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New methods to estimate migration

The new concept for the measuring of emigration statistics in Israel

Note by the Israel Central Bureau of Statistics Demography Sector, Israel *

Abstract

Background

In the last twenty years there has been a change in the composition and characteristics of international migration. In the era of globalization, it is much easier to maintain family and social connections and therefore a more flexible definition of the term "emigrant" is needed. In current emigration statistics at ICBS, there is no concept of "short-term emigrant" and the definition of "long-term emigrant" is inflexible and does not allow for discontinuous stay (e.g. on-holiday visits). The current methodology for calculating emigration flows is unable to cope with more flexible definitions, producing more frequent data than once a year, and does not allow for the creation of a quality emigrant stock that will meet the requirements of Israel's National Statistics system.

Objective

This paper will describe: the new concept for the measuring of emigration statistics, the goals and the outputs of the new method, based on mentoring all the movement of Israeli people at the border and allow integrating the data with other administrative sources.

* Prepared by Ms. Marina Sheps

Methods

 Israelis who cross the border are registered in the Border Control System (BCS) and their records are also updated in the Israeli Population Register (IPR). Despite the fact that the border control system does not collecting data of the purpose of Israelis traveling abroad, the date of departure, the date of entry and linkage of the border crossing to the IPR is a good framework for the flows of emigration, based on the cumulative length of stay abroad.

2008 census provided stock of emigrants and Israelis that considered as "*not in population*". The flows of emigrants will be link to the stock to determine whether or not an emigrant belongs to population.

The new concept will enable the calculation of migration flows based on flexible definitions, will enable the production of flows on a monthly and quarterly basis, will produce short- and long-term statuses of migrants, will enable the production annual stock of Israelis abroad, circular migration statistics, follow-up of emigrants and their visits patterns in Israel. In addition, linking emigrant records (flows and annual stocks) to other administrative databases that include socio-economic data will enable longitudinal studies of these characteristics of emigrants, combined with their demographic characteristics

I.   Introduction

1.   Every person crossing Israel's borders is carefully recorded in the computerized Border Control System. Israelis crossing the border are recorded in the Border Control System and, at the same time, their record is also updated in the Israeli Population Register. Although the Border Control System does not provide information about the purpose of travel by Israelis abroad, recording of the departure and arrival dates and linking of the migration movements to the Population Register constitutes a good frame of reference for calculating emigration flows from Israel. Knowing the departure and arrival dates of Israelis enables calculation of the length of their stay abroad as well as the length of their stay in Israel after a long time stay abroad.

2.   These calculations enable computation of the emigration flows as recommended by the UN. In practice this means that Israeli citizens who are resident abroad but have visited Israel in a given year are counted as departing and entering Israelis. In order to estimate emigration and return migration special annual data files are prepared with a segment of the history border movements of all persons who were abroad continuously for over 90 days.

3.   Operationally emigrants are defined as persons who departed Israel in a given year and were abroad continuously for 365 days. They are defined as "usually resident" in Israel if before departure they resided in Israel continuously for 90 days. Similarly, a returning resident is defined as one who was abroad continuously for 365 days and, after returning, remained in Israel for 90 days continuously.

A. Challenges of estimates

4.   Despite the good record keeping system, several problems distort emigration flow estimates: An Israeli resident is not required to declare the purpose of a trip (e.g., emigrating, touring, temporary work) when leaving the country. There is no obligation to declare that one is leaving Israel for the purpose of settling in another country. Furthermore, often residents do not know when leaving Israel whether they will return to live there. Often, the emigrants continue to maintain ties to Israel: they visit Israel often and sometimes even still own an apartment there. They have dual ties, to both Israel and to the destination country. In addition, in cases in which the emigrants visit Israel often, it is difficult to determine whether their "centre of life" is in the country of origin or the destination country. Also, more than a small number of Israeli residents depart abroad and return to Israel after a prolonged stay abroad.

II.   Current methodology

5.   The calculation of emigration estimations is based on the balance between those who have been defined as emigrants and those emigrants returning to the country after staying abroad more than a year. The emigration balance estimates are used in population estimation with delay of two years

B. Calculation of flows

6.   The estimates are calculated in accordance with the definitions; Departing Israelis – Israelis who stayed abroad continuously for 365 days or longer, and had stayed in Israel for at least 90 consecutive days before their departure; and returning Israelis – Israelis who stayed abroad continuously for 365 days or longer before entering Israel, and who had stayed in Israel for at least 90 consecutive days after their return. The criterion of at least 365 consecutive days spent abroad was based on the recommendations of the UN recommendations made in 1976 for defining permanent (de jure) population, which includes Israeli citizens as well as permanent residents without Israeli citizenship (including those who had been out of the country less than 365 consecutive days).

7.   A stay in Israel of at least 90 consecutive days (prior to departure or after return) served as the criterion for distinguishing between the new departures and returns during that year and Israelis residing abroad who return to Israel for a mere visit. The system for constructing the estimates of departing and returning Israelis accumulates all movements of Israelis at the border during a calendar year (from 1 January to 31 December each year).

8.   In the second stage, the system calculates the length of stay abroad for departing Israelis, as well as the length of their stay in Israel before their departure. Concurrently, the same operations are conducted for the records of returning Israelis.

9.   Two annual files are produced through this system (one for departing Israelis, and one for returning Israelis), each containing data on Israeli residents that fit the definitions formulated. Based on the criteria in the definitions, it can be determined with a high degree of certainty that the population consists of residents who do not reside in Israel, that Israel was not the centre of their lives, and that they were not part of the permanent (de jure) population of the country during the determinant

period. As a result, it can be assumed that this was the population that emigrated from Israel during that period.

1.   Factors that affect the estimates:

10.   Use of a foreign passport at the time of the departure or return can lead to underreporting of departures or returns. As of 2008, the new border control system does not allow persons with an Israeli passport to leave or enter Israel using a foreign passport. The computerized border control system has been in existence since the 1980s.Therefore, information on previous years may be lacking. For Israelis residing abroad who visit the country and stay for less than 90 consecutive days, there is no way of determining exactly where their centre of life is.

2.   Types of records that are not included in the estimate of departing Israelis:

11.   Israelis whose centre of life is abroad, but come to Israel regularly for brief visits, so that they do not stay abroad continuously for a year or more. Israelis departing and returning on a foreign passport: Sometimes the system cannot identify them as Israelis. Therefore their departures and arrivals are not recorded. Israelis who departed from the country on a foreign passport in the 1970s or earlier: For these records there is no information on their departure date in the border control system. Israelis whose departure for a prolonged stay abroad took place less than 90 days after their last return to Israel (e.g., persons who departed for a week-long tour abroad, returned to Israel, and moved abroad immediately afterwards). Israelis who divide their residence between Israel and another country, and travel back and forth several times during one calendar year.

3.   Types of records that are not included in the estimate of returning Israelis:

12.   Israelis whose centre of life is in Israel, but who did not stay in the country for 90consecutive days after they returned. Israelis departing and returning on a foreign passport. Sometimes the system cannot identify them as Israelis. Therefore, their departures and arrivals are not recorded. Israelis who divide their residence between Israel and another country, and   travel back and forth several times during one calendar year.

III.   New concept

13.   In the last twenty years there has been a change in the composition and characteristics of international migration. In the era of globalization, it is much easier to maintain family and social connections and therefore a more flexible definition of the term "emigrant" is needed. In current emigration statistics at ICBS, there is no concept of "short-term emigrant" and the definition of "long-term emigrant" is inflexible and does not allow for discontinuous stay (e.g. on-holiday visits). The current methodology for calculating emigration flows is unable to cope with more flexible definitions, producing more frequent data than once a year, and does not

allow for the creation of a quality emigrant stock that will meet the requirements of Israel's National Statistics system

14.   In 2008, the integrated population census was conducted in Israel (Kamen, 2005), and was based on the use of data from administrative sources and data from field work. The final framework of the census population was determined after an Improved Administrative File (IAF) was created by combining information from the Population Register with additional administrative sources of information.

15.   The records in the IAF are divided into three groups: active records, records of deceased persons, and *not in population* records. The *not in population* stock includes records with the status registered as "ceased to be a resident" and "Israeli abroad", who were classified according to this criterion: At the end of 2008 the person had departed from Israel's borders for the course of one year (12 months), with the possibility of visiting Israel for no more than 90 days (three months).

16.   The *not in population* stock mentioned above for the end of 2008 is the basis for the development of a new concept for defining Israelis staying abroad, based on the construction of various models and their investigation in the field of demography (Shifris, 2012).

17.   Nine different models of the definition of Israelis abroad were examined and investigated, as presented in Table 1.

Table 1. Alternatives for defining emigrants			
Number of consecutive days abroad as the initial criterion to be considered a departing or returning emigrant	Number of days of cumulative stay abroad or in Israel (including consecutive days) in the first year from the departure or entry date as the initial criterion to be considered a departing or returning emigrant		
	275 days	305 days	335 days
90 days	Alternative 1	Alternative 2	Alternative 3
60 days	Alternative 4	Alternative 5	Alternative 6
30 days	Alternative 7	Alternative 8	Alternative 9

The starting point of all the alternatives is the *not in population* stock and a stock of active records from the Census 2008 (ICF 2008) The *not in population* group for 2009 includes the stock for 2008 with the addition of departing emigrants that were determined for 2009 and the subtraction of the returning emigrants (including deceased persons) determined for 2009. The stock for the end of 2009 will serve as a basis for the calculation of the stock for the end of 2010, and so on. A departing emigrant cannot be included in the *not in population* stock for the previous year, and on the other hand, a returning emigrant must be included in it. The alternatives show symmetry in the definition of a departing emigrant and returning emigrant in accordance to the recommendations. The significance of symmetry is that the initial criterion for tracking a departing emigrant is the same as that of a returning emigrant. The criterion for calculating the ratio between the number of days in Israel versus the number of days abroad in the first year is also the same (see Table 1).

18.   In addition, all the alternatives present an initial criterion that defines a potential departing or returning emigrant and present a criterion for a final

determination of a new departing or returning emigrant. For example, a departing emigrant in Alternative 1 is a person who was not included in the last *not in population* stock (end of the previous year), and in at least one period during the last year he stayed abroad consecutively at least 90 out of 365 days of cumulative stay. In a parallel way, a returning emigrant in Alternative 1 is a person who was included in the last *not in population* stock and in at least one period during the last year he stayed in Israel consecutively at least 90 out of 365 days of cumulative stay.

C. Calculation of flows and the stocks of emigrants by alternatives

19.   As mentioned above, the starting point was the *not in population* stock and the active records found in the ICF 2008. To calculate the *not in population* stock for 2009, it is necessary to calculate the flow of emigrants that departed in 2008 (in 2009 it was determined that they were emigrants), and the flow of emigrants that returned in 2008. Hence the stock at the end of 2009 is equal to the stock at the end of 2008 with the addition of the departing emigrants and the subtraction of the returning emigrants.

$$\text{EmStock}_{t+1} = \text{EmStock}_t + \text{EmIn}_{t+1} - \text{EmOut}_{t+1}$$

In order to be considered a departing emigrant, the person must be in the active population stock in the ICF and cannot be in the *not in population* stock (since he would already be considered an emigrant of the previous year and according to the process he cannot be a new emigrant). Alternatively, in order to be considered a returning emigrant the person must be in the *not in population* stock of the previous year, otherwise he already exists in the active population and there is no need to return him to it. The first alternative was chosen as the recommended one, and a new *not in population* stock is currently being built.

D. System goals

20.   The goals include preparation of a component of departing emigrants and of returning ones, according to the new definitions, while allowing for future flexibility in the definitions of the population studied (number of days abroad or in Israel) and flexibility in the timeframe of the component (monthly or annually). The components should accumulate in a multi-year format.

4. Work methods

21.   Each record of an Israeli ID holder obtained from the Border Control System (Rothem) of the Population and Immigration Authority receives an emigration status according to the instructions and definitions of the system. Emigration status will be given to all records of a departure from Israel and to all entries into Israel – full coverage of Israeli movements at the border.

22.   All the records will be linked to the Population Registry and other sources of information. The system will provide population components of "departing emigrants" and "returning emigrants," according to the definitions of the system, for population estimates and population movements, at the end of each calendar year. System users will be able to retrieve records of each of the calculated emigration

statuses, as monthly files or annual files. The system will maintain and update annually the stock of Israelis abroad. The stock will include all the records that were determined to be for Israelis staying abroad at the time of preparation of the estimate (while removing records of residents for whom it was determined that they have returned to live in Israel during the year of processing) and will serve as a starting point for preparing the monthly and annual files in the next year of processing. The annual data will be stored in a multi-year database. In addition to the new definitions, the system will produce data for two completely new populations in Israel's official statistics.

5. New definitions of emigration

23. <u>Emigrant departing:</u> An Israeli who stayed 275 cumulative days abroad in the past year, of which at least the first 90 days were consecutive (a total of approximately 9 months) and is not in the stock of Israelis abroad in the previous year of processing.

<u>Emigrant departing for short-term emigration</u>: An Israeli who stayed abroad for a period exceeding 3 months (consecutive), but less than 9 months cumulative in a period of 365 days from the date of departure.

<u>Emigrant departing for long-term emigration</u>: An Israeli who stayed abroad at least 9 cumulative months during a year, of which at least three months were consecutive, in a period of 365 days from the date of departure.

<u>Returning emigrant</u>: An Israeli who returns to settle in Israel after a cumulative stay of 9 months or more in the past year, of which at least the first 3 months were consecutive.

<u>Emigrant returning from short-term emigration:</u> After staying abroad for a period exceeding 3 months (consecutive), but less than 9 months (cumulative) in a period of 365 days from the date of departure.

<u>Emigrant returning from long-term emigration:</u> Stayed abroad for at least 9 cumulative months during a year, of which at least three months were consecutive in a period of 365 days since the date of departure.

<u>Stock of Israelis abroad</u>: Updated with the addition of three components and the subtraction of three others:

The additions:

   i. Emigrants who departed for a long-term emigration according to the system definition for $t + 1$

   ii. Records with status "ceased to be a resident" (include children of Israeli citizens born abroad) for year $t + 1$

   iii. Records from other administrative files – addition to year $t + 1$

The subtractions:

   i. Emigrants who according to the system definition returned from a long-term emigration in year $t + 1$

   ii. Deaths reported in Population Registry in year $t + 1$

iii. Records of persons who have reached 120 in year t + 1

6. Estimation of mortality in the *Not in population* stock

24. The presentation of official data from the *not in population* stock must consider unreported mortality. A large proportion of those classified as *not in population* are people who died abroad and whose death has not been reported, as evidenced by the large representation of emigrants among the elderly. The percentage of those aged 80 in the emigration stock is about 13.8 compared with 2.6 in the population (ICBS, 2006).

25. The problem of mortality cannot be solved at the individual level. There must be an estimate of the mortality rates of the Israeli population. Therefore, official data cannot be published on the *not in population* stock before the number of deaths by age and gender is estimated. This, of course, does not prevent the use of the stock for research purposes and the ongoing work of the CBS.

IV. Summary

26. The method currently used in the field of demography does not implement international recommendations in calculating the length of stay abroad. Recent UN recommendations (since 1998) suggest considering short visits to Israel. The current method is not symmetrical in calculating the duration of stay abroad of departing emigrants (one consecutive year abroad is required) in contrast with the stay in Israel of returning emigrants (only three consecutive months in Israel are required).

27. The new concept has two main requirements. The first is a preliminary database of statistics of emigrants, which is the *not in population* stock of the Census 2008. The stock should be improved using statistical methods and with the help of subject knowledge of what is included in the database.

28. The second requirement is to manage the methodological tool reliably, qualitatively and validly according to the definitions determined. The new concept should produce new statistics on the movement of departing emigrants, the movement of returning emigrants, and the stock of Israelis staying abroad. In addition, the methodological tool should enable flexibility in the number of days the person stayed in Israel or abroad, as well as flexibility in the timeframe of the estimates (once a year, once a month). The tool should assist other units in the CBS that need these data and integrate with the interface of external administrative files.

29. One of the important products of the new system is a database that enables an investigation of the emigrants' demographic and socio-economic characteristics. It is important to remember that not all the records included in the *not in population* stock pertain to Israelis abroad. In fact, this stock includes records of emigrants from before the 1980's (when a computerized border control system was installed), who died abroad and were not updated in the Population Register. Despite the limitations, this basis will allow for a number of actions that could not be done in the previous methodology. For example, the calculation of flows of circular, multi-time and short-term emigration, characterization of populations whose lives are divided between two or more countries, and the characterization of those coming for many relatively short visits to Israel.

V.   Bibliography

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