Between guesstimates and estimates? A case study of unregistered and irregular populations in Belgium and Brussels[1]

Johan Surkyn, Pieter-Paul Verhaeghe, Sylvie Gadeyne

Introduction

Of all demographic events, migration is particularly challenging to measure, model and forecast. The lack of a standardized definition and clearcut criteria for what constitutes migration is a major factor contributing to this difficulty. Although, capturing regular migration patterns is already challenging, the job is even more elusive with respect ot irregular migration.

Irregular migration has received much attention from society and policy makers. The people under scrutiny are often referred to as 'irregular migrants', 'unregistered citizens' and even 'illegal migrants'. Although there is no university terminology or definition, irregular migrants are usually considered as the people who are not legally entitled to reside in a country (Vollmer 2011) and – if detected – may be subject to an expulsion order (Vogel & Jandl 2008). Given their legally unregistered position, it is hard to obtain accurate figures about the size and composition of irregular migrants. The UN OHCHR (2014) and ILO (2015) estimate that at the end of the 2010s, migrants made up 3.5% of the world's population (281 million in absolute figures) of which 15 to 20% would be migrants in an unregistered situation, comprising approximatively 1% of the total world population (30–40 million individuals worldwide) (UN OHCHR 2014; ILO 2015). Numbers vary considerably by continent, with Europe having relatively low numbers. Vogel and colleagues (2011) estimated that there were between 1.9 and 3.8 million irregular migrants in Europe in 2008; more recent estimates suggest similar figures (Spencer 2020). . The EU-funded Clandestino-project on irregular migration (2007-2009) found existing estimations of irregular migrant stocks and flows in the European Union to be inaccurate, outdated and often lacking scientific rigor regarding transparent documentation, validity and reliability (European Commission, 2009).

Obtaining more precise and reliable estimates is, however, an urgent necessity. Unregistered migrants are human beings who have the right to and are in need of public services such as schooling, health services and housing. Moreover, if we want to go against the prejudices and misinformation circulating in media and in people's minds, we need to invest efforts into estimating the number of unregistered migrants as correctly and objectively as possible.

To obtain a more accurate picture of the unregistered population and advance measurement techniques of this population, we will develop in this paper a new estimation tool based on mortality statistics. Our primary objective is to assess the feasibility and accuracy of this tool, which we term 'mortality extrapolation', in measuring unregistered and irregular migrant stocks. To achieve this, we will investigate

the availability of suitable mortality data, examine model assumptions concerning mortality rates among unregistered migrants, and evaluate the reliability, consistency, and depth of outcomes. While we will utilize Belgian data for our analysis, we anticipate that this method can be adapted to many, if not most, EU countries. Before going into detail, it is important to first get some conceptualisations straight.

2. Concepts and definitions

We depart from traditional notions of irregular migrants but adopt a broader perspective, encompassing what we term '*unregistered* individuals'". This expanded definition follows from the mortality extrapolation method (see below) and includes various categories of people such as tourists, temporary visitors, transient individuals, visa holders, diplomats enjoying authorized unregistered stays, and EU citizens who have yet to register. Essentially, it comprises anyone *not officially registered* as part of the country's official population but physically present within country's borders, regardless of their duration of stay or residential status. In contrast to traditional concepts, our operationalization is much broader, as it includes also occasional visitors and travellers, and t encompasses all mobile EU and non-EU citizens, irrespective of whether they would typically be considered as migrants. Following Kraler (2023), we term this expanded population 'internationally mobile citizens' or 'unregistered citizens'.

While this initial population definition is broad, our analyses will further refine it to align with narrower concepts and definitions of irregularity. By examining the nationality of individuals, we gain insight into the types of travel documents required for temporary or permanent settlement and their validity periods. This information, combined with other data sources such as tourism statistics, visa issuances, and asylum requests, allows us to estimate the proportion of the unregistered population in regular or irregular situations. 'Registration' and 'regularity' are thus two different concepts in this paper.

Moreover, the boundary between officially registered and non-registered population is thin and gradual. Registration as a citizen in the national register is the final step in a sometimes-laborious process involving numerous documented milestones, such as school enrolment of children, acquisition of 'bis status' in the social security database, use of health care services and contact with social welfare services, expired or refused asylum applications, prior residence based on visas or other documents. In reality, therefore, unregistered persons are rarely really undocumented.

3. Existing methods

While administrative databases and current scientific estimation methods hold promise for generating reliable figures to estimate specific 'hidden' populations, as evidenced by several compelling case studies, achieving comprehensive coverage of *all* unregistered persons faces significant challenges due to fragmentation in sources, methods and population demarcations in existing research. Additionally, the diverse recording practices of movements and undocumented migrants on their territory further complicate efforts Consequently, the current knowledge on the unregistered population is fragmented and lacks comparability, both among different subpopulations and over time.

Estimating the non-registered population: a new method

Our study introduces an innovative method to estimate the unregistered population, employing a demographic method of indirect estimation based on death certificates, which are completed for every person who dies on Belgian territory, regardless of their residential status. Our method comprises two steps. The initial step involves mortality extrapolation, providing population stocks by age, gender and nationality of origin, without yet distinguishing between regular and irregular status. The second step involves a more detailed refinement, in which the irregular fraction of the unregistered population is differentiated from the regular status fraction.

First step: Mortality extrapolation

Our approach involves an extrapolation model, where the number of people in a population is derived from a given number of deaths. The extrapolation or multiplier factor is determined as the inverse of the mortality rate. For instance, if the yearly mortality rate is 1/10,000, then the extrapolation factor is 10,000, since one death corresponds to 10,000 people alive. Therefore, the fundamental principle of our method is that if both the number of deaths and the mortality rates in any population are known, population size (mid-interval) can be computed by dividing the number of deaths by the mortality rate. As a consequence, to estimate the number of unregistered persons, we need data on the i) number of deaths in the unregistered population groups and ii) their mortality rates. The method begins by isolating deaths of unregistered persons that occur within the Belgian borders. This is done by linking a dataset of all deaths occurring within national borders to the full population register, which contains records of all people who were alive and registered at the start of the year. Deaths of registered citizens will systematically produce a match with entries in the population register. Unlinked deaths, for which no match is found between both sources, are consequently attributed to unregistered individuals. Second, we need to find appropriate mortality rates for the non-registered population. This process is more complex and involves assumptions, given that mortality rates in the unregistered population cannot empirically be determined. It boils down to asking which registered immigrant populations are suitable donors for the mortality profiles of the unregistered population. The quest starts with the observation that many immigrants have initially spent some time in Belgium prior to becoming a full citizen. We hypothesize that the mortality patterns of regular immigrants with shorter durations of stay are the best proxy for the mortality profile in unregistered migrants from the same country of origin. The vast body of research on migrant mortality provides sufficient elements to justify this hypothesis. In short, our argument is that there is a certain temporal proximity between unregistered individuals and recently registered immigrants, and another proximity in terms of migration trajectories when country of origin is taken into consideration. Under this working hypothesis, life tables of recent registered immigrants, with male and female age-specific mortality rates, can be utilized for constructing age and gender-specific extrapolation factors for populations of different regional origins. Actual calculations are then straightforward: once extrapolation factors are applied to numbers of unlinked deaths, and numbers added up, population estimates are produced for

Second step: determining the regularity status

If we aim to further differentiate this population based on regular and irregular status, our next step involves identifying the irregular status population by estimating regular status

visitors and then subtracting these from the previously estimated total non-registered population. These regular status categories encompass tourists from both EU and non-EU countries, holders of short and long-term visas, asylum applicants presently undergoing procedures, and diplomatic personnel, which, notably in Belgium and especially in Brussels, constitutes a substantial demographic group. Most of those data are publicly available, some as official statistics (e.g. asylum statistics, EU-personnel), some as estimates (e.g. tourists). For certain groups of visitors, in order to produce population estimates, duration of stay needs to be accounted for: tourism statistics are given in terms of nights spent in Belgian hotels (365 hotel nights = 1 person-year), C-type "short stay" Schengen visa valid for 3 months (4 C-type visas = 1 person-year), and D-type "long stay" visa valid for longer stays, usually for 6 up to 12 months (9 months validity gives 1,33 D-type visa = 1 person-year). All these data are aggregated first and then subtracted from the unregistered population totals to produce irregular population estimates.

Results

The total unregistered population counted around 590.000 people just after the millennium change (1998-2006), dropped to about 533.000 people five years later (2007-2011) and dropped further to 489.000 people 10 years later (2012-2016). In the same period, Belgium's official population grew from 10,2 to 11,3 million due to immigration. The decline was mainly concentrated in the youngest age groups; above the age of 20, numbers decreased by about 10.000 only. Caution is advised when interpreting outcomes in age groups below 20 however due to the rarity of deaths in this age range, resulting in a narrow basis for extrapolation. Nevertheless, the large population size compensates for that factor, and statistical stability is expressed in a very smooth age distribution in all periods. Throughout the observation period, the unregistered population experienced a shift towards being more male-dominated and older. The estimated average age increased from 28 years to 33 years. This reflects a process of double ageing: at both ends of the age distribution ageing effects are noticeable. Numbers of children and young adults decrease, while older age groups increase in size. Notably, the unregistered population aged 40 and above saw growth rates exceeding 30%.

Out of approximately 490,000 mobile foreigners in Belgium around 2016, an estimated 329,000 were not in a regular status. The majority of these, around 217,000, were mobile EU citizens, primarily from neighbouring countries, while the remaining 112,000 were non-EU irregular migrants lacking diplomatic status, visas, or ongoing asylum procedures.