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**ANALYSIS OF THE POST-MILLENNIUM
MIGRATION NETWORK OF THE CARPATHIAN
BASIN FROM A HUNGARIAN POINT OF VIEW**

PhD Thesis

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I. Selection of subject, objective

Over the past decades the migration role of Europe has been revalued. Nowadays, the majority of Western and Southern European states have a foreign born population of several million. The subject of international migration increasingly comes into the front in the context of the sustainability of the aging Western societies and the climate change (environmental migration).

The timeliness of Hungarian processes has many reasons. Since the regime changes of the 90s the Central European countries, as a result of economic convergence and integration, have become host areas. In the life of Hungary and the neighbouring countries this phenomenon resulted in a very new situation, because up to this time out-migration was typical. So the Hungarian research of migration, the security and utility oriented sustained analysis of the situation of a host country has no long history especially from a geographical point of view. Most of the migrants are from neighbouring countries. So the migration that affects Hungary is essential not only to better exploit advantages and to mitigate risks but to influence, as a result of its cross border effects, the territorial distribution of ethnic Hungarians in the Carpathian Basin. As a consequence of this duplicity and the deeper understanding of the characteristics of international migration it is especially important for Hungary to map and connect the sending and host areas of migration for the first time.

The strategic importance of the subject of international migration is indicated by the ongoing formulation of a common refugee and immigration policy subject to the justice and home affairs objectives of the European Union or the Schengen Agreement (first of all to eliminate internal borders and to jointly check common borders). To establish domestic objectives and common EU policies and to make them more effective, a survey on the Hungarian situation is needed, in which I am of the opinion that the geographical approach is a essential element.

II. Structure of the thesis

The thesis can be divided, considering its themes, to two main parts – a theoretical overview and an empirical analysis and, considering its structure, to five main sections (chapters):

After the introduction, the first part (Chapter 2), based on the overview of the international and domestic literature, is to determine and evaluate the general underlying reasons, effects and differentiating factors and briefly summarize post Second World War global international trends and evaluate their effects on domestic processes.

The overview of available data, in which the regional (from/to) matrices play a key role, is to start empirical analyses. Chapter 3 is to analyze the regional aspects of the international migration that affects Hungary and to show the demographic, economic and regional differences of foreign citizens staying in the post-millennium Hungary compared with earlier residents.

Chapter 4 is to analyse the sending settlements and counties of migrants staying in our country. It is to analyze how the sending and host settlements of the Hungary based migrants correlate with each other highlighting how the population of the countries in the Carpathian Basin changed between 2001 and 2008 as a result of migration to Hungary.

The next point (chapter 5) is to analyze post-millennium chronological and spatial changes in the migration connections of Hungarian host settlements in the Carpathian Basin and to explain the characteristics of their distribution.

III. Applied methods

I overviewed the related literature at each chapter. I aimed to provide the most comprehensive situation analysis as part of highlighting the trends of international migration. The analysis of the sending areas made it possible to study the migration literature of the countries of the Carpathian Basin, which may justify a change in domestic attitudes in several cases.

One of the innovations of this thesis is the level of analysis. An insight of the migration relations of Hungary, which was not available in the domestic and international literature of geography and migration, is ensured by the detailing of the sending and host areas. The thesis is based on the relevant Hungarian migration databases as of 1 January 2001 and 1 January 2008. (The database of the Hungarian Central Statistical Office based on the database of the Office of Immigration and Nationality). The required data were not directly accessible; a separate classification was needed as an integral part of compiling the thesis. During the compilation of the regional migration data matrices I faced with many problems.

The primary difficulty was, in terms of indicating the place of birth, the lack of a predetermined list for foreign citizens applying for a residence, an immigration or a resident permit. The identification of the proper classification was hampered by typing and orthographical mistakes, names of settlement and settlement parts given in other languages and different modes of indication. I faced with the next difficulty during the integration of data at the level of NUTS3, after the identification of data at the level of settlements. This level of regional classification is

available for most neighbouring countries. The exceptions are Serbia and the Ukraine. In case of Serbia I used the most probable NUTS3 subdivision, but there is no such subdivision in the Ukraine. The level of oblasts is more integrated, while that of raions is more detailed than the former. As a result of the fact that my research mainly focussed on Transcarpathia in the Ukraine I used the more detailed subdivision. I integrated a large number of socio-economic data – school attainment, age, employment, economic activity, etc. – into the geographical database.

In general the analysis of regional data was carried out with the help of cross tables and regional data matrices. During the analysis of the socio-economic characteristics of foreigners different from those of the Hungarian population and the effects of migration I calculated with different relative and partial averages, dependency and discrepancy indices. To quantify the regional concentration of the population I interpreted the statistical temperature known in the theoretical thermodynamics. I used point, interval and ratio estimates to determine how the total and the ethnic Hungarian population change in the neighbouring countries at the level of NUTS3 as a result of migration to Hungary. I used correlation and determination coefficients to quantify how the stock and flow data of the Hungary based foreigners correlate with each other, then with the help of indicators of location potential I highlighted how and in what composition the citizens of different countries use the area of our country as a potential destination to settle down. I used the results of network theory as well as made distribution analyses to analyse the Carpathian Basin-wide migration networks of Hungarian settlements.

Thematic maps were made with ArcView software and charts with Microsoft Excel to highlight the results.

IV. Results and conclusions

1. Based on the wide range of literature used to this thesis I made an attempt to contextualize the causes, processes and effects of international migration from neighbouring countries to Hungary, in which I tried to ensure a priority role for the geographical approach. As a first step I overviewed the global trends and causes of migration. I pointed out that there has been a huge change in the migration role of Europe since World War II. On the one hand, in terms of global migration, there was a significant decrease in the proportion of European migrants; Europe became a host area with more migrants than in North America. Hungary (similarly to the other countries of Central Europe), as a result of her geopolitical situation,

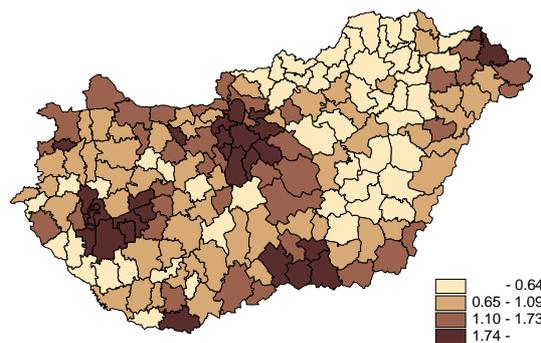
plays only a minor role in the global, transcontinental migration. Our country is a destination for the population of the Carpathian Basin that is why she is rather characterized by short-range international movements.

2. Based on analyses detailed in my thesis, in case of post-millennium movements (to Hungary) in the Carpathian Basin, I found the following main reasons:
 - a. Changes in and transformation of economic conditions and the regional structure, post regime change privatisation, unemployment, increase in regional development disparities, establishment of businesses, capital investments (economic motivations),
 - b. Out-migration (temporary or lasting) of young generations with the purpose of studying (migration with the purpose of studying, commuting),
 - c. Ethnocentric migration (contact zone),
 - d. Transit migration to Western Europe (political and economic reasons),
3. I am of the opinion that the following factors will exert an unambiguous impact on how the domestic processes of migration change in the near future:
 - a. Decrease in domestic population, aging of population (push factor)
 - b. Modifications in the migration goals of ethnic Hungarians living in neighbouring countries,
 - c. Labour demand of the domestic economy (pull factor)
4. I identified, as a main goal, the sending areas of post millennium migration to Hungary and mapped their connections with host areas highlighting the socio-economic characteristics of international migrants. To achieve this goal I made a complex “from-to” migration matrix. Previously there was no such matrix to analyse international migration. So I tried to provide such a detailed analysis – as it was possible – on the state of migration in Hungary, which was practically previously non-existent in the literature.
5. Based on the analysis of the Hungarian destination areas of migration I pointed out that the cross-border mobility has played a considerable role in how the number and, as a result of its revitalizing effects and additional human capital injection, the composition of population (taxpayers) have changed since the regime change. Moreover, it also influenced their regional distribution as a result of the clustering of foreigners. Foreign citizens play a major role in how the regional socio-economic processes change in the areas preferred by them.

The common language is a strong motivation so the integration is much simpler and in general the migration has greater advantages than in case of other countries.

6. In terms of the regional distribution of foreigners I pointed out that Budapest and Pest County account for a major part of them, while the micro-regions along the border and the surroundings of Lake Balaton for a smaller part (Figure 1). Budapest is a global destination for migrants accounting for the majority of non-European citizens. The longer the length of migration, the higher, in terms of proportion, the school attainment of migrants and the greater the possibility that the capital will be the primary destination of them. That is why metropolitan areas are primary destinations for migration showing diversity in culture and ethnic composition and providing a wide spectrum of job opportunities.

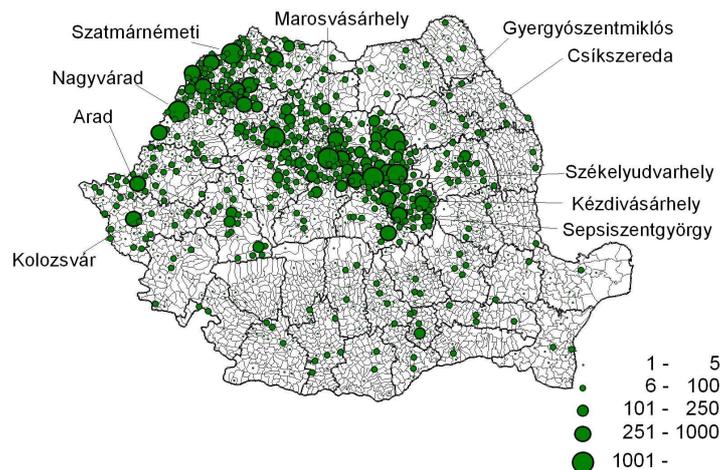
Figure 1: Proportion of foreign citizens per 100 residents by micro-region as of 1 January 2008



7. According to my results, in addition to regional differences in earnings, the location of destination areas plays a major role in how the migrants are distributed regionally. When finding a new place to live, in addition to economic core areas, neighbouring and border – in this case peripheral – areas play a major role too, i.e. the propensity to migrate has a linear relationship with economic disparities and a reverse one with length – be it topographic or cultural. According to the traditional approach of location theories border areas are disadvantaged areas. There was a change in this disadvantaged situation in the age of global market processes and regional integrations. Border regions increasingly become active contact areas. In Hungary, similarly to the migration centre of Budapest, local core areas with similar characteristics come into existence along the borders. Namely Szeged, Debrecen and Nyíregyháza. The surroundings of Lake Balaton, where there are many pensioners, are a destination for the citizens of the EU15.

8. During the analysis of sending areas of migration in the Carpathian Basin I made a short summary on the migration potential of the given country, the regional characteristics, demographic and economic effects of migration, the number and regional distribution of ethnic Hungarians, the history of the migration between the two countries highlighting ethnocentric migration, Schengen changes in border control and the issues of commuting, circular migration and refugees. During the analysis of sending areas I made maps showing the main settlements that are affected by migration in case of neighbouring countries (e.g. Figure 2), then made detailed analyses on school attainment and age structure by country. I pointed out that migrants from the border areas of neighbouring countries, against those arriving from elsewhere, prefer the border areas in the other side of the border to settle down; as well as, in terms of out-migration, there are core areas in the sending areas.

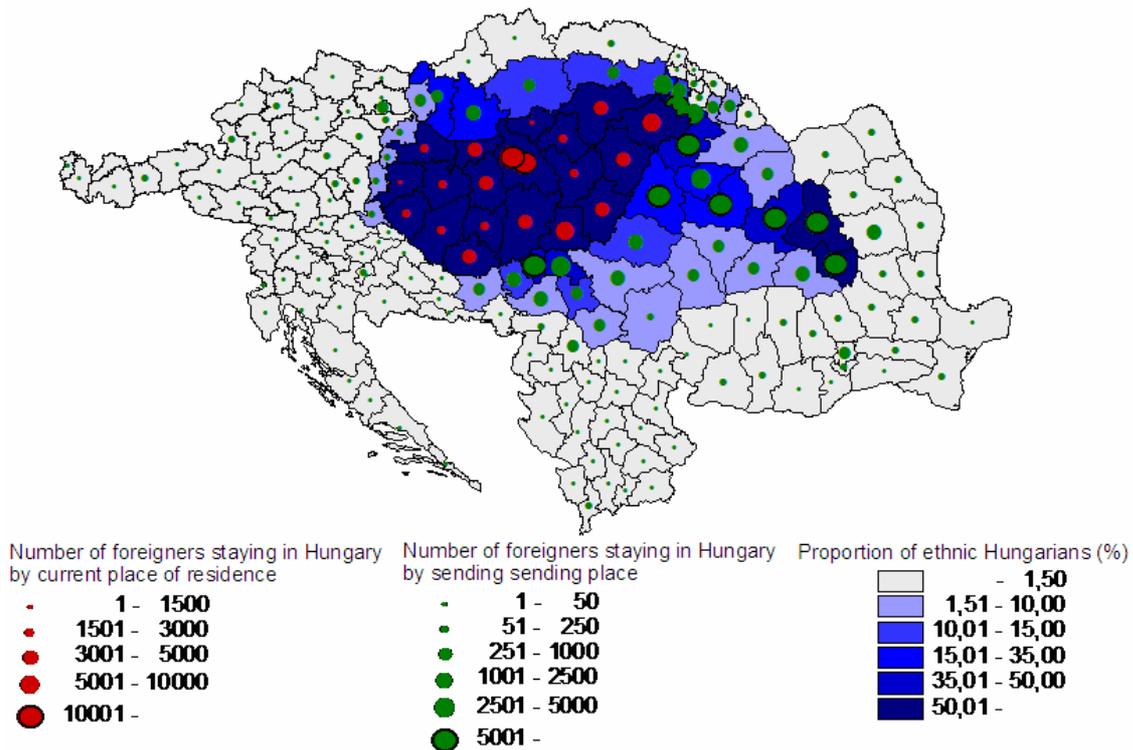
Figure 2: Romanian citizens living in Hungary by sending settlement as of 1 January 2008



9. According to the analysis of the sending areas of migration, based on data as of 1 January 2001, the most migrants, according to the NUTS3 regions, arrived from the Romanian counties of Hargita, Maros, Bihar and Kolozs to Hungary. There was a clear increase in the combined volume of migration up to 2008, in which Transylvania preserved its leading role. As a result of an increasing outflow from the counties of Kovászna and Szatmár there was an increase in the size of the significant sending areas of Romania. Districts of North-Backa and North-Banat of Vojvodina as well as the district of Beregszász converged to the outflow of Transylvania (Figure 3). So in addition to the size of the significant sending areas there was a change in their situation. It is important to underline the fact that, on average, the

outflow of higher volume from the counties of Romania not necessarily results in such a decrease in population as in the border areas of Vojvodina and Transcarpathia. I am of the opinion that as a result of out-migration, in terms of proportion, the Hungarian community of Transcarpathia decreased the most in the Carpathian Basin.

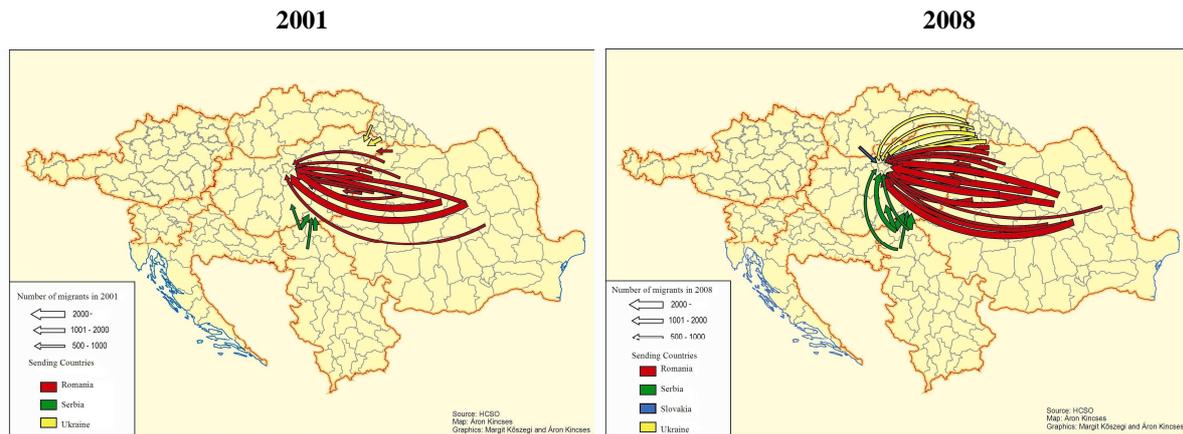
Figure 3: Migration from neighbouring countries to Hungary at the level of NUTS3 as of 1 January 2008



10. Based on the internal qualities of migration matrices I found a significant, ongoing concentration in terms of migration from 161 regions to the 19 Hungarian counties and Budapest. I pointed out that, as of 1 January 2001, Central Hungary was the most attractive for those arriving from the counties of Transylvania. The relation of Hargita-Budapest accounted for nearly 5% of the total migration from neighbouring countries to Hungary, while the relation of Maros County-Budapest for nearly 4%. Border areas had a great significance too. Bordering counties showed intensive interactions in terms of migration. The most significant relations were among North-Backa, North-Banat and Csongrád as well as between the district of Beregszász and the county of Szabolcs-Szatmár-Bereg. By 2008, the role of Budapest and Pest County increased in significance, while there was a decrease in the migration position of Hajdú-Bihar, Szabolcs-Szatmár-Bereg and to a certain extent in

that of Csongrád (Figure 4). It might be caused by the migration depletion of sending settlements along the border. I am of the opinion, the weak, but, in terms of proportion, significant increase I observed in case of those arriving from more distant areas from the border may offset this in the future.

Figure 4: Regional connections between sending and destination regions



11. In case of migration a geographical “from-to” matrix type approach enabled me to study migration networks. In my thesis, based on flow and stock data, I found that the foreigners make a conscious decision when they choosing a place to live and they prefer, with a high probability, those micro-regions where their compatriots are present in greater numbers helping them in the process of migration, job hunting and finding a place to live. So, in addition to the regional differences in earnings, the locations of host areas as well as the migrant networks play a major role in the interpretation of the regional distribution of migrants.
12. I pointed out that the migration from neighbouring countries to Hungary show a scale-free topology in terms of its Hungarian settlement connections. The topology identified in the settlement networks of migration results from the fact that the settlements with more connections are much more attractive for migrants than those with a lower scale number. There is a more “embedded” immigration in those settlements which have more connections. A larger number of migrants can be accessed through the networks of families, friends and relatives. It is more probable that the migrant will choose a more popular, more networked settlement, on which there is more information, against those, which he or she does not know.

V. Topic specific list of publications

Book, book chapter

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2. Kincses Áron (2004): Magyar állampolgárság megszerzése, 2003. KSH Budapest, p.14.
3. Kincses Áron (2005): A területfejlesztési szempontból elméletileg legkedvezőbb nyomvonal meghatározása. In: Tóth Géza (2005): Az autópályák szerepe a regionális folyamatokban. KSH Budapest, pp. 125-129.
4. Kincses Áron (2005): Magyar állampolgárság megszerzése, 2004. KSH Budapest, p.14.
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Study, article

1. Tóth Géza – Kincses Áron (2007): Elérhetőségi modellek Tér és Társadalom, vol. XXI. no. 3. pp. 51-87
2. Rédei Mária – Kincses Áron (2008): A szomszédból érkező migránsok hatása a hazai társadalmi és gazdasági különbségekre Közép-Európai Közlemények, vol. 1. no.1. pp. 7-16.
3. Illés Sándor – Kincses Áron (2008): Foreign Retired Migrants in Hungary In Hungarian Statistical Review No 12, Vol 86. pp. 88-111.
4. Éva Gárdos – Annamária Sárosi – Áron Kincses – Eleonóra Nagy-Forgács (2008): Integrated Database of International Migration Statistics with a Particular Attention to Linking Data Sources In Hungarian Statistical Review No 12, Vol 86. pp.75-87.
5. Kincses Áron (2008): Romanian citizens in Hungary, Geographical Phorum – Geographical Studies and Environment Protection, Year 7, No 7/2008, Craiova pp. 136-144.
6. Kincses Áron (2009): A Magyarországon élő külföldiek területi elhelyezkedése, 2006 Tér és Társadalom XXXIII. évf. 2009/1 pp. 119-131.
7. Kincses Áron (2009): Romanian international migrants in Hungary, Current Trends in Statistics in V6 regions, Czech Statistical Society, ISBN 978-80-904330-0-7 pp. 53-61.
8. Illés Sándor – Kincses Áron (2009): Cirkuláció és migráció Magyarország nemzetközi vándormozgalmában, Statisztikai Szemle 87. évfolyam: (7-8.szám) pp. 729-747.
9. Tóth Géza – Kincses Áron (2010): A hazánkba bevándorlók területi elhelyezkedésének vizsgálata. Tér és Társadalom XXIII. évf. 2009/4 pp. 61-82.
10. Karácsonyi Dávid–Kincses Áron (2010): Ukrán állampolgárok Magyarországon: nemzeti összetartozás és gazdasági kényszer, Területi Statisztika 2010. 13. évf. 3.sz. pp. 334-349.
11. Karácsonyi Dávid - Kincses Áron (2010): Az elvándorlás hatása a kárpátaljai magyarság helyzetére. Földrajzi közlemények 2010/1, szám (megjelenés alatt)
12. Tóth Géza- Kincses Áron (2010): Examining regional distribution of immigrants in Hungary, Migration letters, 2010/2 (megjelenés alatt)
13. Kincses Áron - Takács Zoltán (2010): Szerb állampolgárok Magyarországon, Területi Statisztika 2010.13. évf. 2.sz. pp. 182-197.
14. Kincses Áron (2010): Román állampolgárok Magyarországon, Közép-Európai Közlemények 2010/2. szám 3. évfolyam/2. szám No 9. (megjelenés alatt)

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16. Tóth Géza – Kincses Áron (2010): Regional Distribution of Immigrants in Hungary, Hungarian Geographical Bulletin 2010/2 (megjelenés alatt)

Conference performance

- 1) Romanian citizens in Hungary. „Current trends in statistics in V6 region”, Czech Statistical Society, Prága, 2008. szeptember 5-6.
- 2) A Magyarországon élő külföldi állampolgárok gazdasági hatása az ezredforduló után, Magyar Regionális Tudományi Társaság, 2008. december 11-12, Gödöllő
- 3) Migration Situation Between Hungary and Ukraine (with Dr. Dávid Karácsonyi). „Migration Challenges to the Visegrad Countries from Eastern Europe”, Visegrad workshop on migration and security, Budapest, ZMNE, 2009. október 19.
- 4) Globális migráció és magyar hatása. "Paradigmaváltás a 21. század statisztikájában?" Magyar Statisztikai Társaság és a Központi Statisztikai Hivatal közös konferenciájára, Budapest, 2010. január 29.
- 5) Kárpát-medencei migrációs forrásterületek vizsgálata magyar nézőpontból, 2001-2008; Magyar Földrajzi Társaság, Budapest, 2010. május 6.
- 6) Cirkuláris migráció Magyarországon (with Dr. Sándor Illés). A KSH Népeségtudományi Kutató Intézet és a Magyar Statisztikai Társaság közös konferenciája, Budapest, 2010. május 17.