Scientific report – Synthesis

of project activities undertaken between October 2015 and September 2017

Between October 2015 and September 2017, the research grant 'Rhythms and patterns. The quantitative dimension of family life in Transylvania (1850 – 1918)' (PN-II-TU-TE-2014-4-2208) has registered significant progress, in accordance with the activities and objectives proposed in the initial implementation contract. Through these activities and by disseminating their findings, the project team members have made important contributions to the broader research field of historical demography. Moreover, possibilities to establish future international co-operations have been identified, in order to allow further transnational analyses of historical demographic data, as well as the maintenance of the lines of enquiry within the state-of-the-art research focusing on East-Central and South-Eastern Europe. Part of the activities focusing on data tidying and preparation for analysis, which had commenced in 2016, were also continued during the final 9 months of project implementation. On the other hand, new activities were undertaken, in order to enable the team to conduct more sophisticated statistical analyses, in line with the state-of-the-art approaches in historical demography. Finally, new research directions were identified and pursued. These will contribute to the increasingly precise contextualization of demographic findings, and help clarify the effects of regional-level factors on demographic phenomena as well as on individual behaviors.

A. Checking data through sampling, data tidying and integrating inferences

The activity focusing on data checking and tidying through sampling was already begun in the first months of project implementation (3-4), and was continued throughout the year 2017 (months 16 – 24). This activity is essential in ensuring the quality of data to be used afterwards as a basis for statistical analyses, and represents and integral part of any broad project focusing on demographic information. Its absence can lead to major errors in findings, both in the analysis of cross-sectional data, as well as in the examination of individual behaviors, regarded from a longitudinal perspective. Between January 2017 and September 2017 this activity has focused on those micro-regions included in the Historical Population Database of Transylvania that served as object for the preliminary analyses undertaken in 2016. These micro-regions – the town of Ocna-Mureș and its adjacent area, as well as the settlements located on the Gurghiu Valley – were selected precisely in order to ensure the quality of the statistical results obtained during the preliminary studies done in 2016. The data quality was checked to ensure that the preliminary studies could be extended into articles, to be submitted for publication in major journals in the field. Each record from the communities in question was verified, checking for conformity with the original historical source from which it had been transcribed. During this process of data tidying another task carried out was the addition of inferred information to the standardized version of the data, on the basis of a well-defined protocol. For instance, last names were added to children registered in the birth records, on the basis of fathers' names. This process then facilitated the linkage of individual-level data, which operated on two main fields: baptismal and last names.

B. Data standardization

Data standardization began during the 3ʳᵈ and 4ᵗʰ months of project implementation, and was pursued further for the entire length of the project. Following the data tidying and verification, the nominative information was standardized for certain micro-areas that would undergo further analysis. This step is also an indispensable one in the process preparing data for longitudinal analyses. Certain procedures to facilitate data analysis for the information extracted from modern Transylvanian communities, generally multi-confessional and multi-ethnical. For instance, in order to have an overview of all of the vital events in which a certain individual made his or her appearance, fulfilling various roles (father, mother, godfather/godmother, husband/wife, etc.), it was necessary to reach a unitary form of baptismal and last names. One of the difficulties encountered was the fact that, within a mixed denominational community, such as Ocna-Mureș between 1850 and 1918, the same individual could make his appearance both in the parish records kept by his confessional community, and thus be registered in Romanian, in the case of Greek-Catholic records – and as a participant to certain vital events registered within other denominations' parishes. Thus, a hypothetical individual – Ioan Arieșeanu – could figure as János Arányosi in the parish records of the Calvinist (Reformed) community in the settlement. The standardization process took into account these historical realities, and, in order to preserve those events wherein the language of recording nominal data was different, it was decided to standardize these data in a bilingual form. Despite the fact that this process thusly becomes increasingly time-consuming, this is the only means by which a complete overview of all events wherein an individual participated can be achieved. This is one of the main conditions for conducting statistical analyses specific to longitudinal individual-level data.

C. Exporting and restructuring datasets from the demographic database

A third step in the process of data preparation consisted in the exporting and restructuring of data, according to the analytical necessities and priorities. This activity also commenced in 2016. Data restructuring involves harmonizing with the IDS standards (Intermediate Data Structure), the state-of-the-art model in the field of historical population databases, which will then allow the integration of Transylvanian data with information extracted from population databases from Sweden, the Netherlands, etc. The IDS format (in which every event receives a timestamp) allows the comparative analyses of aggregated individual data, which have undergone a linkage process. This activity was undertaken continuously throughout the project implementation period, and has ensured the visibility and operativity of HPDT data at an European level. Towards the end of 2016, one project member – PhD Student 2 – attended a workshop organized by the International Institute for Social History in Amsterdam, where several practical sessions were dedicated to the newest extraction and analysis software for IDS data were discussed. During the final 9 months of project implementation, this activity was further refined. Thus, it was possible to conduct several regression analyses focusing on the godparenthood networks established within the town of Ocna-Mureș, as well as on the variables that influenced age at first marriage in a wide area in Transylvania. During the final months of project implementation, data restructuring that will allow more advanced analyses – such as event history or sequence analysis – was also begun, in an exploratory manner. These

types of analyses require that the datasets are no longer focused on individual events, but rather on the sequences of transitions from one state or one role to another – from unmarried to married, from mother to mother-in-law, etc. – in one individual's life.

D. Analysis of birth and baptismal data

The first activity that involved analysis was focused on birth data, extracted from baptismal records presently included in the HPDT. In 2016, the analysis traced aspects such as the frequency of births in various micro-areas, the seasonality of births, the sex ratio, parents' occupation, medical assistance at birth, and vaccination. Moreover, in 2017, a qualitative analysis concerning the data extracted from the baptismal registers of the communities that had already undergone data tidying was also undertaken. One of the senior project members – CS II Daniela Mârza – examined the issue of the frequent repetition of certain baptismal names within the same family, corelating this phenomenon with the infant mortality experienced by the same group. She concluded that certain names bore symbolic capital within a kin group, and were thus necessarily reiterated for several generations and even within a single sibling group of similar ages, and thus functioned as identity markers. This research also revealed a phenomenon that will be analyzed in-depth in the following period, namely the practice of assigning newborns baptismal names that had already been employed for deceased or gravely-ill siblings.

E. Analysis of marriage data

The analysis of marriage data was begun in 2016 (months 13 – 16). In the final 9 months of project implementation this analysis was further refined, and focused especially on the effects of variables that influenced ages at first marriage within an extremely broad sample of events in Transylvania (3009), which occurred between 1850 and 1918. The sample underwent a statistical reconceptualization, and three potential models of behavior were postulated, according to the degree of development reached by the settlements from which these vital events (first marriages, wherein neither of the partners had ever been wedded) were sampled. Compared to the results yielded by the initial bi-variate analysis, the three regression models revealed statistically significant differences in the strength of the effects of certain factors upon individual behaviors. For instance, denominational adherence or social-professional status did not impact ages at first marriages to the same degree in all three regions, but rather depended on the level of development. The research thus revealed not only the existence of a spectrum of marital patterns within modern Transylvania, but also that this spectrum depended on intermediary-level factors, which left a stronger imprint on the possibilities and constraints faced by marriageable persons than individual-level variables (migration background, confessional adherence, social-professional status, etc.). Moreover, the analysis revealed that the same intermediary-level factors (i.e. the resilience of industrial establishments in the area, etc.) acted in a different way upon ages at first marriage of men and women. This model of analysis opened the possibility to classify micro-areas included in the HPDT in a different way, which reflects to a greater degree the social-economic realities that influenced individuals' lives, as well as the opportunities and constraints they faced when taking the decision to marry.

F. Analyzing death and burial data

The analysis of death and burial data, which was undertaken both in 2016 and 2017, offered new information regarding the has offered new information regarding the frequency of deaths by areas, the seasonality of deaths, causes of death, age at death, etc. We have primarily focused on the factors which led to the drop in infant mortality in the latter half of the 19th century and the beginning of the 20th century in Transylvania, and were thus able to frame this regional-level phenomenon in the supra-regional tendencies of the demographic transition. This activity materialized in a study concentrating on the seasonality of mortality in various micro-areas in Transylvania, published by Ph.D. student 1 (Georgiana Izabela Coroian) in the *Romanian Journal of Population Studies*. It also occasioned the organisation of a panel by the project leader, CS I Dr. Luminița Dumănescu, during the prestigious international European Social Science History Conference, which took place in Valencia in late March – early April of 2016.

Moreover, in 2017, the PhD Student 1 (Georgiana Izabela Coroian) also undertook the online training module offered by the World Health Organization for the application of international death-cause classification ICD-10 and then made use of this instrument to classify the causes of death listed in the parish records of five parishes in Transylvania (included in the HPDT).

G. Family reconstitution through sampling

Parallel to the linkage process, the project team also undertook family reconstitution through sampling, by correlating the data in the baptismal registers with information from marriage and burial records. This process of reconstitution – still widely employed by historical demographers in Europe – contributed to the contextualization and integration of the results obtained through linkage, offering a micro-level perspective on vital events examined at the level of an entire community. As has been noted at step D., CS II Dr. Daniela Mârza undertook family reconstitution of an extensive sample extracted from the micro-area of Ocna-Mureș, in order to reveal the ways in which kinship ties determined parents' onomastic choices for their offspring.

H. Linkage

The process of linking individual-level data was begun in 2016 and continued throughout 2017 (months 9 – 24). It focused primarily on the town of Ocna-Mureș. The linkage begun with reconstituting by means of an automatic algorithm (the so-called Jaro Winkler string comparison) the parent couples recorded in the baptismal registers. Because this type of vital event is one of the most often occurring ones within communities who had not yet experienced the demographic transition and subsequently did not employ innovative fertility-curbing behaviors, it offered the best avenue to identify couples of individuals, occurring with a high frequency. Both male and female individuals received intermediary ids (IDI), according to the guidelines established by the authority in the field of historical demography, namely the EHPS-Net. The repeated appearance of two individuals in the roles of mother and father led to the conclusion that it was highly likely that the tie between them was also a marital one. These individuals/couples were then identified in the marriage records from the same community. When the linkage algorithm found a score of over 0.9 in the comparison of strings (first and last names) between the names of individuals in parent couples and those of individuals who

appeared as brides and grooms, the couples as established at marriage received the same couple id as their matching parent couples.

    I.   Longitudinal analysis: life course history

After exporting and restructuring the datasets from the source-database, and undertaking the linkage process detailed in the previous section (H), one of the most advanced statistical methods employed for the analysis of longitudinal individual-level data was used: event-history analysis. The focal point of the analysis was the timing of godparenthood events among married couples in Ocna-Mureș, between 1870 and 1918, couples which had been identified during the previous activity.

It was thus noted that certain couples, who only figured as parents in the community, had migrated to the settlement after having married in another area, but still at a relatively young age (before the completion of women's fertility careers). Moreover, those couples who appeared only in marriage records and did not figure as parents owed this fact either to an advanced age, or to the fact that they had temporarily out-migrated from the area, and thus exited the observed sample.

A third step was the identification of godparent couples where the tie between individuals was a marital one. The dataset of godparent couples was included in the linkage process, which focused on identifying the same individuals, within the same couple structures, within the framework of marriage (as groom and bride) and baptismal registers (as father and mother). Thus, several categories of couples could be observed: those who married, had children, and actively participated in the establishment of a spiritual kinship within the community; those who, although stemming from and having married in a different settlement, had children and served as godparents in the community; those who only appeared as godparents in the community, but repeatedly, suggesting the fact that they had in-migrated to the area after marriage, and had not experienced births within the time-frame under focus (1870 – 1900). Thus, the analysis could reconstitute (automatically) the entire fertility career of a wide sample of women, from the first to the last birth event, as well as the way in which the sequence of events and roles in a couple's life depended on individual-level characteristics, such as the husband's social-professional status. Following this analysis, it was noted that, generally, a couple appeared on average 2.5 times as godparents before appearing as parents within the registers of the same community.

    J.   Exploring new research directions

At the same time, new research directions were explored or continued from the previous years. Seeing as a variety of potential analysis models are available for longitudinal individual-level data, we attempted to reveal the underlying aspects of the phenomenon of godparenthood by applying social network analysis. Following the linkage process, the godparenthood 'careers' of various couples in Ocna-Mureș between 1870 and 1900 were analyzed in-depth. The analysis revealed both that the propensity of certain actors – couples – to be selected as godparents depended not so much on individual-level characteristics (denomination adherence of social-professional status), but rather on the social-occupational make-up of the area. In other words, there was a tendency to select those individuals with a higher social status than one's own (from the parents' perspective), but this tendency was not as clear-cut as any of the

models theorized for the Central and South-East European area: horizontal godparenthood, in which relatives of the same status served as godparents; vertical godparenthood, which reproduced patronage relationships, as the godparents had a significantly higher social status than a newborn's parents. Moreover, the analysis revealed that the relevant factors with a statistically-significant impact on a couple's propensity to serve as godparents were event attributes, in other words specific to the godparenthood tie itself, and not individual attributes. Thus, the relational perspective proves to be more useful to study this type of spiritual kinship, and has the potential to open an avenue of interdisciplinary research that will allow a more formalized dialogue with other fields of research.

A second direction of research was opened by the second PhD student, who was allowed a certain thematic 'freedom of movement', which was regarded as necessary for stimulating the accumulation and transferal of new theoretical notions and best research practices. Thus, seeing as demographic behaviors in urban and rural areas in modern and early modern Transylvania depended to a great extent to factors related to the transmission of wealth – the second PhD student's research topic – it was deemed useful to finance a research mobility abroad for this team member. Thus, the second PhD student (Oana Sorescu-Iudean) undertook a research mobility stage in May-June 2017 at the Institut für Ost und Südosteuropa Studien, located in Regensburg. This institution benefits from one of the richest collections of works in social history and historical demography focused on Central and South-Eastern Europe. Following this research stage, the second PhD student in the team could submit a study for publication in an international academic journal (published in Romania), indexed in the ERIH+ journal database. This study clarified some basic notions underlying the cultural and ethnical specificities of wealth transmission in the seat of Sibiu during the late eighteenth century, thus aiding in the further contextualization of various demographic behaviors.

K. Dissemination

The dissemination activity begun in 2016 was also continued in 2017. While in 2016, the team members attended 5 international conferences in Europe and the USA (ESSHC Valencia, ESHD Leuven, EAUH Helsinki, InASEA Sofia, and SSHA Chicago) and 2 two international conferences in Romania (Lumen Iași, CNIR Cluj), in 2017 the team activity focused on submitting studies for publication in highly visible international journals and on organizing a workshop.

K.1. Organizing an international workshop

The most visible and effective way of disseminating research findings was undoubtedly the organization of an international two-day workshop by the team members on August 25th – 26th 2017, hosted by the Center for Population Studies. The workshop, entitled *Family, Kinship, and Historical Data: An International Workshop on Recent Developments in East-Central and Southeast Europe,* was attended by 13 specialists in historical demography and family history from Germany (Halle), Austria (Graz), Serbia (Belgrade), Slovenia (Ljubljana), Hungary (Budapest and Pécs), Poland (Wroclaw), as well as from Bucharest and Cluj-Napoca. The discussions focused both on the results of the present project, as well as on the potential of new social historical databases under development at various academic centers in East-Central and

South-Eastern Europe to shed light on matters common to the area. Moreover, several concepts and good practices were discussed, while several common issues specific to this geographical area were emphasized. This workshop's program can be found on the website of the [Center for Population Studies](#), and was attached as an annex to this report.

K.2. Publications

Several articles were submitted for review or published in 2017 by the team members.

1. Elena-Crinela Holom, Oana Sorescu-Iudean, Mihaela Hărăguș. "Dismantling the 'non-European' line. An analysis of age at first marriage in Transylvania (1850-1914)", 54 p., în etapa a doua de peer-review la *The History of the Family*, periodic indexat Current Contents/Social & Behavioral Sciences; Journal Citation Reports - Social Sciences Edition; Scopus; Social Sciences Citation Index, cu factor de impact 0.471 pentru 2016.
2. Oana Sorescu-Iudean, „The permeability of borders: drafting Romanian last wills in the seat of Sibiu during the eighteenth century", în peer-review la *Banatica,* periodic indexat EBSCO, ERIH+, IndexCopernicus.
3. Daniela Mârza, „Patterns in family relationships in 19th Century Transylvania (data from Historical Population Database of Transylvania)", Transylvanian Review, vol. XXVI, no 4, 2017 (în curs de publicare).

In 2016, a further three studies were published by the 1ˢᵗ PhD student (Georgiana Izabela Coroian) and by CS II. Daniela Mârza.

4. Georgiana Izabela Coroian, „Observatii privind evoluția demograficã a parohiei unitariene din satul Mihai Viteazu (jud. Cluj) în perioada 1821-1870", in PhiloHistoRisS, 2015, no. 2 (December 2015).
5. Georgiana Izabela Coroian, "The Seasonality of Mortality in Three Transylvanian Settlements in the Second Half of the 19th Century", Romanian Journal of Population Studies, Vol. X, No. 1, 2016, pp. 19-36
6. Daniela Mârza, "Rhythms of dying in Transylvania, 1850-1914 (data on mortality from Historical Population Database of Transylvania)", Transylvanian Review, vol. XXV, Supplement no 2, 2016, p. 196-202

K.3. Attending international and national conferences

The team members attended, as paper authors, several highly visible international conferences, where they could disseminate the project's findings in a highly competitive and critical environment. Thus, the chances of publishing these findings in high impact journals were improved, as a result of the feedback received at these events. Both the PhD students, the project leader, the postdoctoral student, and the other team members (CS II Dr. Mihaela Hărăguș, Prof. Univ. Dr. Ioan Bolovan) were actively involved in the dissemination process.

1. Georgiana Coroian, The seasonality of mortality in three Transylvanian settlements in the second half of the 19th Century, World Lumen 2016 Congress, Iasi, 12-17 April 2016.

2. Luminița Dumanescu, Daniela Mârza, Mihaela Hărăguș, New Data on Infant Mortality in Transylvania in the 19th Century based on the HPDT, European Social Science History Conference, Valencia, 30 March - 2 April 2016.

3. Daniela Mârza, Ritmuri ale morții în Transilvania epocii moderne (informații despre mortalitate cuprinse în Historical Population Database of Transylvania), CNIR, Cluj-Napoca, 2016.

4. Oana Sorescu-Iudean, Gender, Credit and Creditworthiness in Premodern cities (1200–1800), EAUH 2016, Helsinki, Finland, 24-27 August 2016.

5. Luminița Dumanescu, Oana Sorescu-Iudean, "Godparenthood in rural Transylvania 1850-1918: Choices, practices, and discourse" at 8th InASEA congress Balkan Life Courses: Family, Childhood, Youth, and Old Age in Southeast Europe, 15-18 September, Sofia, Bulgary

6. Oana Sorescu-Iudean, Divided fortunes, divided families: A micro-exemplary analysis of inheritance litigation in 18th century Sibiu, at 8th InASEA congress Balkan Life Courses: Family, Childhood, Youth, and Old Age in Southeast Europe, 15-18 September, Sofia, Bulgary.

7. Luminita Dumanescu, Oana Sorescu-Iudean, Ioan Bolovan, Aspects on Transylvanian marriages in the second half of 19th Century basedon Historical Population Database of Transylvania at Biennial Meeting of the European Society of Historical Demography (ESHD) 21-24 September 2016, Leuven, Belgium.

8. Luminița Dumănescu, Mihaela Hărăguș, Elena Crinela Holom, Oana Sorescu-Iudean, "An European or a Non-European Marriage Pattern? New Considerations concerning the Age of Marriage of the Transylvanian Population (the Second half of the 19th Century – the beginning of the 20th Century" la 41st Annual Meeting of the Social Science History Association, Chicago, 17-20 noiembrie 2016.

9. Georgiana Coroian, „Evoluția mortalității pe sexe în două comunități transilvănene: Ocna Mureș și Războieni-Cetate (1850-1912)", Conferința Interdisciplinară a doctoranzilor Universității Babeș-Bolyai, Baru Mare, Hunedoara, 23-25 iunie 2017

10. Daniela, Mârza, "What's in a Name? On Child Naming Practices in 19th Century Transylvania", Family, Kinship, and Historical Data: An International Workshop on Recent Developments in East-Central and Southeast Europe, Cluj-Napoca, 24-25 august 2017.

11. Oana Sorescu-Iudean, "Spiritual Kinship in an Urban Context in Transylvania: Forms and Contents"

11. Georgiana Coroian, „Infant mortality in rural Transylvania: a case study on four parishes in the second half of the nineteenth century" at Dying and Death in 18th-21th Century Europe International Conference, Alba Iulia, 25-29 septembrie 2017.

Finally, the team members were actively involved in organizing thematic sections during the most significant scientific events in the fields of social history, historical demography and anthropology.

    I.   Eastern Infant Mortality: Religion, Ethnicity, Location at European Social Science History Conference, Valencia, Spain, 28 March-2 April 2016.

Organizers: Luminita Dumanescu, Gunnar Thorvaldsen

Chair:Anders Brändström

Discussant:Ólöf Garðarsdóttir.

II. From data to narrative and back again: Digital Humanities approaches to the family in the Balkans, at the 8th InASEA congress "Balkan Life Courses: Family, Childhood, Youth, and Old Age in Southeast Europe" - http://inasea.net/.

Organizer from the team: Oana Sorescu-Iudean

Chair: Prof. Dr. Ulf Brunnbauer (Institute for East and Southeast European Studies, Regensburg),

Discussant: Prof. PhD Karl Kaser (Southeast European History and Anthropology, University of Graz).

III. Tipare ale vieții de familie în spațiul românesc în epoca moderna – abordări cantitative, Congresul National al Istoricilor Romani, Cluj-Napoca, 25-29 august 2016.

Organizers:Luminița Dumănescu, Daniela Mârza.

    A. Conclusions

For the entire duration of the project (October 2015 – September 2017), the team members were actively involved in implementing its objectives. Beside the activities noted in the initial research plan, which focused on tidying, verification, and restructuring the data in the HPDT, several other activities were undertaken. These activities were a premiere for the field of Romanian historical demography: linking individual-level data and the life course analysis of a consistent sample of individuals. The potential of HPDT data to be included in broader, transnational analyses, was significantly increased. From the perspective of human resources, the project has also reached its target, and cultivated the skills and initiatives of the PhD students, who will demonstrate their competencies in the future as young researchers. Moreover, the present project helped to establish a coherent team, aware of the current research in the field, who will be able to cooperate in further projects as well. Finally, new directions of research were explored, as well as the HPDT's potential to offer nuanced perspectives on the interactions of various factors on family life in Transylvania during the 19th and 20th centuries.