, including irregular migrants. Furthermore, we find that list experiments yield less biased estimates of irregular status compared to direct questioning, particularly for Mexican migrants. While our survey-based estimates of the proportion of irregular migrants align closely with existing estimates, we highlight challenges related to survey implementation and potential sample biases.

Table of contents

Executive Summary	3
Table of contents	4
LIST OF TABLES	5
LIST OF FIGURES.....	5
THE MIRREM PROJECT	6
1. INTRODUCTION	7
2. CONCEPTS AND DEFINITIONS	8
3. METHODS AND DATA	10
3.1. SURVEY DESIGN AND SAMPLING.....	10
3.2. RECRUITMENT AND AD DESIGN	10
3.3. QUESTIONNAIRE.....	12
3.4. LEGAL STATUS ELICITATION	12
3.5. ETHICS.....	13
3.6. FIELD IMPLEMENTATION	14
4. RESULTS	15
4.1. SAMPLE, RESPONSE RATES & UNIT COSTS.....	15
4.2. TARGETING	15
4.3. STATUS ELICITATION	16
5. DISCUSSION.....	19
KEY ADVANTAGES OF THE METHOD OR DATA.....	19
KEY DISADVANTAGES / CHALLENGES OF THE METHOD OR DATA.....	20
RELIABILITY.....	20
SCALABILITY.....	20
ESTIMATION ASSUMPTIONS	21
ETHICS	21
5.1. FUTURE RESEARCH.....	22
REFERENCES.....	23
ANNEX 1.....	25
ANNEX 2 - Questionnaire.....	26

LIST OF TABLES

Table 1: Definition of ‘Irregularity’ for Mexican and Venezuelan Migrants in the US	8
Table 1 Summary statistics of the net valid sample of respondents to the MIrreM Facebook ad pilot	16

LIST OF FIGURES

Figure 1: Recruitment ad design of the pilot study	11
Figure 2 Statements on our list experiments for List A and List B	13
Figure 3 Comparison of legal status elicitation method.....	18

THE MIRREM PROJECT

MIRreM examines estimates and statistical indicators on the irregular migrant population in Europe as well as related policies, including the regularisation of migrants in irregular situations.

MIRreM analyses policies defining migrant irregularity, stakeholders' data needs and usage, and assesses existing estimates and statistical indicators on irregular migration in the countries under study and at the EU level. Using several coordinated pilots, the project develops new and innovative methods for measuring irregular migration and explores if and how these instruments can be applied in other socio-economic or institutional contexts. Based on a broad mapping of regularisation practices in the EU as well as detailed case studies, MIRreM will develop 'regularisation scenarios' to better understand conditions under which regularisation should be considered as a policy option. Together with expert groups that will be set up on irregular migration data and regularisation, respectively, the project will synthesise findings into a Handbook on data on irregular migration and a Handbook on pathways out of irregularity. The project's research covers 20 countries, including 12 EU countries and the United Kingdom.

TO CITE:

Tjaden, J. and Rodríguez-Sánchez, A. (2025). Estimating the Irregular Migrant Population Through Social Media Surveys. *MIRreM Briefing Paper*. Krems: University for Continuing Education Krems. DOI: <https://doi.org/10.5281/zenodo.14801999>

KEYWORDS

Facebook; Digital Survey; Irregular Migration; US; List experiment

ACKNOWLEDGEMENTS

FUNDING ACKNOWLEDGEMENT

Funded by the European Union. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

In addition, MIRreM benefits from funding provided by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee. The Canadian research component of this project is undertaken, in part, thanks to funding from the Canada Excellence Research Chairs Program of the Government of Canada.

1. INTRODUCTION

Understanding the size and characteristics of irregular migrant populations remains a critical challenge for researchers and policymakers. This study aims to address a key question: Can social media-based sample recruitment be used as a viable and accurate method to survey irregular migrants? Specifically, we investigate whether Facebook advertisements can effectively recruit irregular migrants into online surveys and whether specialized techniques, such as list experiments, can reliably estimate their legal status compared to direct questioning.

Previous research has explored the use of Facebook surveys for sampling hard-to-reach populations, including migrants (Pöttschke & Braun, 2017; Pöttschke, 2022; Ryndyk, 2021; Rocheva, Varshaver, & Ivanova, 2022; Tjaden, Haarmann, & Savaskan, 2022; Varona, Masferrer, Rosas, & Pedemonte, 2024; Piekut, 2024; Soehl, Chen, & Erlich, 2024; Tjaden, Seuthe, & Weinert, 2024). These studies were not focussed on irregular migration and as such did not deal with the measurement of irregular migration. It remains unclear whether Facebook surveys with international migrants are equally viable for irregular migrants.

To answer this question, we conducted an online survey targeting Mexican and Venezuelan migrants in four U.S. states (California, Texas, Florida and Illinois) in October and November 2024 using targeted Facebook advertisements. Our survey was designed to assess recruitment effectiveness, sampling coverage, and the feasibility of eliciting sensitive information about legal status. We tested three methods for eliciting legal status: direct questioning, stepwise indirect questioning, and a list experiment, which has been proposed as a tool to reduce bias in responses about sensitive topics (Blair & Imai 2012; McKenzie & Siegel 2013). The findings were evaluated against benchmark estimates to gauge the accuracy of this approach.

This study contributes to the growing literature on innovative methods for surveying hard-to-reach populations, with a particular focus on irregular migrants — a group often underrepresented in traditional surveys. By demonstrating the potential of Facebook-based recruitment and the effectiveness of indirect elicitation techniques, we offer practical insights for researchers seeking to improve data quality and coverage in studies of marginalized populations. We also discuss potential ethical issues relating to surveying sensitive populations.

2. CONCEPTS AND DEFINITIONS

The definition of irregular migration is complex and contested (Kraler 2023). Depending on the context, different groups may be considered ‘irregular’ depending on the specific geographic, legal, and temporal situation. In this study, we broadly refer to irregular status as being in violation of residence laws, such as absence of a valid visa.

The application of our study illustrates the case-by-case nature of applying this broad definition. Mexican migrants in the US can be labelled ‘irregular’ (often called undocumented or unauthorized in the US context) if they do not hold legal papers at all. There are sizable populations who do not possess the legal documentation required to reside in the US but enjoy protection from expulsion (e.g. Deferred Action for Childhood arrivals or DACA). Irregular Mexican migrants, for example, have often lived in the country for decades, and participate in the education system, the labour market, pay taxes and have children who are US citizen. Mexican migrants are not considered as humanitarian migrants seeking protection. Venezuelan migrants, a more recent migrant group in the US, migrated primarily for the purpose of seeking humanitarian protection. According to US laws, Venezuelans migrants who are still in the process of seeking asylum are counted as irregular. Migrants whose claim has been decided and who successfully receive refugee status are counted as regular. Many Venezuelan migrants received a special temporary protection status which is not a full refugee status. The TPS – temporary protection status – is counted as an irregular status in the US.

Table 1 below outlines the complexity of defining ‘irregularity’ for the two groups under study, i.e. Mexican and Venezuelan migrants in the US.

Table 1: Definition of ‘Irregularity’ for Mexican and Venezuelan Migrants in the US

Documentation	Mexicans	Venezuelans
No papers	Irregular and permanent migration status (until proven otherwise) Common	Irregular and permanent migration status (until proven otherwise) Uncommon (due to the various legal options available, see below)

<p>Papers showing they belong to a special group</p>	<p>Regular* and temporary migration status</p> <p>(*) Depending on the scheme, not all benefits of regular legal status will be included.</p> <p>Uncommon (Few schemes and limited-based applicability, e.g. DACA)</p>	<p>Regular* and temporary migration status</p> <p>(*) Depending on the scheme, not all benefits of regular legal status will be included.</p> <p>Common (Temporary Protected Status)</p>
<p>Papers showing they are seeking asylum</p>	<p>(Semi-)Irregular (*) and temporary migration status</p> <p>(*) Legally defined as irregular, but afforded certain protections and benefits on a temporary basis</p> <p>Uncommon (Mexicans are not considered a vulnerable group and therefore unlikely to apply for asylum, low success rates)</p>	<p>(Semi-)Irregular (*) and temporary migration status</p> <p>(*) Legally defined as irregular, but afforded certain protections and benefits on a temporary basis</p> <p>Common (Venezuelans are considered a vulnerable group and therefore likely to apply for asylum, high success rates)</p>
<p>Papers showing they are a failed asylum seeker</p>	<p>Irregular and permanent migration status</p> <p>Uncommon (see above)</p>	<p>Irregular and permanent migration status</p> <p>Uncommon (see above)</p>
<p>Papers showing they are a Refugee</p>	<p>Regular and permanent migration status</p> <p>Uncommon</p>	<p>Regular and permanent migration status</p> <p>Common</p>

3. METHODS AND DATA

3.1. SURVEY DESIGN AND SAMPLING

The survey was implemented in four US states (Florida, California, Texas and Illinois) in October and November 2024 over a period of 34 days. The four states were selected because they host the largest number of irregular migrants (Migration Policy Institute, n.d.) and because they represent varying policy stances on irregular migration. While California and Illinois tend to be more receptive of migration, Florida and Texas are more restrictive (National Conference of State Legislatures. 2023).

The survey targeted Mexican and Venezuelan migrant adults older than 18 years residing in those four US states. The age limit was required by Facebook advertising policies. Mexican migrants represent the largest and longest settled migrant group in the US. Venezuelans, in turn, represent a more recent and understudied population in the US. These two groups exhibit distinct demographics and spatial settlement patterns, making them a compelling case study to assess the viability of our approach.

The study employed a quota sampling design. The target sample was 400 responses by group (two groups) and state (four states), given a total target of 3200 responses. Recruitment efforts were implemented until the minimum sample size was reached or until the budget was exhausted.

3.2. RECRUITMENT AND AD DESIGN

The survey was implemented in collaboration with the Penn State University's Population Research Institute in the US. On Facebook, we created a Facebook page for our survey named "Migrant Community Challenges Survey (MCCS)" (in Spanish: *Encuesta sobre los retos de la comunidad inmigrante*, ERCI). Advertisements were launched from the Facebook page that encouraged participation in the survey. A link for further information about the survey embedded in the advertisement linked to a website within the Penn State University domain. In this website, we provided background information about the project, its objectives, funding, as well as involved organisations, and the possibility for participants to contact the research team via email.

Facebook users were targeted by creating custom audiences on Facebook's ad manager platform. For each advertisement, we specified the location (Florida, Texas, California,

Illinois), the age range (older than 18), and a marker for previous residence (person has previously lived in ... [Mexico; Venezuela]).



Note: Message translates to “What are the main challenges facing your community? Take part in our 5-minute survey and have a chance to win a 50\$ Amazon voucher.

Figure 1: Recruitment ad design of the pilot study

Once Facebook users clicked on the “learn more” button embedded on the advertisement, they were directly transferred to our survey. The online survey was implemented via Lime survey. A dedicated Lime server was created at the University of Potsdam to ensure compliancy with the GDPR data protection regulations.

The advertisement campaign was set to optimize link clicks which means that Facebook shows the ad to people who are more likely to click on the “learn more” button. The specific ads that Facebook users saw are displayed in Figure 1, showing a Mexican and US flag for the Mexican group, and a Venezuela and US flag for the group of Venezuelans.

Each advertisement received the same budget allocation, and a maximum daily budget spending limit was set to 200 USD. The total budget was restricted to 15.000 USD.

Participants who completed the survey were asked whether they would like to participate in a lottery to win a 50 USD Amazon voucher. The lottery ran throughout the study. Winners of the lottery – a random pick of ~1% of participants – were provided with a unique number. The vouchers could be collected by emailing the project team with the winning number. The voucher was then shared via email.

3.3. QUESTIONNAIRE

The questionnaire included a total of 15 questions grouped into several sections: 1) Questions about challenges facing the community, 2) questions about the demographics (age, gender, country of birth) to verify that the targeting worked, 3) questions on the legal status (see next section), 4) further questions on marital status, children, and duration of residence in the US, 5) socio-economic questions on employment, work sector, and highest educational attainment, and lastly, 6) a question whether they want to be considered for the lottery to win a 50 USD Amazon voucher (see Annex 2 for questions used).

3.4. LEGAL STATUS ELICITATION

In our survey application, we pursued three different ways of eliciting an irregular status:

- 1) **Direct question:** What is your current residence status?
 - 1. Citizen of the US
 - 2. Permanent residence (green card)
 - 3. Temporary residence visa (work, study, tourism)
 - 4. Refugee (approved asylum application)
 - 5. Asylum seeker (awaiting decision)
 - 6. Protection from removal (e.g. DACA or Temporary Protected Status, TPS)
 - 7. I don't have any papers
 - 8. Don't know
 - Refuse to answer

- 2) **Indirect questions.** If all questions are answered with "no", then we assume an irregular status:
 - Are you a US citizen? (Yes/No)
 - Do you currently hold a green card? (Yes/No)
 - Do you have a temporary visa for work or study? (Yes/No)
 - Do you have approved refugee status? (Yes/No)
 - Are you an asylum seeker awaiting decision? (Yes/No)
 - Are you protected from removal/ deportation (for example, "DACA" (deferred action for childhood arrivals) or "TPS" (temporary protected status)? (Yes/No)

3) **List experiment**

A list experiment (also called item response method) is a survey method to elicit sensitive questions (Blair & Imai 2012; McKenzie & Siegel 2013). This method has been applied in a variety of contexts, for example, to elicit drug use behaviour, understand the prevalence of sexual diseases, racial prejudice, criminal offences, etc. In our context, we apply this method because the legal status is a sensitive topic. Irregular migrants face deportation in case of

detection. In addition, irregularity may carry substantial stigma. Hence, revealing one’s status as an irregular migrant could incur significant risks to respondents.

In a list experiment, survey participants are randomly assigned to answer one of two lists (List A and List B, see Figure 2 below). One of the lists contains the sensitive item which, in our application, reveals an irregular status. The respondents only provide information on how many items of the list they agree with. They do not reveal which items specifically they agree or disagree with. This way their individual status remains hidden. By comparing the mean number of items that respondents agreed with between the two groups, researchers can calculate the percentage of respondents who are irregular.

List A	List B
<p>Have a look at the following list of statements. Please count the number of statements that you agree with. We are not interested in WHICH ONES you agree with, only HOW MANY.</p> <p>a. I feel immigrants are welcomed in US. b. Migrants have to work harder than natives at the same job. c. The US should do more to reduce the number of new migrants arriving. d. Not having official papers to stay limits my opportunities in society.</p>	<p>Have a look at the following list of statements. Please count the number of statements that you agree with and report the number. We are not interested in WHICH ONES you agree with, only HOW MANY.</p> <p>a. I feel immigrants are welcomed in USA. b. Migrants have to work harder than natives at the same job. c. The US should do more to reduce the number of new migrants arriving.</p>

Note: The two lists in our survey experiment. Survey participants only got to see one of these lists and provided their answer.

Figure 2 Statements on our list experiments for List A and List B

To answer the list experiment, survey participants selected the number of statements they agreed with from a set of single-choice options (i.e., one, two, three or four, depending on which list they were randomly assigned to).

3.5. ETHICS

Irregular migrants represent a vulnerable group given their precarious legal status and associated disadvantages regarding access to basic services, such as health care, restricted job opportunities, and the constant stress they or their relatives experience associated with living in fear of detection and deportation. As a result, conducting a survey with irregular migrants is sensitive. We solicited ethical approval from the ethics commission of the University of Potsdam (#41/2024) which was granted on the condition that we reduce any

potential harm for participants, that we are transparent to participants about the objectives of the study, and that data is stored securely in compliance with GDPR.

Given the sensitivity of migrant irregularity, the survey was entirely anonymous. We did not collect any personal information, such as name or contact details, that could lead to the identification of study participants. The only instance where contact details are revealed was when winners of the lottery (~1%) contacted the team to receive their vouchers. Emails of lottery winners were immediately deleted after sending out prizes.

We explicitly stated the two objectives of the study on the Facebook page and the background website. The two main goals were learning about the challenges facing regular and irregular migrants in the US as well as the extent of irregularity among migrant groups. Beyond methodological interest in the estimation of population sizes, information on legal status is important information to examine socio-economic disadvantages of irregular migrants.

Data was stored securely on local servers at the University of Potsdam. Data was not shared with third parties.

3.6. FIELD IMPLEMENTATION

Ads ran from 16 October to 18 November 2024. The research team monitored the performance of the advertisements in terms of reach (i.e., how many people saw the ad), spending, and link clicks (i.e., how many people clicked to proceed to the survey). In addition, we monitored survey submissions through our survey website daily.

Facebook users occasionally commented below our ads. When users questioned the credibility of the survey or the lottery, the research team responded directly to clarify that this is a real academic survey, and the lottery is real.

Twice during the data collection period, Facebook automatically rejected advertisements for Venezuelans in some of the locations of our study, mainly in Illinois. Facebook does not provide any specific reason for blocking advertisements. Our assumption is that users reported the ad which sparked the algorithms that automatically block the ad. Individual ads were re-approved upon appealing the rejection and again rejected at later stages.

Towards the end of the survey period and close to exhausting the overall budget (13.200€ out of the total 15.000€), the entire Facebook Page from which the campaign was launched was blocked by Facebook's algorithms. The algorithms vetting the campaigns likely responded to users' engagement with the campaign. For example, if ads are repeatedly marked as inappropriate by users, a campaign and even an entire Facebook page can be taken down. In a private automated communication, Facebook claimed that the advertisements launched from the page violated platform policies without specifying which policies were being violated. Further appeals by the research team were not possible, and the ban was never lifted because there was no possibility to contact Facebook directly.

4. RESULTS

4.1. SAMPLE, RESPONSE RATES & UNIT COSTS

Overall, the recruitment campaign reached 1.3 million Facebook users in the four targeted states who previously used to reside in Mexico or Venezuela. Out of all users who saw the advertisement, 2,021 individuals participated in the survey and completed sufficient responses to obtain information about their legal status. Meanwhile 1,329 individuals started the survey but did not complete it. Over 80% of respondents who dropped out of the survey did so within the first three questions. The average response rate across the whole sample was 1.36 respondents for every 1,000 Facebook users exposed to the recruitment advertisement. The unit cost for one valid survey submission was hence 15.8€.

The campaign spent similar amounts by gender, yet response rates varied substantially. Among the 2,021 valid survey submissions, 1,427 women (70%) and 594 men.

4.2. TARGETING

Table 1 provides an overview of the net sample of survey submissions. Respondents were, on average, older (85% over 40), women (70%), and settled (61% more than 10 years in the US). This corresponds with the Facebook membership which increasingly consists of older cohorts. Younger cohorts use other services such as Instagram or TikTok. It was difficult to reach younger cohorts, especially those between 18 and 25 years old.

One key finding from this pilot study are the insights gained concerning the accuracy of targeting users from a particular country of birth in Facebook's platform. The study was interested in recruiting Mexican and Venezuelan migrants exclusively. The available marker on Facebook is "users who used to reside in country X". We find that only 62% of our respondents report to have been born in either Mexico or Venezuela. For each target group, 40% of respondents came from other countries even though Facebook labelled them as previously having lived in Mexico and Venezuela. For example, assuming respondents provided truthful answers to the question about their country of birth, we 'accidentally' recruited 420 Cubans (24%), among other nationalities. Although Cubans might have temporarily resided in Mexico on their way to the US, thus previously living there, it is less plausible that Cubans migrated through Venezuela to reach the US. Instead, we believe this finding highlights substantial measurement issues when targeting international migrants

through Facebook. For researchers using Facebook’s data, this means additional resources for expanding gross target samples and uncertainty given that the construct validity of the ‘migrant’ category inherently remains a black box.

Table 2: Summary statistics of the net valid sample of respondents to the MIrreM Facebook ad pilot

Migrant’s characteristics (within valid sample)	Frequency (%)
Age	
18-25	22 (1.1%)
25-40	266 (13%)
40-60	1,042 (51%)
Over 60	697 (34%)
Total	
Gender	
Female	1,427 (70%)
Male	594 (29%)
Other	6 (0.3%)
Country of birth	
Central America	84 (4.7%)
Cuba	420 (24%)
Mexico	858 (48%)
Other	30 (1.7%)
South America	69 (3.9%)
United States	56 (3.2%)
Venezuela	255 (14%)
Unknown	255
Duration of stay in the US	
10 years or more	1,186 (61%)
2-3 years	260 (13%)
3-4	87 (4.5%)
5-9	254 (13%)
Less than 1	165 (8.5%)
Unknown	75 (<1%)

4.3. STATUS ELICITATION

One key objective of our study was to explore whether the irregular status of migrants without the required documentation could be elicited using an online Facebook survey. Figure 3 presents the (unweighted) results from three different elicitation approaches relative to the reference estimate based on the American Community Survey (ACS) for the year 2022.

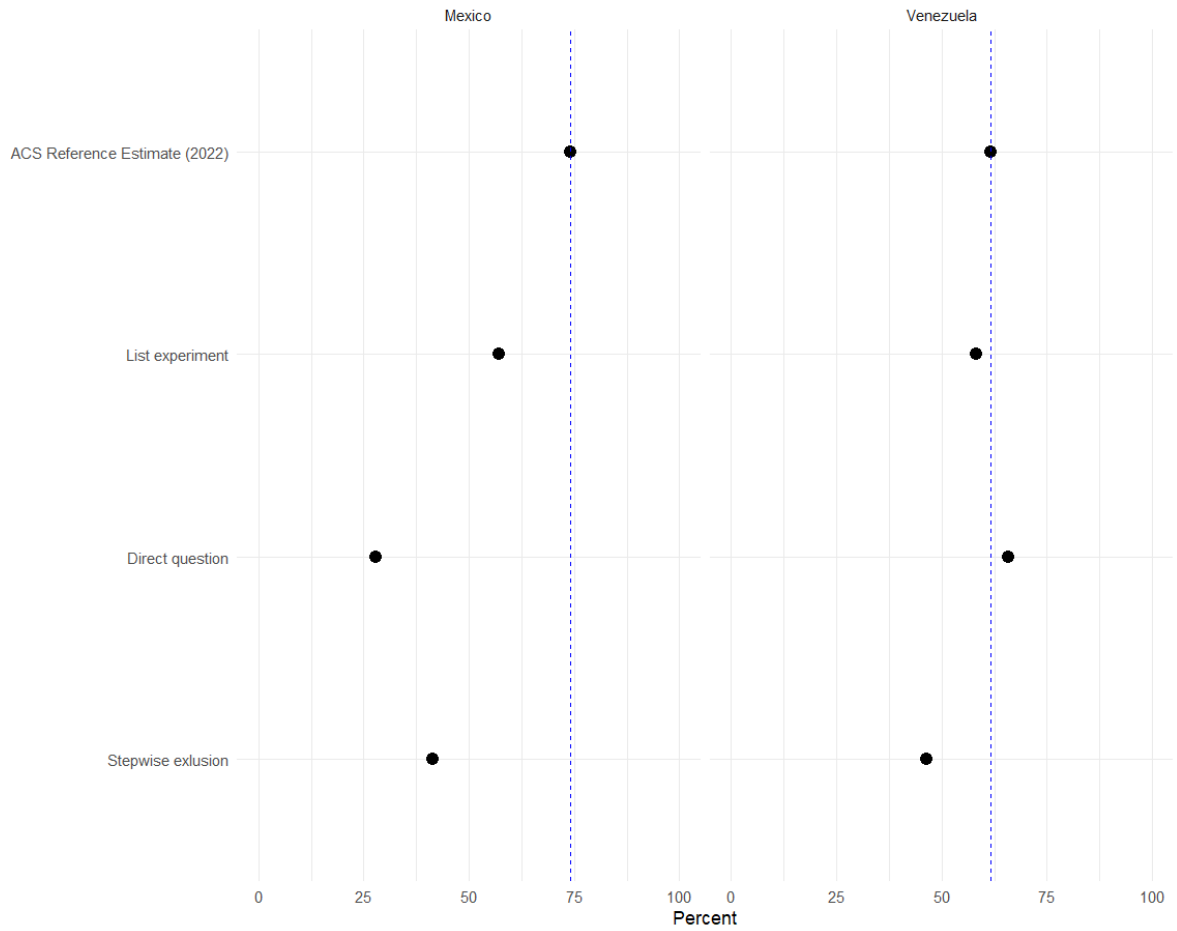
The share of irregular migrants among all international migrants in four US states included in the study was 74.2% for Mexicans and 61% for Venezuelans according to the ACS. In the ACS, asylum seekers and temporary protection are counted as undocumented.

We find that for Mexicans, the list experiment produces the closest estimate relative to the ACS reference at 57% (17 percentage points lower) compared to the direct question (27.9% or 46 percentage points lower) or the stepwise exclusion through a series of indirect questions (41.3% or 33 percentage points lower).

For Venezuelan migrants, a different picture emerges. The list experiment produces similar results to the ACS estimate (58.2% vs. 61.6%) and the direct question (65.8%). The stepwise exclusion produces lower estimates (46.5%).

We speculate that the difference between Mexicans and Venezuelans in our results is due to the different legal categories that apply to both groups (see Tabel 1). The legal situation of Venezuelans is complex, given the variety of temporary protection statuses which apply. Furthermore, it might be a less sensitive issue to provide accurate information in the direct question for Venezuelans than Mexicans because they do not perceive temporary protection or asylum as being undocumented.

It is important to note that the Facebook survey data is unweighted. This means that it represents only the users who participated in our survey, not Facebook users in general. The survey participants are likely a highly selected group. At the same time, it is important to note that the ACS estimate carries uncertainties of its own. Since accurately measuring irregular migration is challenging, and no objectively precise reference exists, comparisons must be approached with caution. While we can compare our estimate to existing estimates, we cannot evaluate which estimate is closer to the true unobservable value.



Note: ACS Reference refers to American Community Survey estimated by Jennifer van Hook. All data is unweighted.

Figure 3 Comparison of legal status elicitation method

5. DISCUSSION

This study investigates the potential of using social media, specifically Facebook advertisements, to survey irregular migrant populations. The study zooms in on Mexican and Venezuelan migrants in the U.S. across four states that host substantial numbers of migrants from these groups. Through innovative survey techniques, such as list experiments and indirect questioning, our study aimed to accurately measure the legal status of migrants while addressing challenges in recruitment, as well as the elicitation of sensitive information that hampers other approaches.

The findings reveal that Facebook-based recruitment, though promising, faces important limitations, such as demographic biases (e.g., older, female respondents predominating) and misclassification issues in targeting migrants that are a feature of Facebook's platform. Among the methods tested, list experiments proved to be the most effective method for approximating irregular migration rates, especially for Venezuelan migrants. Our results also raise concern about the validity of direct survey questions on legal status which is still the most used approach to survey migrants' residence status.

However, variations in response patterns highlight the complexity of legal categories and sensitivities surrounding irregular status. Despite rather low response rates and platform restrictions that impacted the study's progression, we obtained valuable insights about how to effectively reach and engage with hard-to-reach populations, while underscoring ethical considerations in working with vulnerable groups. Hence, this study contributes to advancing methodologies for studying underrepresented migrant populations.

KEY ADVANTAGES OF THE METHOD OR DATA

Key advantages of the presented approach are the ability to generate large samples quickly and at a low cost. We spent on average 15€ per valid survey response which is far lower than costs associated with in-person, face-to-face interviews. We show that it is possible to sample specific population groups by targeting users directly through habitual location of residence and (assumed) previous country of residence, as well as language, age and gender. As a new contribution of this study, we show that the approach can be extended to irregular migrants as well. In our anonymous survey, irregular migrants participated in sufficient numbers to allow for the statistical analyses proposed in this study. Therefore, an anonymous online survey appears to be more promising than in-person interviews which irregular migrants are probably more prone to avoid.

KEY DISADVANTAGES / CHALLENGES OF THE METHOD OR DATA

One of the major drawbacks of online surveys, including surveys recruited through Facebook, is the fact that they are non-probability samples. This means that the probability of everyone in the population (in our case Facebook users) to participate in the survey is unknown. This hampers the ability to draw inferences from the sample regarding any underlying population. A common approach is to apply post-stratification weights to adjust the sample characteristics to known distributions in the underlying population, primarily age, gender, education or location. While this corrects for some imbalances, it does not turn the sample into a probabilistic sample. There are many additional factors which may determine which users get to see the advertisement and who eventually clicks on the ad. How Facebook disseminates the ad is a black box that can further affect probability of participation. For instance, Facebook reports that it optimizes the distribution of ads to people who are likely to click on ads more generally which is a highly selective population (see Grow et al. 2022; Schneider & Harknett 2022, for more discussion on the use of Facebook surveys to estimate population characteristics). Generally, probability samples are always preferable in situations where suitable sampling frames exist. When probability samples do not exist, as in the case of irregular migrants, Facebook appears to be an effective targeting option for non-probability samples.

RELIABILITY

Reliability of the approach – in terms of producing consistent results if applied repeatedly over time – is constrained by how Facebook classifies ‘international migrants’ (and distinguishes them from ‘tourists’ who happen to be on a trip abroad during a study) and whether the classification will be available to advertisers in the future. For example, the duration of stay does not play a role in how Facebook classifies a user. Moreover, reliability also depends on Facebook’s popularity. The number of Facebook users is always in flux and declining for younger age groups in many high-income countries (Schaeffer, 2023). Further research is needed to assess whether the legal status elicitation approaches, particularly the list experiment, are reliable over time.

SCALABILITY

This approach can be easily scaled to any setting where Facebook is operating and has a large membership. In certain countries or for certain migrant groups, the Facebook classifier for “having lived in country x” may not be available. Furthermore, our ads were blocked several times throughout the data collection process. This may vary depending on the country where the study is carried, the migrant group being targeted, or the design of the ad. All factors that require careful consideration in study design. The uncertainty around implementation of Facebook’s recruitment efforts and the limited means to control implementation are substantial hurdles when aiming to scale up this approach.

ESTIMATION ASSUMPTIONS

In using Facebook advertisements to recruit participants for a non-probability survey of migrants in the U.S., several assumptions and potential biases emerge that merit reflection. First, the assumption that Facebook users can be effectively targeted based on their migration background is undermined by the platform's classification biases or errors, as a significant portion of respondents did not match the intended target groups (e.g., individuals from Cuba rather than Mexico or Venezuela). Second, the demographic composition of the sample, skewed toward older and female respondents, reflects the changing demographics of active Facebook users rather than the underlying, broader migrant population, introducing further forms of selection bias. Additionally, self-selection bias likely played a role, as participation was voluntary and incentivized with a lottery, potentially attracting individuals with certain motivations to participate or socio-economic characteristics. Furthermore, the reliance on self-reported data, particularly for sensitive topics like legal status, introduces the risk of social desirability bias or misreporting, even with indirect elicitation methods like list experiments. Lastly, the unweighted nature of the survey data limits generalizability, as the sample does not represent the broader Facebook-using or migrant population and is in general not possible to obtain probability weights without a sampling frame. These factors highlight the need for cautious interpretation of findings and suggest that while Facebook recruitment offers valuable insights, its limitations should inform future methodological refinements.

ETHICS

Researching irregular migrants raises significant ethical considerations due to their vulnerability and the potential risks associated with participation.

It is important to ensure informed consent of study participants - ensuring that participants fully understand the purpose of the study and how their data will be used. In our case, we provided a detailed consent form and additional background information through the Facebook page and the M_{Irre}M project website.

Since irregular migrants face legal and social risks if their status is disclosed to immigration authorities, it is essential to anonymise responses and securely store data. The use of non-personally identifiable information and immediate deletion of emails from lottery winners were important safeguards in this regard.

Targeting vulnerable groups requires sensitivity to their experiences. Ensuring culturally appropriate communication and avoiding stigmatizing language or practices was key to maintaining respect and trust among participants.

Lastly, it is important for research projects to seek ethical approval from their academic institutions.

Despite efforts to minimize harm and prioritize participant safety, our Facebook advertisements were blocked – likely due to user complaints. This underlines the sensitivity of the issue and the need for additional considerations by researchers.

5.1. FUTURE RESEARCH

The presented study conducted a survey in four US states among two migrant groups. Further research should apply this approach to more locations and other groups to further validate the results. Today, there are few attempts to assess the sensitivity of how legal status elicited through surveys. Replication of this approach in more settings would be of great value. In addition, limited resources were available to collect data. More resources and longer data collection periods could substantially boost sample sizes allowing for more analysis and various ways of re-weighting the data to approximate larger populations of interest.

REFERENCES

- Blair, G., & Imai, K. (2012). Statistical analysis of list experiments. *Political Analysis*, 20(1), 47-77. <https://doi.org/10.1093/pan/mpr048>
- Grow, A., Perrotta, D., Del Fava, E., Cimentada, J., Rampazzo, F., Gil-Clavel, S., ... & Weber, I. (2022). Is Facebook's advertising data accurate enough for use in social science research? Insights from a cross-national online survey. *Journal of the Royal Statistical Society Series A: Statistics in Society*, 185(2), 343-363. <https://doi.org/10.1111/rssa.12948>
- McKenzie, D., & Siegel, M. (2013). Eliciting illegal migration rates through list randomization. *Migration Studies*, 1(3), 276-291. <https://doi.org/10.1093/migration/mnt018>
- Migration Policy Institute. (n.d.). *Unauthorized immigrant population profiles*. Migration Policy Institute. Retrieved January 22, 2025, from <https://www.migrationpolicy.org/programs/us-immigration-policy-program-data-hub/unauthorized-immigrant-population-profiles>
- National Conference of State Legislatures. (2023, December 14). *Immigration legislation archived database: 2008–2023*. <https://www.ncsl.org/immigration/immigration-legislation-archived-database>
- Piekut, A. (2024). Time and sample quality in a Facebook ad-generated survey with Polish migrants in the UK. *Survey Methods-Insights from the Field*, 2(2). <https://doi.org/10.13094/SMIF-2024-00006>
- Pöttschke, S., & Braun, M. (2017). Migrant sampling using Facebook advertisements: A case study of polish migrants in four European countries. *Social Science Computer Review*, 35(5), 633-653. <https://doi.org/10.1177/0894439316666262>
- Pöttschke, S. (2022). Using the innovative to improve the established: the employment of social networking sites as recruitment tools in migrant surveys. *International Migration*, 60(2), 261-265. <https://doi.org/10.1111/imig.12987>
- Rocheva, A., Varshaver, E., & Ivanova, N. (2022). Targeting on Social Networking Sites as Sampling Strategy for Online Migrant Surveys: The Challenge of Biases and Search for Possible Solutions. *Migration Research in a Digitized World*, 35. https://link.springer.com/chapter/10.1007/978-3-031-01319-5_3
- Ryndyk, O. (2021). The Language-Based Recruitment of Migrants to Online Surveys with Facebook Advertisements: A Comparative Assessment from Three Geographical Contexts. *Central and Eastern European Migration Review*, 10(2), 131-149. <http://ceemr.uw.edu.pl/vol-10-no-2-2021/articles/language-based-recruitment-migrants-online-surveys-facebook-advertisements>
- Schaeffer, K. (2024, February 2). *5 facts about how Americans use Facebook, two decades after its launch*. Pew Research Center. <https://www.pewresearch.org/short->

[reads/2024/02/02/5-facts-about-how-americans-use-facebook-two-decades-after-its-launch/](#)

- Schneider, D., & Harknett, K. (2022). What's to like? Facebook as a tool for survey data collection. *Sociological Methods & Research*, 51(1), 108-140. <https://doi.org/10.1177/0049124119882477>
- Soehl, T., Chen, Z., & Erlich, A. (2024). Promises and Limits of Using Targeted Social Media Advertising to Sample Global Migrant Populations: Nigerians at Home and Abroad. *Sociological Methods & Research*, <https://doi.org/10.1177/00491241241266634>
- Tjaden, J., Seuthe, M., & Weinert, S. (2024). Recruiting refugees to reduce labour shortages in health care professions: experimental evidence on the potential of foreign-language outreach on social media. *BMC Human Resources for Health*, 22(1), 48. <https://link.springer.com/article/10.1186/s12960-024-00933-w>
- Tjaden, J., Haarmann, E., & Savaskan, N. (2022). Experimental evidence on improving COVID-19 vaccine outreach among migrant communities on social media. *Scientific Reports*, 12(1), 16256. <https://www.nature.com/articles/s41598-022-20340-2>
- Varona, T., Masferrer, C., Rosas, V. P., & Pedemonte, M. (2024). Which definition of migration better fits Facebook 'expats'? A response using Mexican census data. *Demographic Research*, 50, 1171-1183. <https://doi.org/10.4054/DemRes.2024.50.39>

ANNEX 1

The MIrreM Methods Lab conducted a review of 21 traditional and innovative methodological approaches for estimating irregular migrant stocks and flows. Each approach was assessed based on its core concept, data sources, definition and coverage of irregular migration, estimation assumptions, reliability, scalability, general assumptions, and ethical considerations.

Building on this review, we developed six innovative approaches that have the potential to advance research on irregular migration.

As part of the broader MIrreM project, the WP6 Methods Innovation Lab carried out the following six Pilot Studies (PS). Please find the MIrreM Briefing Papers about the other Pilot Studies linked below:

MIrreM Briefing Papers	Authors	DOI
PS1 - Exploring the use of aggregate air passenger data for estimating overstayer inflows	Luca Bernasconi Ettore Recchi	https://doi.org/10.5281/zenodo.14809013
PS2 - Measuring the participation of irregular migrants in the informal economy	Aslı Salihoğlu Carlos Vargas-Silva	https://doi.org/10.5281/zenodo.14809000
PS3 - Estimating irregular migrant stocks using social media data and machine learning	Alejandra Rodríguez-Sánchez Jasper Tjaden	https://doi.org/10.5281/zenodo.14808984
PS4 - Irregular migration: What can mortality reveal?	Johan Surkyn Tuba Bircan	https://doi.org/10.5281/zenodo.14808979
PS5 - Estimating irregular migration in the UK using a health care reform	Alejandra Rodríguez-Sánchez Jasper Tjaden	https://doi.org/10.5281/zenodo.14808948
PS6 - Measuring irregular migration stocks through social media surveys	Jasper Tjaden Alejandra Rodríguez-Sánchez	https://doi.org/10.5281/zenodo.14801999

ANNEX 2 - Questionnaire

A1. In your personal opinion, what are the main challenges that you or members of your family face in the US. You may select more than one of the following issues:

- a. Access to health care
- b. Access to Education
- c. Access to transportation/ driving licenses
- d. Access to jobs
- e. Access to food and water
- f. Discrimination by employers
- g. Feeling unwelcome where I live
- h. Legal advice
- i. Access to housing
- j. Access to citizenship
- k. High taxes
- l. Lack of language translation
- m. Practicing religion

B1. Are you aware of organizations that support migrants in dealing with these challenges? If yes, please list the organization names(s) in the text box. (The types of support organizations include, for example, religious organization/churches, community organizations, social services, schools, social media)

- Yes
- No

C1. What is your age?

- Under 18
- 18-25
- 25-40
- 40-60

Over 60

C2. What is your gender?

- Female
- Male
- Other

C3. In which country were you born?

- Venezuela
- Mexico
- United States
- Other

C4. Which other country were you born in?

D1.

6.1 Are you a US citizen?

- Yes
- No

D2.

6.2 Do you currently hold a green card?

- Yes
- No

D3.

6.3 Do you have a temporary visa for work or study?

- Yes
- No

D4.

6.4 Do you have approved refugee status?

- Yes
- No

D5.

6.5. Are you an asylum seeker awaiting decision?

- Yes
- No

D6.

6.6 Are you protected from removal/ deportation (for example, "DACA" (deferred action for childhood arrivals) or "TPS" temporary protected status)?

- Yes
- No

E2.

Have a look at the following list of statements. Please count the number of statements that you agree with. We are not interested in WHICH ONES you agree with, only HOW MANY.

- a. I feel immigrants are welcomed in US.
- b. Migrants have to work harder than natives at the same job.
- c. The US should do more to reduce the number of new migrants arriving.
- d. Not having official papers to stay limits my opportunities in society.

- None
- I agree with ONE of the statements
- I agree with TWO of the statements

- I agree with THREE of the statements
- I agree with FOUR of the statements

E3.

Have a look at the following list of statements. Please count the number of statements that you agree with and report the number. We are not interested in WHICH ONES you agree with, only HOW

MANY.

- a. I feel immigrants are welcomed in USA.
- b. Migrants have to work harder than natives at the same job.
- c. The US should do more to reduce the number of new migrants arriving.

- None
- I agree with ONE statement
- I agree with TWO statements
- I agree with THREE statements

F1. What is your current residence status:

1. Citizen of the US
2. Permanent residence (green card)
3. Temporary residence visa (work, study, tourism)
4. Refugee (approved asylum application)
5. Asylum seeker (awaiting decision)
6. Protection from removal (e.g. DACA or Temporary Protected Status (TPS))
7. I don't have any papers
8. Don't know
9. Refuse to answer

G1. What is your marital status?

- Single
- Spouse
- Partnered
- Divorced/Widowed
- I don't know/ Refuse to answer

G2. How many children under 18 do you have?

- 0
- 1
- 2

- 3
- 4
- 5+

G3. How many are living in the U.S.?

- 0
- 1

H1. What is your employment status?

- 10.1. Employed – full time
- 10.2. Employed – part time
- 10.3. Unemployed – Looking for a job
- 10.4. Unemployed – not looking for job
- 10.5. Retired
- 10.6. In education or training
- 10.7. Other

H2. What job sector/field do you work in?

OPEN ANSWER

H3. What is your highest educational degree?

- 12.1. None
- 12.2 Primary school
- 12.3. High School (incomplete)
- 12.4 High School (complete)
- 12.5. Vocational Training/ Apprenticeship
- 12.6. College/ University 2- or 4-year degree
- 12.7. Masters/Doctorate Degree

I1. Would you like to participate in the lottery to have the chance to win a 50 USD Amazon voucher? If you click “yes”, the computer will randomly choose the winners.

- Yes
- No

ABOUT THE AUTHORS

Jasper Tjaden is Professor of Applied Social Research and Public Policy at the Economic and Social Science Department of the University of Potsdam, Germany.

Alejandra Rodríguez-Sánchez is currently a Postdoctoral Researcher at the University of Potsdam, Germany.

COPYRIGHT CLAUSE



This work is openly licensed by the MIRreM Consortium via Creative Commons Attribution-ShareAlike 4.0 International License, 2020 (CC-BY-SA 4.0). For details, see <http://creativecommons.org/licenses/by-sa/4.0/>

THE MIRREM CONSORTIUM

University for Continuing Education Krems (Coordinator)

European University Institute

University of Osnabrück

University of Maastricht

University of Turku

Complutense University Madrid

Hellenic Foundation for European and Foreign Policy (ELIAMEP)

University of Milan

University of Potsdam

Platform for International Cooperation on Undocumented Migration (PICUM)

International Centre for Migration Policy Development (ICMPD)

Migration Policy Institute Europe (MPI-E)

University of Warsaw

Vrije Universiteit Brussel

Instituto Universitário de Lisboa

Associated Partners:

Toronto Metropolitan University

University of Leicester

University of Oxford