Attempts on Measurement and Visualisation of International Circular Migration

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Abstract

This paper provides empirical evidence relevant to the long-term international circular migrants admitted into Hungary. The principal aim of this research is to quantify the occurrence of circulation within international migration with the help of administrative macro-data. We measure the spatial patterns associated with international circular migrants. First, we define the concept of circulation within the conceptual framework of transnationalism. Second, we create macro-scale data set on long-term international circular migrants based on an original statistical method. Third, we seek to gain further insight into the extent of international circular immigrants by country of citizenship.

Keywords: international migration, international circular migration, statistical measurement, spatial pattern, visualisation, Hungary

1. Introduction

The concept of the usual place of residence (Gini 1954) is one of the basic elements of the definition of international migration adopted by the United Nations (Bilsborrow et al. 1997; Poulain 2006). According to this concept, migration is a single (non-recurring) event that happens rarely during an individual’s life. A long-term international migrant was generally a lifetime settler and perhaps never returned to his or her motherland. However, migratory movements have been developing as a type of recurring event. Multiple displacements from one home to another have become increasingly frequent during the epoch of globalisation. We argued that circulation, as a part of international migration, should be viewed as interlinked processes rather than a single event. The transnational dimension of migration is increasing. Certain international migrants become circular migrants. They devoted their time and activity to both their country of origin and their destination country (Brickell and Datta 2011; Jeffery and Murison 2011; McLoughlin et al. 2011; Cassarino 2013; Casado-Díaz et al. 2014).
Based on the traditional statistical view, migration is a single, i.e., non-repeating event. Long-term migration is considered an exceptional event within the individual life cycle. The steps of the process are strictly separated from each other. From the demographic point of view, circulation consists of repeatable events, and the analysis of its parity (the number of times that a given individual migrates to a country, or in other words the serial number) is a problem that can be solved through biographical data sets, life course analysis and event history analysis (Henry 1976; Fischer and Malmberg 2001; Beguy et al. 2010; Fargues 2011). Multiple moves of individuals often show particular systematic features. Even the simplest migration system consists of at least two elements. Return migration, typical of this pattern, inevitably includes the preceding migration (King and Christou 2011; Kovács et al. 2013; Lang and Nadler 2014). If the migrant explores more than one new country, we have a case of serial migration (Ossman 2004). Moreover, the multiple moves of individuals interconnect two or more geographical locations (see Figure 1).

The paper illustrates with examples that the spatial visualisation based on numerical information (Lentz 2007; Tóth et al. 2014) provides a further tool for in-depth analysis of international circular migration.

2. Concept and Definitions

A single immigration may mean a migration (from the country of origin to the host country), a return migration (from the host country back to the country of origin) or a repeated migration (from the host country to a third country). In our view, circulation contains two or more instances of immigration to the same country. By analogy to the distinction stated by the European Commission (European Commission 2011, 21), we may identify two different perspectives on non-nationals as viewed from the destination country. We might differentiate between non-national circulators residing in the country of origin (inwards circulation) and non-national circulars settled in the host country (outwards circulation). From a methodological point of view, the analytical value of these two perspectives is completely equivalent. For practical reasons, we decided to utilise the inwards perspective in our Hungarian research. In cases involving two immigrations of the same person to the same host country, we can identify four different cases (host-origin-host; host-third-host; host-third-origin-host; host-origin-third-host) from the point of view of the host country (see Figure 1). The next logical step can then be taken by considering analogous cases involving three immigrations. The occurrences of three instances of immigration by the same person to the same host country comprise 16 potential spatial cases. In a general sense, \( n \) (where \( n = 1, 2, 3 \ldots \)) immigrations may occur as \( 2^{2(n-1)} \) different cases from the perspective of the host country.
Students of transnationalism claim that multiple affiliations are inherent in recent world conditions (Portes and DeWind 2004; Walton-Roberts 2004; Lévai 2006; Papademetriou 2006; Amelina and Vasilache 2014; Hárs 2014). One of the distinguishing features of transnational migrants was that their status transcended the exclusive relationship between the territory of the nation-state and its population (Tóth 2011). Several phenomena involving multiplicity accompanied the more frequent recurring spatial movements in the era of globalisation. These phenomena included multiple residence (McHugh 1995; Klinthäll 2006), multiple citizenship (Bloemraad 2004), multiple property ownership (Hall and Müller 2004), multiple employment and multi-occupationality (Kaufmann 2004; Lundborg, 2010), multiple social and political activities (Waldinger 2008), multiple identity (Tannenbaum 2007; Tamaki 2011), multiple knowledge (Williams and Baláž 2008), multiple loyalty (Waldinger 2008; Sirkeci 2009; Tamaki, 2011) and multiple partnerships (family, friendly, marital) (Hondagneu-Sotelo and Avila 1997; Hagan 2008). We are aware that this list was not complete. We could extend this row. However, we only cited those newly emerging multiple phenomena that might exhibit a close relationship with circulation as a migratory...
The general working definition of circulation is as follows: *circulation is a type of spatial mobility system containing at least three interlinked and individual return moves* (Illés and Kincses 2009). We intentionally use the broadest concepts applicable to human movements, such as “spatial mobility system” and “move”, to allow a more workable conceptualisation of the notion of circulation with additional connotations of tourism, commuting and migration (Hall 2005). The concept usually involves return and repetition. For the specific purpose of this research, we create a particular definition. The exact working definition of international circular migration is as follows: *international circular migration is a type of spatial migratory system including at least three interlinked and return individual migrations among the countries involved* (Illés and Kincses 2012). According to this definition, international circular migration constitutes multiple return moves within the same spatial system.

Due to few circular movements are documented quantitatively, data gathering is essential (Newland 2008; Fargues 2008; Taylor and Bell 2012; Hugo 2013). The present study aims to enrich our knowledge of circulation within an international migration context. Because we focus on Hungary as a receiving country, we concentrate on inwards circulation. Naturally, Hungary is an individual case and may represent an exception. Nevertheless, its statistical system allows us to create a unique macro-level database on long-term international circular migrants.

### 3. Data and Methods

Clearly, given the macro scope of this research (Sanderson 2010), not all dimensions of circulation can be investigated (Bailey 2010; Williams et al. 2011; Skeldon 2012; Beauchemin 2014). We studied the immigrants for the years 2006, 2007 and 2008 and determined the number of individuals who registered since 2001. Immigrants registered twice, three times, four times and more constitute the long-term international circular migrants, the topic of this paper.

The primary database consists of individual data files on legal immigrants each year between 2001 and 2008. According to the official statistical definition, the term ‘immigrant’ means a foreign citizen who entered Hungary in a given year and obtained a permanent residence or settlement permit for one year or more than one year. This definition is consistent with the recommendation of the United Nations on the gathering of international migration data (Haug 2002; Fassmann 2009). The documented legal status guarantees free movements and appears to encourage border crossing. These data are obtained from the Office of Immigration and Nationality. We utilise data on the flow of immigrants because net migration
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figures conceal multiple movements, *e.g.*, circulation. The researchers had access to the primary database on international immigrants to Hungary. Individual immigrants were identifiable in this database. The individual data files include the immigrant’s surname, given name, sex, date of birth, place of birth, marital status, citizenship, and the address of the immigrant’s usual place of residence in Hungary.

We established an original method for the creation of a secondary database on international circular immigrants in Hungary as our group of interest. In this method, we compared one of the three years under investigation with the previous years, starting with 2001 (for example, 2006 with 2001-2005, 2007 with 2001-2006 and 2008 with 2001-2007). We created a special computer programme as a multi-level identification system to sign of the same individual over different time periods. On the first level of disaggregation, we associated natural persons with the same surname, given name(s), sex, date of birth, and place of birth. This procedure was an essential step towards the identification of circular immigrants. The first results were extracted from the original data set. The subject of the next stage of the analysis was the residuum data file. On the second level, we connected the natural persons remaining with the same surname and given name(s) without any special characters in the letters, sex, date of birth, or place of birth. This stage is necessary due to the large variety of languages and due to the mistakes in spelling made by the officers who recorded the information with or without any documents that could be consulted. On the third level, we abbreviated the family name to the first five letters without any special characters. We did not include the given name(s). This information was combined with the information on sex, date of birth, and place of birth. In the next stages, we did not use the names, but we included any other variables. In practice, we did not find the same persons after the seventh or eighth levels of comparison of the residuum data sets. Overall, we obtained an exceptional secondary database. In this database, natural persons returning different numbers of times to Hungary were recognised as long-term international circular migrants.

We mentioned above that this procedure covers a three-year interval. We chose to investigate flow data from 2006 through 2008. This choice was made because the results (numbers, patterns, structures) for separate years differed markedly year by year. This solution helped to decrease the distortion produced by the highly changeable character of year-to-year international circular migration (Triandafyllidou 2013).

4. Demographic Composition

Between 2006 and 2008, 77,521 foreign immigrants entered Hungary. Of these immigrants, 10,907 have already stayed in Hungary as immigrants. This result indicates that more than 14 per cent of all of
these immigrants were long-term circulators (multiple returnees) with previous personal experience of Hungary (this percentage could be even higher, but we only had access to data for the years since 2001). In contrast, Constant and Zimmermann (2011) utilised German data to explore the extent of international circular migration within the guestworker population. They used the first 14 waves of the German Socio-Economic Panel data from 1984 to 1997 and found that 62 per cent of all individuals in the sample were repeat or circular migrants. The large difference between the two findings could be explained by the different types of data, the length of the study periods and the populations investigated. Moreover, Germany has traditionally been a country to which immigration occurred over the past half century, but the history of immigration to Hungary began in the late 1980’s. We can confidently anticipate that the Hungarian proportion of circulators is growing in the near future, but it is impossible to estimate the eventual peak level. Unfortunately, the circular guestworker subpopulation was not separated by parity (numbers of exits) in the study of the German data, in contrast to the Hungarian case. We also found that of the 10,907 long-term international circulators (who were registered as immigrants more than once), 75.9 per cent entered the country for the second time, 21.6 per cent for the third time, and 2.5 per cent arrived for the fourth time since 2001. The decrease in these values was in agreement with previous expectations of the authors.

Table 1: International immigrants and international circular immigrants by gender in Hungary from 2006 to 2008, (%).

<table>
<thead>
<tr>
<th>Year</th>
<th>All immigrant</th>
<th>Circular immigrant</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Male Female Together</td>
<td>Male Female Together</td>
</tr>
<tr>
<td>2006</td>
<td>55.2 44.8 100.0</td>
<td>54.2 45.8 100.0</td>
</tr>
<tr>
<td>2007</td>
<td>56.4 43.6 100.0</td>
<td>55.0 45.0 100.0</td>
</tr>
<tr>
<td>2008</td>
<td>59.0 41.0 100.0</td>
<td>56.8 43.2 100.0</td>
</tr>
<tr>
<td>Total</td>
<td>57.3 42.7 100.0</td>
<td>55.4 44.6 100.0</td>
</tr>
</tbody>
</table>

As Table 1 shows, 57.3 per cent of the total number of immigrants was men, 42.7 per cent women. Among the circular migrants, 55.4 per cent were men, 44.6 per cent women. Surprisingly, the gender composition of the circulators in Hungary was similar to that of the German circulators (52.3% and 47.7%, respectively) (Constant and Zimmermann 2011, 504). We can conclude that a slight male surplus exists among the circular migrants. However, the probability that an international migrant woman becomes a circular migrant is higher than the corresponding value for a man for all the years investigated in Hungary.
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This finding may contradict the cultural truism that often opposes mobile masculinity to localised femininity. From a gender perspective (Kovács and Melegh 2007; Stalford 2009), the higher female probability of becoming a circular migrant would represent one of the symptoms of the feminisation process (Oso and Calarino 2013) within international migration and would indicate a weakening of the supremacy of economic motives.

Age is an additional aspect of the demographic analysis. The investigation of the age composition of the subjects indicates that children (aged 0-4), secondary or tertiary school students (aged 15-24) and elderly people (aged 55 and up) were less frequent among the circular immigrants than people at an economically active age. The percentage of primary school students (aged 5-14) is equal among circular immigrants and all immigrants. The most frequent age group of circular migrants is 25-54. This thirty-year age group was dominant (51.7 per cent). More than one-third of all circular migrants (35.0 per cent) were aged 25-39. The group aged 40-54 represents 16.7 per cent of the circular migrants.

The average age of circulators will therefore rise according to parity. In addition, the average age of female international circular migrants is younger, according to parity, than their male counterparts. It is highly probable that the women began their immigration careers to Hungary earlier than the men. A comparison with the German data shows that the average age of circulators in Hungary (32.3 years) was approximately equal to the average age of the circular guestworkers (32.9 years) (Constant and Zimmermann 2011, 504).

Labour mobility would be the predominant source of international circular migration (Doomernik 2013; Zimmermann 2014). Many migrants are involved in one or more systems of emigration and return. In the Hungarian labour market, the circular immigrants might feel marginalised from the host society. Accordingly, they simultaneously retained links to their country of origin by sending remittances, by conducting dual entrepreneurial activities and by moving back and forth. These activities reflect a dual attachment to the source country and the receiving country (Fallov et al. 2013).

The next portion of the data analysis is the examination of demographic structure with respect to family status. Perhaps the most interesting finding is that the percentage of single people (53.6 per cent) among the circular migrants is higher than that among the non-circulators (47.4 per cent). One possible explanation is that the ‘mobile’ way of life is not typical of those who have formal partnerships, with or without children. The presence of immediate family members may reduce the probability of circulation. This hypothesis strengthens Vertovec (2007, 5) speculation on the likelihood of circular migration: “likelihood falls with marriage, … when migrants have children … they are less likely to engage in
circular migration” and Constant and Zimmermann’s (2011, 512) findings: “Those immigrants who are the most mobile and open to circular migration are the middle-aged, male, and single migrants”.

However, we cannot state that the probability of circulation is higher for the people without legal partnership than for the people with partners (Baldassar and Merla 2014). This conclusion cannot be drawn due to the lower percentage of widowed and divorced circulators. Such findings are germane to arguments associated with the erosion of the traditional concept of the family and the creation of new types of cohabitation.

5. Spatial Characteristics

The classification by citizenship shows that circulation is more typical for the citizens of the countries to the east and south direction from Hungary, such as Romania, Ukraine and Serbia. Because these migrants originated primarily from the Hungarian minorities living in these countries, their language created no real barriers (Gödri, 2010; Tóth, 2011). According to Figure 2 more than one-half of the international circular migrants originated from Romania (50.6 per cent). Citizens of Western European countries or other, more distant countries generally do not return to Hungary as circulators. The exceptions to this pattern are Germans (2.3 per cent) and Chinese (5.7 per cent) people. The inclusion of German citizens can be explained by the observation that former Hungarian emigrants and German pensioners moved back and forth between their first and second homes (Illés and Michalkó 2008). The role of Chinese international circular migrants is explained by the emerging Chinese diaspora and is associated primarily with the attraction force of capital, Budapest (Egedy 2009; Irimiás, 2012).

It is extremely probable that ethnic Hungarians fluent in their own language returned as multiple immigrants from neighbouring countries. Circulation functioned as an original solution to the dilemma of remaining in the homeland (motherland) or going to the home country (mother country) to obtain work or an education (Popov 2010). Note that the initiatives originating from above (from national and international bodies) failed due to several reasons linked to contemporary history. Circulation, as a spatial process extending upwards from the ground level, has been involved in an effective solution of the situation of Hungarian minorities in neighbouring countries since the beginning of the era of the free movement of people related to Hungary (Kocsis et al. 2006; Kincses 2015). International circular migration mediates the migrants’ multiple engagement with their home countries and their countries of destination.
Figure 2: Share of circular immigrants within all circular immigrants to Hungary by country of citizenship between 2006 and 2008 (%).

Figure 3: Share of circular immigrants within the same nationals immigrating to Hungary by country of citizenship between 2006 and 2008 (%).
Figure 3 depicts another, contrasting characteristic of the circular immigrants. In addition to the principal countries of origin, Norway, Russia and Syria contribute significant percentages of circular immigrants. The high proportion of circulars within the immigrants from Norway and Syria is consistent with the mass international immigration of third level students (Findley 2011) to Hungary (Langerné 2009). The relatively significant percentage of circular immigrants from Russia, Ukraine and Romania is in agreement with the occurrence of strengthened economic motives and the phenomenon of international retirement migration to Hungary (Illés and Kincses 2008).

6. Conclusion

The results of this research indicate that the long-term circulation (multiple immigration) of foreigners to Hungary as the host country is a mass phenomenon. Based on the unique data processing method used in this study, more than 14 per cent of all immigrants arriving in Hungary were long-term circular migrants between 2006 and 2008. They had well-founded experience with living conditions in the host country due to their previous stay as international immigrants (Rátz and Michalkó 2013). Of these registered circular immigrants, 75.9 per cent entered the country for a second time, 21.6 per cent for a third time, and 2.5 per cent for a fourth time.

Men dominate the international circular migrants, but their surplus of these migrants is smaller than their dominance of all international migrants. The tendency of internationally migrating women to become circulators is higher than the corresponding tendency for men. From a gender perspective, this empirical evidence emphasises the substantial feminisation process within the international migration to Hungary.

The most robust finding of this research is that the vast majority of circular migrants are single people (53.6 per cent). It is highly probable that a legally married status ends the circular career of individuals.

Due to the multiple selection processes, the group of international circular immigrants includes a significantly lower share of children, students and elderly people than the total subpopulation of immigrants. Most circular migrants are aged 25-54. Naturally, the age structure of circular migrants is older overall than that of non-circulators. However, in contrast to previous expectation, the average age of international circular migrants does not increase evenly by parity. Therefore, we can assume that the primary selection factors affecting these groups in the population include both the need to make money in the host country and the desire to continue their usual lifestyle in their country of origin. Circulation is most typical for single persons at productive ages from Romania, Ukraine, and Serbia. These individuals circulate primarily within well-established ethnic Hungarian networks.
We tried to embed our research results in a broader scientific context, but we have found few opportunities to perform international comparisons. The investigation of international circular immigrants on macro scale is fundamental. The definition of long-term international migration advanced by the United Nations can facilitate the use of the method presented above for the creation of secondary data on international circular migration worldwide. The emerging databases across countries may be important resources for international comparisons and may allow us to test the robustness of the findings of this case study.

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