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Measuring the Participation of Irregular Migrants in the Informal Economy

MIRreM Briefing Paper

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Executive Summary

The systematic study of irregular migrants' participation in the informal economy is beset by conceptual and methodological issues within the two research domains: economic informality and migrant irregularity. Both phenomena are characterized by competing definitions and statistical measurement challenges, making it even more difficult to accurately assess their intersection. This briefing summarises an approach that addresses the ambiguities and challenges in question. The approach relies on a conceptual framework that differentiates between the informal (formal) economy, unregistered (registered) firms, and irregular (regular) migration. The methodology uses nationally representative survey data to estimate size ranges of irregular migrant worker populations. The flexibility of the method is illustrated by applying it to Turkey and the United Kingdom, using the Turkish Household Labour Force Survey and the UK Labour Force Survey.

Table of contents

Executive Summary	3
Table of contents	4
LIST OF TABLES	4
THE MIRREM PROJECT	5
1. INTRODUCTION	6
2. CONCEPTS & DEFINITIONS	7
3. METHODS AND DATA	9
3.1 METHODS	9
3.2 DATA	10
4. RESULTS	13
4.1 COMPARISON WITH REFERENCE ESTIMATES	14
5. DISCUSSION	16
ADVANTAGES	16
LIMITATIONS	16
RELIABILITY	17
SCALABILITY	17
ETHICS	18
REFERENCES	19
ANNEX 1	21

LIST OF TABLES

Table 1: Irregular migrant worker population estimate ranges for the UK, 2015 and 2019 13

Table 2: Irregular migrant worker population estimate ranges for Turkey, 2018..... 14

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.

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Irregular Migration; Informal Economy; Migrant Labor; Methods; Estimation

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1. INTRODUCTION

Many irregular migrants are active participants in informal economies around the world. However, the measurement of their participation is challenging owing to conceptual ambiguities and methodological issues regarding irregularity and informality. This pilot study addresses both challenges in question and illustrates a new approach to estimating irregular migrant worker populations through two case studies.

This briefing does three things. First, it provides a short summary of a conceptual framework that explains the differences and interactions between the informal (formal) economy, unregistered (registered) firms, and irregular (regular) migration. Second, it proposes a methodological approach that relies on that framework and uses nationally representative survey data to produce size estimate ranges for irregular migrant worker populations. Third, it uses labour force survey data from the UK and Turkey to illustrate the flexibility of the methodological approach and relevance for a variety of national settings.

Instead of an empirical focus on presenting precise statistics on the participation of irregular migrants in the informal economies of these countries, the primary aim is to propose a conceptual and methodological approach to constructing estimations. Ultimately, country experts would be better placed to fine-tune the approach to the national setting under study. Overall, reliable estimations of this phenomenon would more accurately quantify irregular migrants' economic contributions to host societies and, in so doing, would inform public discussions on both irregularity and informality.

2. CONCEPTS & DEFINITIONS

Informal workers are those who are in “working arrangements that are *de facto* or *de jure* not subject to national labor legislation, income taxation or entitlement to social protection or certain other employment benefits,” (OECD and ILO, 2019). Irregular migrant workers constitute a subcategory of informal workers. Three key legal features inform the definition of an irregular migrant worker:

- 1) residence status of the worker;
- 2) registration status of the firm in which a worker is employed, and;
- 3) conditions attached to the residence status of the worker (e.g., right to work).

There are three types of residents: (1) nationals and denizens, (2) foreign nationals with terminable right of residence, and (3) foreign nationals with no right of residence. ‘Nationals’ refers to individuals who hold the citizenship of the country in question. The term ‘denizens’ refers to foreign nationals who hold a secure, long-term legal status (Hammer, 1990). ‘Foreign nationals with terminable right of residence’ refers to residents whose status can be revoked in connection with a breach of employment conditions. The ‘foreign nationals with no right of residence’ category covers those without any right of stay in the UK and those who do have right of stay such as tourists and asylum seekers.

Unregistered firms can only employ workers “off-the-books” as they do not have a formal license to operate. Registered firms can employ workers formally or informally (Ulyssea, 2020).

Conditions of stay refer to the rights, obligations and limitations designated by the residence status of a foreign national. These include the right and restrictions to access formal employment. The conceptual framework follows the classification scheme of Kraler and Ahrens (2023) wherein a breach of the conditions of one’s stay leads to a loss of status for foreign nationals with terminable right of residence and renders them *irregular* migrants.

In summary, the framework includes two types of firms, registered and unregistered, where foreign nationals (with and without right of residence), denizens and nationals of the country can take up employment. The informal economy is composed of those a) working in unregistered firms, and b) working in registered firms, but not abiding by all regulations (e.g., getting paid “off the books”).

For nationals and denizens, the formal versus informal economy placement depends on individuals’ workplace registration and conditions of employment. For others, their residence status plays a role in placing them in the formal or informal economy. Foreign nationals without right of residence are categorized as irregular migrants regardless of their

employment status apart from asylum seekers who have obtained a work permit. Foreign nationals with terminable right of residence are categorized as regular non-denizen migrants if they are active in the formal economy or not working. Conversely, their participation in the informal economy is an indicator of migrant irregularity. For a more detailed breakdown of the concepts under discussion, please refer to Salihoğlu and Vargas-Silva (2024).

3. METHODS AND DATA

3.1 METHODS

To measure the participation of irregular migrants in the informal economy, the intersection of two estimates, namely that of irregular migrants and the informal economy, should be calculated. We present an approach to estimate this intersection. The method yields estimate ranges, each fitted with a minimum and a maximum figure generated through a procedure subject to context-specific conditionalities. It involves the following 4 steps:

- (1) Start with a full dataset from a survey representative of a labour market. Drop those who are not in employment.
- (2) Drop all employed nationals and denizens. Use different definitions of denizenship to set several thresholds of estimation that decrease in their degree of conservativeness and gradually constrain the number of observations categorized as non-denizen migrants in the dataset.
- (3) Generate a maximum and a minimum estimate of the number of irregular migrant workers. This relies on using survey variables that proxy economic in/formality in standalone or combinatory fashion. A separate minimum-maximum estimate range is generated per denizenship threshold as defined in Step (2).
 - a. **Maximum estimate:** Drop non-denizen migrants who are likely to participate in the formal economy. These are those who: 1) do not have any indicators pointing to economic informality and 2) show positive indicators of economic formality. The remaining number of observations provide a maximum estimate of the number of irregular migrant workers.
 - b. **Minimum estimate:** Calculate the number of informally employed non-denizen migrants *directly observable* in the survey. This is done by cumulatively adding up the number of observations that correspond to at least one of several informality profiles that are retrievable from the data. The informality profiles pertinent to a national context and retrievable from a survey vary from one country to another. This stage yields a minimum estimate of the number of irregular migrant workers.
- (4) Lastly, the observations that remain under the maximum and minimum specifications per denizenship threshold are multiplied with their corresponding survey weights to generate estimate ranges for irregular migrant worker populations.

Steps (2) and (3) are modular to the national setting, the survey format and variable availability. The chosen definitions of denizenship and economic in/formality are attendant to national and/or subnational factors specific to each labour market under study.

3.2 DATA

We illustrate the methodology presented above with case studies on the UK and Turkey. We showcase how our approach can be adapted to survey context and various variable availability scenarios.

For the UK case study, we employ the UK Labour Force Survey (LFS). We use UK LFS microdata from 2015 and 2019, which covers the UK population resident in private households (Office of National Statistics, 2018). The survey uses a rotating panel design and samples the population continuously with data reported at quarterly intervals. While it draws from four separate sampling frames, the bulk of the sampled private households is selected from a database of all UK postal addresses to which mail is delivered. By design, members of the non-institutional population in the UK have more or less a similar chance¹ of being selected into the sample regardless of their legal status. Since the UK LFS largely does not cover community establishments², three notable migrant demographics are unaccounted for in the sample: (1) international students living in student halls of residence, (2) asylum seekers living in accommodation centres and (3) migrants held in UK detention facilities.

We combine information on UK LFS respondents' citizenship, benefit claims and length of stay in the UK to operationalize 5 thresholds that differentiate employed denizens from employed migrants.

The assumptions behind each threshold are as follows:

- 1) There are no denizens.
- 2) European Economic Area (EEA) and Swiss nationals are categorized as denizens.
- 3) Foreign nationals who
 - a. receive public funds in the UK and/or
 - b. are EEA and Swiss nationalsare categorized as denizens.
- 4) Foreign nationals who
 - a. have resided in the UK for more than 20 years and/or
 - b. receive public funds in the UK and/or
 - c. are EEA and Swiss nationals

¹ Selection probabilities differ across the four sampling frames. Additionally, certain sample design choices (e.g., only a single household interviewed for a multiple household address) thwart an equal probability approach per sampling frame (Elliott and Zong, 2019).

² Exceptionally, the LFS does cover individuals living in the UK's National Health Service (NHS) accommodation and students in halls of residence who have a UK resident parent (Office of National Statistics, 2018).

- are categorized as denizens.
- 5) Foreign nationals who
 - a. have resided in the UK for more than 10 years and/or
 - b. receive public funds in the UK and/or
 - c. are EEA and Swiss nationalsare categorized as denizens.

To produce the minimum estimate, we identify four profiles of migrant labour informality retrievable from the UK LFS in either direct or combinatory fashion:

- Non-denizen migrants who are unpaid family workers
- Non-denizen migrants who work unpaid overtime hours
- Non-denizen migrant employees and apprentices paid below the national minimum wage
- Post-secondary non-denizen migrant students who work >20 hours a week during term time

As for Turkey, we employ the Turkish Household Labor Force Survey (HLFS) microdata from 2018. The Turkish HLFS samples the non-institutional resident population in Turkey on a quarterly basis (Turkish Statistical Institute, 2021). It uses the Address Based Population Registration System (ABPRS) as its sampling frame. This is a database maintained by the Ministry of Interior that records the registered addresses of Turkish citizens and foreign nationals with residence permits of at least 6 months (Adres Kayıt Sistemi Yönetmeliği, 2006). Crucially, the *registered* addresses of around 3.5 million Syrians under temporary protection (SuTP) in Turkey—by far the biggest foreign national population in the country (IOM, 2019)—are kept in a separate database and are not sampled by the HLFS. Combined with the exclusion of institutional populations (e.g., migrants detained in removal centres), foreign nationals with residence permits of less than 6 months and those without residence from the ABPRS, the HLFS likely under-samples both the regular and irregular migrant population in Turkey. Nevertheless, Syrian internal migration in the country between 2013 and 2018 has meant that a significant number of SuTP households' records became outdated following their registration (Tümen, 2023). At least a portion of these households' new addresses were instead captured in the ABPRS and therefore the HLFS sampling frame.

Our method uses this address registry discrepancy to amend for the survey's sampling shortcomings. We follow the methodological approach set out by Pinedo-Caro (2020) to differentiate Syrian versus non-Syrian foreign-born respondents in the Turkish HLFS. Then, we combine this information with existing variables specifying native-born status, marriage to a native-born and year of arrival to Turkey to operationalize 5 thresholds that differentiate employed denizens from employed migrants:

- 1) There are no denizens.
- 2) The foreign-born members of non-Syrian foreign national households with at least one married native-born member are categorized as denizens.
- 3) The foreign-born members of both non-Syrian and Syrian foreign national households with at least one married native-born member are categorized as denizens.
- 4) The foreign-born members of both non-Syrian and Syrian foreign national households that

- a. have at least one married native-born member and/or
 - b. include at least one foreign-born member from specific migration waves³
- are categorized as denizens.
- 5) The foreign-born members of all non-Syrian foreign national households are categorized as denizens. The foreign-born members of Syrian national households that
- a. have at least one married native-born member and/or
 - b. include at least one foreign-born member from specific migration waves
- are categorized as denizens.

To produce the minimum estimate, we identify four profiles of migrant labour informality retrievable from the Turkish HLFS in either direct or combinatory fashion:

- Non-denizen migrants who are unpaid family workers
- Non-denizen migrant workers who are not registered with the Social Security Institution (SSI)
- Non-denizen migrant employees who work full-time but earn below the monthly minimum salary
- Non-denizen migrant undergraduate students who work full-time

³ The following years of arrival to Turkey are indicative of likely denizenship in our exercise: 1952, 1989, 1992-1995 and 1999.

4. RESULTS

Table 1 reports estimations of the number of irregular migrant workers in the UK in 2015 and 2019. Rather than the informality profiles, it is primarily the various denizenship thresholds that modulate these estimates and consequently produce the narrow ranges under thresholds 4 and 5. For instance, under threshold 5, the number of irregular migrant workers in the UK in 2015 ranged from 18,000 to 47,000, while under threshold 1 this range increases to 853,000 to 3.2 million. Since the only direct measure of economic informality in the UK LFS is the unpaid family worker categorization and no other variable pertains to informal employment relations, the exercise is not able to produce more precise estimate ranges for thresholds 1 through 3.

Table 1: Irregular migrant worker population estimate ranges for the UK, 2015 and 2019

Year	Threshold	Minimum Estimate	Maximum Estimate
2015	1	853,000	3,199,000
	2	293,000	983,000
	3	219,000	761,000
	4	20,000	55,000
	5	18,000	47,000
2019	1	1,006,000	3,732,000
	2	347,000	1,110,000
	3	279,000	904,000
	4	19,000	69,000
	5	17,000	57,000

Table 2 reports estimations of the number of irregular migrant workers in Turkey in 2018. Our procedure estimates that there were at minimum between 725,843 and 922,553 irregular migrant workers in Turkey in 2018. In comparison to the UK LFS, the availability of a variable that directly proxies a prominent dimension of labor informality in the Turkish HLFS—namely, the SSI registration variable—generates narrower estimate ranges across all five denizenship thresholds.

Table 2: Irregular migrant worker population estimate ranges for Turkey, 2018

Threshold	Minimum Estimate	Maximum Estimate
1	922,553	1,281,009
2	860,008	1,083,136
3	832,702	1,035,089
4	802,728	944,090
5	725,843	791,271

4.1 COMPARISON WITH REFERENCE ESTIMATES

To our knowledge, there are no independent estimates of irregular migrant worker populations in the UK and Turkey for the calendar years under study. We are also unaware of any generalizable methodology that generates estimates for this specific demographic.⁴ To assess the external validity of our methodological exercise, we instead focus on comparing figures on related demographic groups and sub-groups.

Starting with recent estimates for the UK, Connor and Passel (2019) use the residual method to estimate that, in 2017, there were between 688,000 to 1 million unauthorized immigrants aged 18 and above in the UK.⁵ For the same calendar year, Jolly et al. (2020) also employ the residual method and measure the size of the undocumented (i.e., irregular) migrant population aged 18 and above in the UK as 459,241.⁶

Our methodology does not estimate the irregular migrant population size in a country. Furthermore, there are incompatibilities that arise out of differences in dataset sampling frames and the definitions we employ when assigning irregular migrant status in our exercise. These issues of incomparability notwithstanding, the two studies exclude EEA and Swiss citizens when calculating the size of the irregular migrant population in the UK, a definitional approach that closely resembles the 2nd denizenship threshold for the UK case study. Thus, estimates of the greater irregular migrant population, albeit differentially defined in these sources, provide an upper-bound against which to compare our minimum estimates. Under the 2nd denizenship threshold, we find that there were at least 300,000 (in 2015) to 350,000 (in 2019) irregular migrant workers aged 16 and above in the UK. In comparison, and assuming an employment rate of 51%⁷, the estimates provided by Connor and Passel (2019) suggest an irregular migrant working population of between 350,000 and 510,000. Applying

⁴ Schneider (2007; 2002, as cited in Kraller, Reichel and Hollomey, 2008) provides estimates on the number of foreigners working in the informal economy in Austria in the 2000s based on hours worked/full-time equivalents (FTEs). However, there are no specifics on this methodology so that it may be replicated.

⁵ Authors' calculations based on the population estimates and age distribution statistics reported in Connor and Passel (2019).

⁶ Authors' calculation based on the population estimates by age group reported in Jolly et al. (2020).

⁷ This is the employment rate observed for working-age asylum migrants in the UK (Kone et al., 2019).

the same employment rate to the figure from Jolly et al. (2020) yields 234,000. Our minimum estimates are therefore within reasonable range of reference estimates.

As for Turkey, Pinedo-Caro (2020) reports that there were 734,899 Syrian informal workers aged 15 and above in 2017. Even though his estimate differentiates by country of origin as opposed to residence status, it furnishes a lower-bound comparative metric for our minimum estimate under the 1st denizenship threshold. Our exercise identifies 922,553 irregular migrant workers in Turkey for 2018 when we count all foreign-born individuals as migrants irrespective of their country of origin and residence status. In line with the proportional breakdown of residence status categories within the foreign national population in Turkey in 2018 (IOM, 2019), our estimate is greater than that of Pinedo-Caro, but not drastically so.

5. DISCUSSION

This paper addresses a conceptual and methodological gap in the literature regarding the measurement of irregular migrant workers' participation in labour markets. It introduces a conceptual framework that defines and explores the intersection of migrant irregularity and economic informality. We build a methodological approach based on this conceptual primer. We use labour force survey microdata from the UK and Turkey to illustrate our estimation strategy. For each case study, we pin down varying and contextual definitions that narrow in on migrants as distinct from both nationals and denizens, a step that in turn informs the identification of irregular migrant workers within the broader migrant population. We then explore different individual informality and formality profiles detectable in the microdata to produce an estimate range of the number of irregular migrant workers in a given calendar year and country. We assess the plausibility of our estimates by comparing our figures to external independent measurements of related populations.

ADVANTAGES

Our approach is straightforward, flexible and scalable by design. It can be applied to most surveys with supply-side information on the labour force, including labour force surveys, censuses and living conditions surveys, all of which are traditional and relatively standardized data sources available in many countries. It is accessible for the use of researchers from a variety of disciplines and methodological backgrounds.

LIMITATIONS

The performance of our method is constrained by the underlying microdata that it draws on. Survey samples may suffer from self-selection bias. Irregular migrants tend to have lower participation rates in surveys than regular migrants due to concerns over visibility to state authorities. They may also have accommodation arrangements that leave them out of the sampling frame altogether, such as newly arrived working tourists who stay in hotels. These factors hamper our method's ability to provide a full accounting of the scope and distribution of irregular migrant worker profiles identifiable in survey data.

Beyond sampling limitations, informational blind spots in survey design limit our estimation strategy's ability to accurately and proportionately capture all irregular migrant worker profiles in a given national economy. For instance, the UK LFS microdata lack reliable indicators of informal self-employment because most direct and indirect proxy variables on informal economic activity are filtered on respondents categorized as employees. In a similar manner, since household surveys tend to collect employment-related information for individuals aged 16 and above only, any estimation exercise using the emergent microdata

likely underestimates (informal) child labour. We are also not able to directly obtain information on foreign national survey respondents' unique legal status and the conditions of stay attached therein as concerns pertaining to confidentiality, response bias and non-response rate may limit the operationalization of a legal status/right to residence variable. Supply-side surveys do not report on firm characteristics either, which precludes us from distinguishing migrant economic informality that arises out of employing firms' registration status versus other sources.

RELIABILITY

The reliability of our approach depends on the consistency of a given survey over a period. Drastic changes in the questionnaire, classification schemes and the sampling procedure of a survey may render year-on-year estimates incomparable. Extraordinary events (e.g., the COVID-19 pandemic) may also alter survey response rates in a way that renders any analysis generated from the data circumspect. However, traditional survey data tends to be one of the more consistent sources of microdata available.

SCALABILITY

The approach is scalable to any country with a high-quality labour force survey using sampling frames which include – at least in theory - informal workers. The shortcomings of the method will differ from setting to setting; therefore, expertise in the specific legal and socio-economic characteristics of a national context and the informational blind spots of a particular dataset is needed to appropriately account for them.

Estimation assumptions

In terms of measuring both migrant irregularity and economic informality in microdata, a case-by-case approach responsive to local laws, norms and practices is necessary. For instance, the differentiation of denizens from other migrants requires contextual, legal and often historical expertise in the migration landscape of a given country. Similarly, a variable that might directly proxy economic informality in one context might not have as much explanatory power in another one. An example is a verbal/written contract variable found in several economic or living conditions surveys. The variable's ability to proxy labour informality is undermined in many European countries where verbal employment contracts are legally binding if not widely practiced (e.g., UK). Conversely, the variable coding for respondents' registration status with the SSI in Turkey is an indicator of labour informality appropriate to the economy in question. Our method intentionally accommodates these setting-specific variations to remain scalable.

While the method does require a multitude of context-specific assumptions (e.g., the definition of a denizen), it nevertheless lays them out in a transparent manner. It generates several estimate ranges to allow adopters of the method to flexibly choose among them according to the migrant population definition that they would like to reference. The estimation strategy's reliance on assumptions, therefore, is intentional and necessary for its scalability to a wide spectrum of economies.

ETHICS

The ethical connotations of our methodology pertain to the second-order effects of any estimation exercise measuring migrant irregularity and/or economic informality. Data collection procedures are not a direct concern since we use survey microdata that has already been collected, anonymized and under institutional quality control checks. However, since we are focusing on a vulnerable population, namely irregular migrant workers, any attempt at measuring the size of this population may consequently bring unwanted attention and render them more visible to authorities. While this is a risk, the estimation exercise simultaneously quantifies irregular migrants' previously hidden economic contributions.

This paper is intended as a starting point for researchers to adapt our approach to their national setting. The method offers a framework for quantifying the participation of migrants in host labour markets in a holistic manner. Even in countries where labour and/or firm informality levels are low; migrants are likely to be overrepresented in the informal labour force and their economic contributions therein consequently not acknowledged in national statistics.

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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

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