

## METHODOLOGY

INFLUENCE OF SOCIO-ECONOMIC STATUS AND  
HOUSEHOLD STRUCTURE ON THE AVAILABILITY OF  
GRANDMOTHER CARE.

POSSIBILITIES OF RESEARCH INTO THE GRANDMOTHER  
HYPOTHESIS IN THE CENTRAL-EUROPEAN HISTORICAL  
FAMILY

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HORSKÝ, Jan – VELKOVÁ, Alice. Influence of socio-economic status and household structure on the availability of grandmother care. Possibilities of research into the grandmother hypothesis in the Central-European historical family. *Historický časopis*, 2020, 68, 5, pp. 769–796, Bratislava. The aim of this study is to discuss the role of grandmothers in pre-modern society. It uses results of quantitative testing of the “Grandmother Hypothesis” based on data reconstructed on the Štáhlavy estate in western Bohemia in 1708–1834 for a qualitative interpretation of this phenomenon. The first part of the paper focuses on the availability of grandmother care and evaluates various aspects of this term. The second issue under discussion is to what extent the potentiality of grandmother care was influenced by the structure of households, which in its turn is closely linked to the socio-economic status of a given family.

Key words: Grandmother hypothesis. Household structure. Pre-modern family. Bohemia.

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### Introduction

The following text is based on discussions and qualitative analyses undertaken in connection with the project titled *Testing the “Grandmother Hypothesis”: Transgenerational effect on reproduction based on parish registers from the 17th–19th century Bohemia*.<sup>1</sup> The results we have obtained so far have shown

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1 Grant project of the Czech Science Foundation (GACR), N. 17-11983S *Testing the “grand-*

that a quantitative evaluation of data can only partially describe reproductive behaviour of people in the past and reveal how it may have been affected by inter-generational relationships.<sup>2</sup> Of equal importance is the qualitative interpretation of data, which need to be placed within a broader context of family formation and functioning of the family in pre-modern times.

“Grandmother hypothesis” is a concept which focuses on one of the basic parameters of human reproduction, namely the fact that women cannot bear children throughout their entire lives. Their reproductive period tends to end shortly before reaching the age of fifty. The existence of menopause, which sets the human world apart from the rest of the animal kingdom, inspired evolutionary biologists to search for a well-grounded model of its origins. Already in 1957, George Williams claimed that menopause arose in order to support offspring,<sup>3</sup> his hypothesis being based on the theory of inclusive fitness according to which individuals can increase their fitness not only by direct reproduction but also by supporting the reproduction of their kin, that is, of people with whom they share part of their genes.<sup>4</sup> The fact that women continue to live for a long time after menopause seems advantageous from an evolutionary perspective since grandmothers, by helping their daughters during birth and with infant care, can help reduce inter-birth intervals of their daughters and lower infant and possibly even child mortality in their grandchildren.<sup>5</sup> In this way, they increase the likelihood of their grandchildren’s reproduction. This is what is meant by the “grandmother

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*mother hypothesis”: Transgenerational effect on reproduction based on parish registers from the 17th–19th century Bohemia.*

- 2 Besides the already published studies (HORSKÝ, Jan – HAVLÍČEK, Jan. Testování “hypotézy babiček”. Historicko-demografická perspektiva. In *Historická demografie*, 2017, 41, pp. 189–211. ISSN 0323-0937; VELKOVÁ, Alice. Přítomnost babiček v předindustriálních rodinách a jejich možný vliv na plodnost dcer (na příkladu panství Štáhlavy na přelomu 18. a 19. století). In *Historická demografie*, 2017, 41, pp. 213–234. ISSN 0323-0937; PRAŽÁKOVÁ SELIGOVÁ, Markéta. Rozbor domácností na hornopolicu v roce 1771 z hlediska přítomnosti babiček. In *Historická demografie*, 2018, 42, pp. 177–210. ISSN 0323-0937; JANÁKOVÁ KUPROVÁ, Barbora. Did Women in the Role of Grandmothers Affect their Daughter’s Reproductive Behaviour and Their Grand-offspring Survival Rates? Case study of Škvorec Domain in the 18th and 19th Centuries. In *Historická demografie*, 2020, 44, pp. 19–47. ISSN 0323-0937) and presented conference papers the main set of final results still awaits publication.
- 3 WILLIAMS, George C. Pleiotropy, Natural Selection, and the Evolution of Senescence. In *Evolution*, 1957, 11, pp. 389–411. doi:10.2307/2406060
- 4 HORSKÝ – HAVLÍČEK, ref. 2, p. 198.
- 5 In pre-industrial society we usually witness a rather different pattern in the relationship between infant mortality and inter-birth intervals. These were usually shortened precisely because of the death of the preceding infant – therefore, it can be claimed that if a woman, thanks to shorter inter-birth intervals, had more children, it is usually connected with a higher rate of infant (child) mortality.

effect”.<sup>6</sup> While it is often considered only for maternal grandmothers,<sup>7</sup> it has not yet been proven convincingly that the influence of paternal grandmothers on reproduction should be less strong or possibly even negative.<sup>8</sup> At the same time, it needs to be borne in mind that statistically quantifiable data which we are able to obtain for the 17th to 19th centuries are merely a hypothetical symptom of a postulated evolutionary event occurring in the distant past (i.e. the evolutionary-adaptive rise of menopause in people).

Several previous studies based on data from various non-industrial communities have supported the “grandmother hypothesis” by showing lower offspring mortality rates in families residing with their grandmother. For instance, it was found out that in Kipsigis, a patrilineal agro-pastoralist community from Kenya, the grandmother’s presence has had a positive impact on the probability of the child’s survival.<sup>9</sup> A similar pattern of influencing children’s survival was observed in a farming community in rural Gambia as well as in other societies.<sup>10</sup> Furthermore, a living maternal grandmother positively affected the child’s nutritional status assessed by its body weight.<sup>11</sup> Most of the studies reviewed above

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- 6 HAWKES, K. – O’CONNELL, J.F. – JONES, N.G. – AIVAREZ, H. – CHARON, E. L. Grandmothering, menopause, and the evolution of human life histories. In *Proceedings of the National Academy of Sciences of the United States of America*, 1998, 95(3) pp. 1336–1339. doi: 10.1073/pnas.95.3.1336; HAWKES, Kristen, Grandmothers and the Evolution of Human Longevity. In *American Journal of Human Biology*, 2003, 15, pp. 380–400. Online ISSN 1520-6300. <https://doi.org/10.1002/ajhb.10156>
  - 7 BEISE, Jan – VOLAND, Eckart. A Multilevel Event History Analysis of the Effects of Grandmothers on Child Mortality in a Historical German Population. In *Demographic Research*, 2002, 7 (13), pp. 469–498. ISSN 1435-9871. doi: 10.4054/DemRes.2002.7.13; VOLAND, Eckart – BEISE, Jan. Bilanzen des Alters - oder: Was lehren uns ostfriesischen Kirchenbücher über die Evolution von Großmüttern? In *Historical Social Research*, 2005, 30, p. 205–218. ISSN 01726404. <http://www.jstor.org/stable/20762060>; KEMKES-GROTTENHALER, Ariane. Of Grandmothers, Grandfathers and Wicked Step-Grandparents. Differential Impact of Paternal Grandparents on Grandoffspring Survival. In *Historical Social Research*, 2005, 30, pp. 219–239. ISSN 01726404. <http://www.jstor.org/stable/20762061>
  - 8 FOX, Jonathan – WILLFÜHR, Kai – GAGNON, Alain – DILLON, Lisa – VOLAND, Eckart. The consequences of sibling formation on survival and reproductive success across different ecological contexts: a comparison of the historical Krummhörn and Quebec populations. In *The History of the Family*, 2017, 22, pp. 364–423. ISSN 1081-602X. <https://doi.org/10.1080/1081602X.2016.1193551>
  - 9 BORGERHOFF MULDER, Monique. Hamilton’s Rule and Kin Competition: The Kipsigis Case. In *Evolution and Human Behaviour*, 2007, 28, pp. 299–312. ISSN 1090-5138. <http://dx.doi.org/10.1016/j.evolhumbehav.2007.05.009>.
  - 10 SEAR, Rebecca – MACE, Ruth. Who Keeps Children Alive? A Review of the Effects of Kin on Child Survival. In *Evolution and Human Behaviour*, 2008, 29(1), pp. 1–18. ISSN 1090-5138. <https://doi.org/10.1016/j.evolhumbehav.2007.10.001>
  - 11 SEAR, Rebecca – MACE, Ruth – MCGREGOR, Ian A. Maternal grandmothers improve nutritional status and survival of children in rural Gambia. In *Proceedings of the Royal Society*

drew their conclusions from anthropological data collected in modern communities, which vary in their subsistence practices, social stratification and the prevailing residential system.

In contrast to tests applied to contemporary populations, historical data have so far been used to investigate the “grandmother hypothesis” only sporadically. So far, we have results available from only a few regions. As for specific studies, demographic research has been conducted in the farming communities of the 18th-century Finland and mid-19th century Quebec,<sup>12</sup> or in the 18th and 19th century agricultural German communities.<sup>13</sup> One of the reasons for a relative lack of comparative studies is the fact that research carried out in the pre-statistical period could not usually draw on large sets of data based on a single type of source containing data on thousands of individuals. Until the middle of the 19th century the source mainly used by historical-demographic research was parish registers, whose excerption, besides being very time-consuming, does not guarantee that the data obtained will be sufficiently complete. Given that the reconstruction of data from parish registers is, understandably, usually confined to a pre-determined territory (e.g. a parish), it is impossible to reconstruct the data of those individuals who left that territory at a certain point in their lives.

Our research is chiefly based on data collected in western Bohemia. As such, it can introduce a new dimension to the discussion on the grandmother hypothesis, since this interesting geographical space is by a number of studies considered as a transitional zone between the western and eastern system of family formation.<sup>14</sup> To a certain extent, the concept of this transitional zone questions

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*B-Biological Sciences*, 2000, 267(1453), pp. 1641–1647. ISSN 09628452. <https://www.jstor.org/stable/2665910>

- 12 CHAPMAN, Simon N. – PETTAY, Jenni E. – LAHDENPERÄ, Mirkka – LUMMAA, Virpi. Grandmotherhood Across the demographic transition. In *PLoS ONE*, 2018, 13 (7): e0200963. eISSN 1932-6203. <https://doi.org/10.1371/journal.pone.0200963>; LAHDENPERÄ, Mirkka – LUMMAA, Virpi – HELLE, Samuli – RUSSELL, Andrew F. Fitness Benefits of Prolonged Post-Reproductive Lifespan in Women. In *Nature*, 2004, 428, pp.178–181. ISSN 1476-4687 (online). doi: 10.1038/nature02367.
- 13 BEISE – VOLAND, ref. 7; VOLAND – BEISE, ref. 7; KEMKES-GROTTENHALER, ref. 7.
- 14 ANDORKA, Rudolf – FARAGÓ, Tamás. Pre-industrial Household Structure in Hungary. In WALL, Richard – ROBIN, Jean – LASLETT, Peter (eds.). *Family Forms in Historic Europe*. Cambridge: Cambridge University Press, 1983, pp. 281–307. ISBN 0521245478 9780521245470; FARAGÓ, Tamás. Formen bäuerlicher Haushalts- und Arbeitsorganisation in Ungarn um die Mitte des 18. Jahrhunderts. In EHMER, Josef – MITTERAUER, Michael (eds.). *Familienstruktur und Arbeitsorganisation in ländlichen Gesellschaften*. Wien; Köln; Graz: Böhlau Verlag, 1986, pp. 103–183; CERMAN, Markus. Mitteleuropa und die ‚europäischen Muster‘. Heiratsverhalten und Familienstruktur in Mitteleuropa, 16.–19. Jahrhundert. In EHMER, Josef – HAREVEN, Tamara K. – WALL, Richard (eds.). *Historische Fa-*

the monolithic vision of the well-known Hajnal-Laslett model.<sup>15</sup> Nevertheless, when criticizing this model, we need to distinguish whether we focus on the homogeneity of a specific principle underlying the family structure on a given territory or whether we observe the homo- or heterogeneity of concrete forms of family/household in that area. One and the same structural principle (such as impartibility of landholdings, domestic service, joint family, patrilineality etc.) can result in a vast number of very diverse shapes of family or household. In the Central-European area, this variability is shown e.g. in a recent study by M. Szoltysek.<sup>16</sup> Similar considerations are by no means new, this question having been discussed in former Czechoslovakia already thirty years ago.<sup>17</sup>

We may also ask whether the demographic behaviour of people and consequently also the relational model of the “grandmother effect” might be regarded as a “cultural pattern” which its actors either implicitly or intentionally enacted in their behaviour. Demography tends to speak rather automatically of “modern” demographic behaviour, characterised by limited marital fertility as if it were a model of planned, i.e. intentionally regulated, parenthood. Nevertheless, we could – and perhaps even should – assume a degree of intentionality also in

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*milienforschung. Ergebnisse und Kontroversen.* Frankfurt a. M.; New York: Campus Verlag, 1997, pp. 327–346; CERMAN, Markus. Venkovské společnosti a agrárně-dějepisecské tvoření modelu v nové perspektivě. Srovnávací analýza středo- a východoevropských agrárních struktur od 14. do 17. století. In *Časopis Matice moravské*, 2001, 120, pp. 337–395. ISSN 0323-052X; HORSKÁ, Pavla. K historickému modelu středoevropské rodiny. In *Demografie*, 1989, 31, pp. 137-143. ISSN 0011-8265.

- 15 HAJNAL, John. European marriage patterns in perspective. In GLASS, D.V. – EVERSLEY, D. E. C. (eds.). *Population in History*. London: Arnold, 1965, pp. 101–143; LASLETT, Peter – WALL, Richard (eds.). *Household and Family in Past Time*. Cambridge; London; New York; Melbourne: Cambridge University Press, 1972. ISBN 9780521099011; HAJNAL, John. Two kinds of preindustrial household formation system. In *Population and Development Review*, 1982, 8, pp. 449–494. doi:10.2307/1972376; LASLETT, Peter, Family and Household as Work Group and Kin Group: Areas of Traditional Europe Compared. In WALL, Richard – ROBIN, Jean – LASLETT, Peter (eds.). *Family Forms in Historic Europe*. Cambridge, 1983, pp. 513–563. ISBN 0521245478 9780521245470.
- 16 SZOLTYSEK, Mikolaj. *Rethinking East-Central Europe: family system and co-residence in Polish-Lithuanian Commonwealth, Vol. 1+2*. Bern: Peter Lang, 2015. ISBN 978-3-0351-9998-7.
- 17 ŠVECOVÁ, Soňa. Dva typy tradičnej roľníckej rodiny v Československu. In *Český lid*, 1989, 76, pp. 210–222. ISSN 0009-0794; LANGER, Jiří. Forma rodiny mezi dvěma typy domácností v předindustriální společnosti v západních Karpatech. In *Historická demografie*, 1992, 16, pp. 87–98. ISSN 0323-0937; HORSKÝ, Jan. Ältere Diskussion über die Zadruga und das Familienbesitzgemeinschaft in Böhmen und das heutige Studium der Familienstrukturen und -typen. In *Historická demografie*, 1993, 16, pp. 37–52. ISSN 0323-0937; HORSKÝ, Jan – MAUR, Eduard. Die Familie, Familienstrukturen und Typologie der Familien in der böhmischen Historiographie. In *Historická demografie*, 1993, 16, pp. 7–35. ISSN 0323-0937.

the “old” demographic model. After all, various studies in historical demography use terms such as “strategy of reproductive behaviour”, “family strategy” etc.<sup>18</sup>

The aim of the present study is to consider various possible interpretations of the quantitative analysis of our data in the broader context of our research project, whose primary goal is to test the “grandmother hypothesis”. Here we will focus more on the qualitative analysis of the issue, within which, however, we cannot enter the socio-cultural field by ethnographic or cultural-anthropological methods, and capture “grandmother care” by means of “thick description” as proposed by Geertz.<sup>19</sup> Historical (or historical-demographic) research will only allow us to infer a certain *potentiality* from a detectable configuration of „occurrences” of individual persons in space and time. Grandmother care is precisely one of those areas where only its potentiality can be considered, its real nature remaining hidden due to the absence of direct sources. Against this background, we will first focus on the availability of grandmother care and evaluate various aspects of this term. The second issue under discussion is to what extent the potentiality of grandmother care was influenced by the structure of households, which in its turn is closely linked to the socio-economic status of a given family. The fact that instead of testing the “grandmother hypothesis” on the entire set of our data as a whole, we conducted the specific analyses separately for individual social groups is another aspect, besides the geographical one, which distinguishes our study from other similarly focused research conducted so far.

### **Geographical context of research, its methodology**

For our research aimed at testing the grandmother hypothesis we chose the Štáhlavy estate situated in western Bohemia near the city of Pilsen. Throughout the 18th and the beginning of the 19th centuries, the Štáhlavy estate continued to retain its predominantly rural character. At the same time, as early as the mid-17th century, it witnessed the development of proto-industrial iron production. Practising traditional rural crafts was another source of livelihood for the local population.<sup>20</sup>

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18 FONTAINE, Laurence – SCHLUMBOHM, Jürgen (eds.). *Household strategies for survival, 1600–2000: Fission, faction and cooperation*. Cambridge: Cambridge University Press, 2000. ISBN 0521001420.

19 GEERTZ, Clifford. Thick Description: Toward an Interpretive Theory of Culture. In GEERTZ, Clifford. *The Interpretation of Cultures: Selected Essays*. New York: Basic Books, 1973, pp. 3–30. ISBN 9780465097197.

20 For more on the history and social structure of the estate see VELKOVÁ, Alice. *Krutá vrchnost, ubozí poddani? Proměny venkovské rodiny a společnosti v 18. a první polovině 19. století na příkladu západočeského panství Štáhlavy*. Praha: Historický ústav, 2009, pp. 46–73. ISBN 9788072861514; VELKOVÁ, Alice. The role of the manor in property transfers of serf holdings in Bohemia in the period of the ‘second serfdom’. In *Social History*, 2012, 37, pp.

Our analysis focused chiefly on a dataset created by the method of family reconstruction, which was applied to a set of parish registers kept in selected localities in the parish of Starý Plzeňec.<sup>21</sup> Although due to a late creation of the register of deaths, only those children who were born between 1708–1834 could be included in the analysis proper,<sup>22</sup> the data of individuals included in the dataset were excerpted from as early as 1651, with their death dates being searched for until the end of the 19th century. In total, the dataset contains data on nearly 16 thousand people, with the analysis proper comprising 6.880 children born into complete families (children born to single mothers were excluded). The basic precondition for a family to be included in our sample was that at least two children were born into it in one locality. By laying down this condition, we were able to eliminate a random occurrence of frequently migrating families, since for such families it was almost impossible to obtain the necessary data (given that usually neither the place of origin of the parents or the date of their wedding were known, data on the grandparents could not be found).

One of the crucial elements of our analysis was the classification of the reconstructed families into three basic social categories, for which we also used other available sources (land books, cadastres, population lists).<sup>23</sup> The first category comprised full peasant holder (*sedlák, Bauer, farmer*) and smallholder (*chalupník, Chalupner, Kleinbauer*) families, who made their living by farming the land (full peasant holders usually held more than 4 hectares, while smallholders held less land and may have supplemented their income by exercising a craft). The second category encompassed the remaining social groups within the settled population (*ansässig*), i.e. cottagers (*domkář, Häusler*), who unlike members of the

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501–521, here 504–506. ISSN 0307-1022.

- 21 State regional archives (hereinafter SRA) Pilsen, Roman-Catholic parish house of Starý Plzeňec, signature 1–37 (born 1651–1850, married 1661–1850 and deceased 1708–1926); R-C parish house of Štáhlavy, signature 1–8, 12 (born 1814–50, married 1814–50, deceased 1814–77. The Štáhlavy parish was created in 1814 by separation from the parish of Starý Plzeňec. Primarily the data related to the localities of Štáhlavy, Starý Plzeňec, Sedlec and Lhůta were excerpted. For the purposes of complete reconstruction, other data have been gathered even outside the original parish of Starý Plzeňec.
- 22 The first death register of the Starý Plzeňec parish is available from as late as 1708. The year 1834 has been chosen as the upper limit since we were only interested in those children whose childhood ended before the abolition of serfdom in 1848.
- 23 SRA Prague, Collection of State land registers (hereinafter LR) Blovice n. 133–139, 161, 168; LR Plzeň n. 134–136; LR Rokycany, n. 233, 268, 270, 273–276. SRA Prague, Collection of Estate Štáhlavy, List of subjects, i. n. 43–49, years 1802–1817; Lists of population for the purposes of capitation tax, i. n. 201–204, years 1816–1824. Státní okresní archiv [State District Archives] Plzeň-south based in Blovice, Coll. Archives of the vicarage of Starý Plzeňec, i. n. 3a, Condition of souls, year 1838; National archives, Coll. List of subjects by religion 1651, volume number SM R 109/45, P–K 86.

previous category, did not hold any land and earned their living as craftsmen or iron-mill workers. The third, residual, category included the remaining landless people (*houseless lodgers, podruzi, Inwohner, Hausgenosse*), such as farm labourers, shepherds, iron founders or unsettled craftsmen.

It needs to be pointed out, however, that during the period under study the above-given social stratification underwent major changes on the territory of the Štáhlavy estate. While in the second half of the 17th century, full peasant holders and smallholders predominated in the population, accounting for about 50%, around 1820 their share decreased to 25%, with a simultaneous rise of the cottager population (27%), which in general was constituted as a class only in the course of the 18th century, and with the landless as the most populous group, accounting for 29%.<sup>24</sup> The rise of the non-farming population strata was a process typical of other European regions as well.<sup>25</sup> Social differences between the individual categories consisted not only in the means of livelihood but had a significant impact on the demographic behaviour of their members. For our purposes, it was especially relevant how belonging to a particular social category affected marriage and fertility rates. Our research has shown that daughters of full peasant holders and smallholders usually married about three years younger than those from cottager or landless families, and as a result gave birth to approximately two more children on average during their lifetime.<sup>26</sup> Thus, even if in the period under study the percentage of full peasant holders and smallholders declined, their children still made up the most numerous group in our analysis, with the fewest children born into the houseless lodger families (see Table 1).

Another question is whether the potentiality and availability of grandmother care was linked to the grandmother being paternal or maternal. Even in this regard, we could naturally expect differences resulting both from biological factors and tradition (the father being, as a rule, older than the mother, a maternal rather than paternal grandmother should be more likely to be still alive at the child's birth), and also from the different patterns of family formation, which mirrored both the already mentioned socio-economic differences between the individual strata and the diverse inheritance practices across Europe. Given that this study is not directly concerned with the results of the testing of the grandmother

24 VELKOVÁ, *Krutá vrchost*, ref. 20, pp. 66–70.

25 CERMAN, Markus – MAUR, Eduard. *Proměny vesnických sociálních struktur v Čechách 1650–1750*. In *Český časopis historický*, 2000, 98, pp. 737–773. ISSN 0862-6111; ACHILLES, Walter. *Landwirtschaft in der frühen Neuzeit*. Enzyklopädie deutscher Geschichte 10, München 1991. ISBN 9783486557398; KOCKA, Jürgen. *Weder Stand noch Klasse. Unterschichten um 1800*. Bonn, 1990, pp. 83–95. ISBN 3-8012-0152-X; VELKOVÁ, Alice. *Proměny venkovské společnosti v letech 1750–1850*. In *Český časopis historický*, 2007, 105, pp. 809–857. ISSN 0862-6111.

26 VELKOVÁ, ref. 2, p. 220; JANÁKOVÁ, ref. 2, p. 32.



hypothesis as such (i.e. whether and to what extent the presence of grandmothers helped decrease grandchild mortality or influenced their daughters' fertility), in the following text we will assess the differences between maternal and paternal grandmothers precisely in terms of the potential availability of their care.

While the impossibility of fully reconstructing family relationships does bring certain limitations in terms of an exact quantification of the data, at the same time it still allows us to perform qualitative interpretation of this phenomenon, since potential grandmother care was not only conditioned by the grandmother being still alive but also by her spatial "availability". As we will show further on, the realistic distance which still allowed grandmothers to participate in the care of their grandchildren was 15 km, which was also the maximum distance between two localities situated on the Šťáhlavy estate. At the same time, data in Table 2 show that an absolute majority of grandmothers whose date and place of birth we were able to find, died precisely within this distance from their grandchildren's birthplace. From this point of view, it, therefore, did not matter whether those grandmothers whose vital data we failed to reconstruct were actually alive or not when their grandchildren were born. The fact that their data could not be found in local sources means that most probably they lived farther than 15 km away, and the potentiality of their care would have been negligible even if they had lived long enough to see the birth of their grandchild.

In this context, we can again clearly observe the differences between, on the one hand, the families of the settled strata of full peasant holders, smallholders and cottagers and, on the other hand, the non-settled families of houseless lodgers. While children born into the settled strata could potentially benefit from grandmother care (i.e. the grandmother was alive at birth of grand-offspring and lived within 15 km) in 32–33% and 29–30% of the cases for maternal and paternal grandmothers respectively, among children of the houseless lodgers the potentiality was lower: only 24.5% and 16.6% respectively. At the same time, the social context reveals another interesting fact: while among the settled strata, the probability that a paternal (25%) rather than maternal (21%) grandmother would be living at the grandchild's birthplace was higher, among the landless it was the opposite. The landless tended to live near their maternal (19%) grandmother much more often than near their paternal (12%) grandmother. Moreover, this type of co-residence was not limited to living in the same locality or dwelling, but for economic reasons, in landless families the grandmother often lived directly in one household with her grandchildren.<sup>27</sup>

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27 VELKOVÁ, Alice – FIALOVÁ, Ludmila. Study of Cohabitation of three-generational families on the Šťáhlavy estate in western Bohemia in 1820. In PONIAT, Radosław – ŁOZOWSKI, Piotr (eds.). *Jednostka, rodzina i struktury społeczne w perspektywie historycznej. Księga jubileuszowa dedykowana Profesorowi Cezaremu Kuklo*. Białystok, 2020 (in print).

### Availability of grandmother care

As we suggested before, for a grandmother to increase her grandchildren's chances of survival, she had to be available in the first place.<sup>28</sup> Let us now consider the term "availability" and define the necessary requirements to be met in order to be "available". In the following paragraphs, we will consider this question on three different levels. First of all (1), there is biological availability, i.e. whether a grandmother was still alive. Secondly (2), there is geographical proximity, that is, whether a grandmother lived close enough to her grandchildren to be able to provide her care. And finally (3), there is factual availability, which could have depended on various further aspects of family life. For a grandmother's care to have a positive effect, she had to be available in all three senses of the term. That much is clear, but what about those situations where not all three of these conditions were met or where we do not have enough information to make sure that all three criteria were fulfilled?

The first criterion (ad 1), namely the grandmother being alive, appears at first glance to be the least problematic. A closer look, however, reveals certain issues. For the pre-statistical period, the birth and death dates are usually excerpted from parish registers. It is unfortunately highly likely that for a large proportion of persons, we will not be able to find the vital data. The proportion of data not found usually grows the deeper into the past we venture. In some cases we cannot find any information about grandmothers at all, since parish registers include information about parents but not about grandparents. Moreover, even where grandmothers are known, we may be unable to find the date of their death, or they disappear from available sources due to migration and we cannot find them in their new place of residence.

It is precisely in this context that the social background of individuals becomes especially relevant. The non-settled individuals in particular tended to migrate, which complicates the search for their vital data.<sup>29</sup> This was also confirmed by our research: while among full peasant holders, smallholders and cottagers we failed to find data on neither of the grandmothers only for 16-17% of the children, among the children of the landless we knew neither grandmother in 35% of the cases (Table 1). These results are also evident when disaggregated by the individual categories (maternal vs. paternal grandmother): while among full peasant holders, smallholders and cottagers we could not find data on 33% of the

28 CHAPMAN – PETTAY – LAHDENPERÄ – LUMMAA, ref. 12.

29 LEVENE, Alysa. Poor Families, Removals and 'Nurture' in Late Old Poor Law London. In *Continuity and Change*, 2010, 25 (2), pp. 233–262. ISSN 0268-4160. doi: 10.1017/S0268416010000172; GRULICH, Josef. *Migrace městského a vesnického obyvatelstva. Farnost České Budějovice 1750–1824*. České Budějovice: Historický ústav Filozofické fakulty Jihočeské university v Českých Budějovicích, 2013. ISBN 978-80-7394-374-5.

maternal and 41% of the paternal grandmothers, in the case of houseless lodgers we failed to find the necessary data on up to 53% of the maternal and 61% of the paternal grandmothers.

Table 1:

Grandmothers alive at birth of grandchild, Štáhlavy estate 1708–1834

Maternal grand-mother	Paternal grandmother							
	Alive		Dead		Not known		Total	
	Number	%	Number	%	Number	%	Number	%
Full peasant holders and smallholders								
Alive	366	13,2	339	12,2	216	7,8	921	33,2
Dead	199	7,2	287	10,4	221	8,0	707	25,5
Not known	258	9,3	414	14,9	470	17,0	1142	41,2
Total	823	29,7	1040	37,5	907	32,7	2770	100,0
Cottagers								
Alive	265	11,6	242	10,6	221	9,7	728	31,8
Dead	152	6,6	243	10,6	228	10,0	623	27,2
Not known	257	11,2	323	14,1	358	15,6	938	41,0
Total	674	29,4	808	35,3	807	35,3	2289	100,0
Houseless lodgers								
Alive	96	5,3	102	5,6	248	13,6	446	24,5
Dead	70	3,8	130	7,1	210	11,5	410	22,5
Not known	142	7,8	180	9,9	643	35,3	965	53,0
Total	308	16,9	412	22,6	1101	60,5	1821	100,0
Total								
Alive	727	10,6	683	9,9	685	10,0	2095	30,5
Dead	421	6,1	660	9,6	659	9,6	1740	25,3
Not known	657	9,5	917	13,3	1471	21,4	3045	44,3
Total	1805	26,2	2260	32,8	2815	40,9	6880	100,0

Source: own calculation

The data which we reconstructed also suggest the correctness of our initial hypothesis that a maternal rather than paternal grandmother should be alive at the grandchild's birth.<sup>30</sup> Even though the overall situation cannot be quantified

30 A higher frequency of cases of a maternal rather than paternal grandmother being alive at the child's birth was pointed out by Barbora JANÁKOVÁ KUPROVÁ in her study of the Škvo-rec estate in central Bohemia, ref. 2, p. 37–38.

precisely due to the absence of death data for some of the grandmothers, the data available to us show that 33.2% of the maternal and 29.4% of the paternal grandmothers were still alive at birth of grandchildren born to full peasant holders and smallholders, 31.8% and 29.4% of maternal and paternal grandmothers respectively were alive in the cottager population, and finally, 24.5% and 16.9% maternal and paternal grandmothers respectively in the landless category. Similar socio-economic differences applied in the case of both biological grandmothers being still alive at the grandchild's birth. This case could again be proven more often for full peasant holders/smallholders (13.2%) and cottagers (11.6%) compared to the houseless lodgers (5.3%), for whom the reliability of the figures is strongly limited by the earlier mentioned high rate of missing data.

The shares of children who had at least one of their grandmothers alive (which need to be considered as minimum values based strictly on the data we found, but in practice may have been slightly or even much higher) at birth confirm that intergenerational relationships were strongly determined by the social class of individuals. In the Czech lands of the 18th and the first half of the 19th centuries, the death rates of the old demographic regime continued almost unchanged, which also meant that life expectancy at birth did not vary according to social strata.<sup>31</sup> This principle, incidentally, applied to European death rates in general. In Europe, regional specificities (especially in infant and child mortality) often mattered more than social class, which points to the importance of cultural patterns applied differently in different communities. Here again, it becomes evident how important it is to study the “grandmother effect” separately for individual local populations without making general comparisons which would ignore the specificities of individual communities.

With death rates being constant, the higher probability of becoming a grandmother was primarily linked to the age at which a woman, and subsequently her offspring, gave birth. Numerous studies have unambiguously confirmed that it was children from the higher social strata that married earlier compared to their peers from the non-settled categories.<sup>32</sup>

31 SRB, Vladimír – MOLINOVÁ, Jarmila. Střední délka života (naděje dožití) obyvatelstva v českých zemích v 8. až 20. století. In *Demografie*, 2003, 45, pp. 189–196. ISSN 0011-8265; SRB, Vladimír. *1000 let obyvatelstva českých zemí*. Praha: Karolinum, 2004. ISBN 8024607123.

32 FERTIG, Georg. Wenn zwey Menschen eine Stelle sehen' Heirat, Besitztransfer und Lebenslauf im ländlichen Westfalen des 19. Jahrhunderts. In DUHAMELLE, Christophe – SCHLUMBOHM, Jürgen (eds.). *Eheschließungen in Europa des 18. und 19. Jahrhunderts. Muster und Strategien*. Göttingen: Vandenhoeck & Ruprecht, 2003. ISBN 3-525-35195-X; SCHLUMBOHM, Jürgen. *Lebensläufe, Familien, Höfe. Die Bauern und Heuerleute des Osnabrückischen Kirchspiels Belm in proto-industrieller Zeit 1650–1860*. Göttingen: Vandenhoeck & Ruprecht, 1994. ISBN 3525356471; VELKOVÁ, Krutá vrchnost, ref. 20; PRAŽÁ-

As concerns the availability of grandmother care in relation to grandmothers being still alive at birth of their grandchild, what we can say is that for grandchildren under age five, grandmothers may have indeed played an important role in increasing their chances of survival. It was the first five years of life that were crucial for survival, child mortality significantly decreasing after that age. If we disregard those grandmothers whose death dates we ignore (or rather, if we suppose that their death rates did not differ from those of the women whose death dates were available) we can state that overall about two thirds to three quarters of the children had at least one grandmother still living at their birth (56% maternal and 44% paternal), with about one quarter of the children possibly having both grandmothers alive. These results closely correspond to recent research into the Finnish population in 1790–1959. There, in the first half of the 19th century, depending on the birth cohort, 51–65% of the children had their maternal and 41–60% their paternal grandmother alive at birth.<sup>33</sup>

These results, however, ought to be viewed merely as estimates as they are influenced by the incompleteness of available data, which poses a methodological challenge. In principle, we can either exclude the missing data or classify these cases as if the grandmothers were not available. Such a step is based on the assumption that if it is impossible to find a grandmother's death date in parish registers from a surrounding area, it is likely that the grandmother lived farther away, at a distance that in any case would have prevented her from contributing to raising her grandchildren.

This brings us to the next question (ad 2): What distance should be considered close enough to view grandmother care as available? Based on earlier studies – some of which focused on other types of solidarity in family care, such as taking care of elderly parents – most researchers tend to place the limit of availability at 15 kilometres of distance, which could, in different terrains, be covered on foot in one day.<sup>34</sup> Nevertheless, setting up a feasible distance limit is but a first step. The nature of available sources on historical populations is such that only when we have continuous lists of population made on year-by-year basis can we try to establish whether and in what way the actual place of residence of individual family members changed during their lifetime. But even then, we can trace only the permanent changes of residence and not, for instance, cases of short-term

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KOVÁ SELIGOVÁ, Markéta. *Život poddaných v 18. století: osud, nebo volba?* Praha: Togga, 2015. ISBN 978-80-7476-060-0.

33 CHAPMAN – PETTAY – LAHDENPERÄ – LUMMAA, ref. 12, pp. 6–7.

34 BORGERHOFF MULDER, ref. 9, p. 302; Kesztenbaum, Lionel. Cooperation and Coordination among Siblings: Brothers' Migration in France, 1870–1940. In *The History of the Family*, 2008, 13, pp. 85–104, here 92. ISSN 1081-602X. <https://doi.org/10.1016/j.hisfam.2008.01.006>.

help. From this perspective, the actual model of family relations in the past is a great unknown. We cannot, therefore, exclude that when characterising the behaviour and strategies of members of historical populations, we are, intentionally or not, projecting behaviour patterns we are familiar with, or alternatively, that we draw oversimplified conclusions from the data available. Most members of rural populations appear in the sources only very sporadically, which is why in most cases we must rely mainly on parish registers. This type of source, however, provides information only on key events in people's lives, which can be quite far apart in time. If, for instance, we find in a register that after her marriage, a woman with her husband settled down in a certain place where she went on to have five children and where she eventually also died, we assume that she lived in that place all her life. But in fact, we cannot be sure that over the – often – decades which may have separated the birth of her last child from her death, she did not move several times to help her own children with childcare, and then again returned to the homestead where she started her married life and where she could be sure to receive care in the last years of her life.

Table 2:

Distance between birthplace of grandchild and grandmother's place of death (percentage shares of children), Štáhlavy estate 1708–1834

Distance	Full peasant holders and smallholders		Cottagers		Houseless lodgers	
	GMM	GMP	GMM	GMP	GMM	GMP
Grandmother alive at birth of grandchild						
Same place	21,6	25,6	20,9	25,4	19,2	12,4
Less than 15 km	11,2	4,2	10,9	4,0	5,3	4,5
Farther than 15 km	0,5	0,0	0,0	0,0	0,0	0,1
Grandmother dead at birth of grandchild						
Same place	15,6	33,7	15,6	31,8	11,5	17,2
Within 15 km	9,7	3,9	11,5	3,5	10,9	5,4
Farther than 15 km	0,2	0,0	0,0	0,0	0,0	0,0
Not known whether grandmother alive or dead						
Not known	41,2	32,6	41,1	35,3	53,1	60,4
Total						
Number	2770	2770	2289	2289	1821	1821
%	100,0	100,0	100,0	100,0	100,0	100,0

Source: own calculation

When looking in detail at the results of our research (Table 2), we find that it was those children whose grandmother was not only alive at their birth but also lived (or, more exactly, later died) in their birthplace who had the highest potential of benefiting from grandmother care. Even here, there are significant social differences. While children from settled families had a grandmother living at their place of birth in 21% and 25% of the cases for maternal and paternal grandmothers respectively, children of houseless lodgers could more often benefit from the presence of their maternal grandmother, who was living in the grand-offspring's birthplace in 19.2% of the cases compared to only 12.4% for the paternal one. For more than half of the maternal and paternal grandmothers from houseless lodger families their place of residence could not be determined. We may therefore assume that they lived at a distance which excluded any intensive care of their grandchildren.

Rather interesting and somewhat surprising is that relatively few children had grandmothers who, although not living directly in the same place as their grandchildren, would be living within the 15 km distance. In principle, in most cases those who did were maternal grandmothers of children from settled families (11%). As for paternal grandmothers, generally, when they did not live in the same place as their grandchildren, again mostly from settled families, their care was very unlikely since, in that case, the grandmother was most probably not available at all. At the same time, it is clear that the 15 km radius is rather broad and in practice could have resulted in different quality of care. Still, it would be misleading to assume that the care by a grandmother who lived in the same locality as her grandchild must necessarily have been more intensive than the help provided by a grandmother who was just visiting her grandchild. (ad 3) Distance in itself could not be considered an advantage unless the third condition, namely actual availability, was also met.

This level of availability presupposes that grandmothers are actually “free” to provide care, i.e. they are not prevented by other obligations from significantly contributing to raising their grand-offspring. This aspect is also the hardest to evaluate. While for the previous two types criteria determining the availability of grandmothers could be established, this third type is being tacitly assumed in our analyses since there is no way of verifying it. And yet, key differences linked to distinct types of family formation, inheritance law or social practice could significantly impact this aspect of availability. Let us now consider possible obstacles which may have reduced this type of availability.

The first is whether the grandmother was still economically active, that is, whether she had to spend time on activities which provided her with a livelihood. Moreover, even when she did not have to work she may have had household duties preventing her from fully participating in the care for her grand-offspring.

Numerous studies point out that even old people were expected to take part in the day-to-day household chores.<sup>35</sup> It is, however, very difficult to find out to what degree old people were expected to contribute or what type of work they were expected to perform. Neither is it clear whether there was any link between the extent and type of activity and the age of the persons concerned.<sup>36</sup> Still, we may assume that the type of work and its physical or temporal demands would have been closely linked to social status. In the families of farm holders in general, it was customary for all members of the household to participate in one way or another in farm work. Traditionally, in these social classes, the heads of households tried to maintain their position for as long as possible, even until their death. At the same time, since both among full peasant holders (farmers) and smallholders even relatively large age gaps between spouses were quite common – in part as a result of remarriage – it may have been difficult for an active housewife, who was at the same time already a grandmother, to participate significantly in the care of her grand-offspring, especially if such care would have involved travelling over a certain distance. Similarly, even for a poorer woman who had to support herself or other family members by hard physical work, it would have been difficult to contribute to raising her grand-offspring. Moreover, there is also the important issue of the grandmothers' health,<sup>37</sup> although it is generally assumed that in pre-modern times poor health usually led to early death rather than surviving for a long time.

Being able to help raise one's grand-offspring may have been also complicated by a low marriage age and consequently, a relatively long fertility period of the grandmother. As mentioned before, low marriage age was more characteristic of the higher social strata. On the other hand, given the variability of European family forms, in certain regions women married at a very early age into other social strata than their own. A study of ten selected Hungarian communities showed that in 1730–1895, women's age at first marriage ranged between 20.1

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35 ŠTEFANOVÁ, Dana – CERMAN, Markus. Lebensunterhalt und Erwerb im Alter in ländlichen Gesellschaften der frühen Neuzeit. In KOLDINSKÁ, Marie – VELKOVÁ, Alice. *Historik zapomenutých dějin: sborník příspěvků věnovaných prof. dr. Eduardu Maurovi*. Praha: Libri, 2003, pp. 83–107. ISBN 80-7277-223-6.

36 VELKOVÁ, *Krutá vrchnost*, ref. 20, pp. 429–432.

37 Cfr. research into contemporary populations: DI GESSA, Giorgio – GLASER, Karen – TINKER, Anthea. The health impact of intensive and nonintensive grandchild care in Europe: New evidence from SHARE. In *The Journals of Gerontology*, 2016, Series B, Volume 71, Issue 5, pp. 867–879. Online ISSN 1758-5368 Print ISSN 1079-5014. <https://doi.org/10.1093/geronb/gbv055>; KIM, Hye-Jin – KANG, Hyun – JOHNSON-MOTOYAMA, Michelle. The psychological well-being of grandparents who provide supplementary grandchild care: A systematic review. In *Journal of Family Studies*, 2016; 23, pp. 118–141. ISSN 13229400. <https://www.tandfonline.com/doi/full/10.1080/13229400.2016.1194306>



and 21.1 years.<sup>38</sup> Since in the past it was impossible to limit (plan) fertility, women tended to bear their last child around the age of forty. As a result, a woman may have had her first grandchildren while still raising little children of her own. In that case, looking after one's grandchildren may have been difficult. A somewhat similar situation could arise when grandchildren from different families competed for their grandmother's care. Given the average number of children a woman was likely to bear if she lived throughout her entire reproductive period in marriage, this would have been far from unusual, and in fact, it appears that in the south-eastern system such practice was quite common. Still, other factors could have complicated the woman's situation, such as the death of her husband.<sup>39</sup> Often after the family's main breadwinner died, his wife had to some extent take over his role, assuming thus an additional burden that made it difficult for her to participate in the care of her grandchildren. In addition, we also need to consider obstacles of a purely personal nature such as poor personal relations between the generations, which may have resulted in neither party being interested in the grandmother's care.<sup>40</sup>

### **Dependence of “grandmother effect” on family structure**

When assessing the potentiality of grandmother care, we encountered several times the importance of factors affecting the structure of family and household. Since the patterns of family formation across Europe varied widely, we might expect that a similar variability, evident also in the rates of infant mortality, would equally apply to the “grandmother effect”, especially between the area south-east of the Petersburg–Trieste line, where joint families were common, and north-western Europe, where the system of nuclear family prevailed. It needs to be pointed out, however, that the Hajnal line represents rather an ideal model which cannot fully capture the diverse reality of family composition in Europe.<sup>41</sup> And indeed, to the north-west of the Hajnal line, alongside areas where

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38 ANDORKA, Rudolf – HORSKÁ, Pavla – HEAD-KÖNIG, Anne-Lise. L'Europe centrale. In BARDET, Jean-Pierre – DUPAQUIER, Jacques et al. (eds.). *Histoire des populations de l'Europe. II. La révolution démographique 1750–1914*. Paris: Fayard, 1998, pp. 427–461, here 434. ISBN 2213598800.

39 BEEKINK, Erik – VAN POPPEL, Frans – LIEFBROER, Aart C. Parental Death and Death of the Child: Common Causes or Direct Effects? In DEROSAS, Renzo – ORIS, Michel (eds.). *When Dad Died: Individuals and Families Coping with Distress in Past Societies*. Bern: Peter Lang, 2002, pp. 233–260. ISBN 9780820456478.

40 WILLFÜHR, Kai Pierre – JOHOW, Johannes – VOLAND, Eckart. When the Mother-in-Law is just as Good. Differential Mortality of Reproductive Females by Family Network Composition. In *PLoS One*, 2018, 13(3): e0193252. eISSN: 1932-6203. <https://doi.org/10.1371/journal.pone.0193252>

41 SZOŁTYSEK, ref. 16.

the principle of neo-localism was clearly predominant and nuclear (or at most extended) family was, therefore, the most common family type, we also find places where more complex, three-generational families were relatively numerous. These took the form of either stem families (*famille souche*, *Stammfamilien*) or “Ausgedingefamilien”, where elderly parents would hand over their farm to a son but continue to live on it.<sup>42</sup> Moreover, in many areas, especially in Central Europe, it is not entirely clear whether or to what extent one should include into households also the sub-households of houseless lodgers. The occurrence of various family types was also influenced by the particular forms of inheritance law,<sup>43</sup> by types of holdings, that is, by agrarian ecotypes,<sup>44</sup> by the development of early industries and other similar factors.<sup>45</sup> To the south-east of the Hajnal line, the variety of family types was likewise much larger than the above-mentioned description would suggest. This is well exemplified by a closer look at the situation in certain areas of Hungary,<sup>46</sup> or the tendency to a one-child family system among the Slovak Lutherans from the Novohrad and Hont region, rooted in the 19th century tradition.<sup>47</sup>

Moreover, complex families, which occurred also in north-western Europe, cannot be automatically identified with co-residence of three generations. One must also consider other family constellations which included a number of collateral nuclear families. In the north-western family type, it was quite common for several houseless lodger families to share the same dwelling. All these types of co-residence could lead to situations where a non-related adult or adolescent woman lived in a house with other small children and although she was neither

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42 MITTERAUER, Michael. *Historisch-anthropologische Familienforschung. Fragestellungen und Zugangsweisen*. Wien; Köln: Böhlau Verlag, 1990, pp. 87–130; KLÁŠTERSKÁ, Alice. Forma sociálního zabezpečení na vesnici v 18. a první polovině 19. století (Výměnek v pozemkových knihách vesnice Lhůty u Štáhlav). In *Historická demografie*, 1997, 21, pp. 93–133. ISSN 0323-0937.

43 GESTRICH, Andreas – KRAUSE, Jens-Uwe – MITTERAUER, Michael. *Geschichte der Familie*. (Europäische Kulturgeschichte, herausgegeben von Andreas Gestrich, Band 1). Stuttgart: Alfred Kröner Verlag, 2003, pp. 405–410. ISBN 3520376016; KASER, Karl. *Macht und Erbe. Männerherrschaft, Besitz und Familie im östlichen Europa (1500–1900)*. Wien; Köln; Weimar: Böhlau Verlag, 2000. ISBN 3-205-98990-2.

44 MITTERAUER, Michael. Formen ländlicher Familienwirtschaft. Historische Ökotypen und familiäre Arbeitsorganisation im österreichischen Raum. In EHMER, Josef – MITTERAUER, Michael (eds.). *Familienstruktur und Arbeitsorganisation in ländlichen Gesellschaften*. Wien; Köln; Graz: Böhlau Verlag, 1986, Ppp. s. 185–323.

45 MEDICK, Hans. *Weben und Überleben in Laichingen 1650–1900. Lokalgeschichte als allgemeine Geschichte*. Göttingen: Vandenhoeck & Ruprecht 1996. ISBN 9783525354438.

46 FARAGÓ, ref. 14.

47 ALÁČ, Ján. Úvod. In ČINČURÁK, Samuel. *Tajní vrahovia*. Miloš Hric, 2017. ISBN 9788097211219.

their mother nor grandmother, she could still play an important role in their care. For instance, an analysis of 259 households in several localities on the estate of Horní Police in northern Bohemia starting in 1771 showed that if a household included a married couple at reproductive age, in 48% of the cases it also included another adult woman. In half of those cases, the woman was a biological grandmother, while in the rest of the cases, she was a step-grandmother, sister, aunt, sister-in-law, or an unrelated female.<sup>48</sup>

The question arises whether such women, also called alloparents,<sup>49</sup> could have exercised a similar effect on reproduction as grandmothers. First, there were aunts, especially childless ones, who were genetically related to their nieces and nephews as closely as grandmothers to their grandchildren. Although relatively little research has so far been done on this issue in relation to historical populations, we may suppose that the presence of such persons could have been similar, both in its nature and its frequency, in both models of family formation. So far, however, research has not revealed any major positive effect on the survival of infants and children, and in the case of unmarried aunts, some studies found rather the opposite effect.<sup>50</sup> That does not necessarily mean that in the end care provided by a female relative would not have had a beneficial effect on over-all reproduction. For although aunts or older sisters need not have increased the survival chances of the children they helped raise, they may have acquired valuable experience which they later used when looking after their own offspring, improving their survival chances,<sup>51</sup> especially in the case of first-born children, who traditionally had the highest mortality, as confirmed by our research. It has shown that while the mortality rate of children born as second or third was 237 ‰, it was up to 339‰ among the first-born.<sup>52</sup>

In addition to the next of kin, one should also consider the care provided by genetically unrelated females who lived in the same household as the infant

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48 PRAŽÁKOVÁ SELIGOVÁ, ref. 2, p. 181.

49 SOLOMON, Nancy – FRENCH, Jeffrey A. *Cooperative Breeding in Mammals*. Cambridge: Cambridge University Press, 1997. Online ISBN 9780511574634; CHAPMAN – PETTAY – LAHDENPERÄ – LUMMAA, ref. 12.

50 NITSCH, Aida – FAURIE, Charlotte – LUMMA, Virpi. Alloparenting in Humans: Fitness Consequences of Aunts and Uncles on Survival in Historical Finland. In *Behavioral Ecology*, 2014, 25, pp. 424–433. Online ISSN 1465-7279 Print ISSN 1045-2249. <https://doi.org/10.1093/beheco/art126>

51 NITSCH – FAURIE – LUMMA, ref. 50, p. 432.

52 VELKOVÁ, Alice – TUREČEK, Petr. *The effect of grandmothers on their grandchildren's survival (West Bohemia, 1708–1834), unpublished conference paper*. European Social Science History Conference, Belfast, 3. 4. 2018 – 7. 4. 2018, available: [https://www.researchgate.net/publication/330839630\\_The\\_effect\\_of\\_grandmothers\\_on\\_their\\_grandchildren's\\_survival\\_West\\_Bohemia\\_1708-1834](https://www.researchgate.net/publication/330839630_The_effect_of_grandmothers_on_their_grandchildren's_survival_West_Bohemia_1708-1834) [10.11.2020].

or child in need of care. All these considerations show that the real-life configurations in the area of childcare need not have always been in line with the inclusive fitness theory. In this respect, some fundamental differences between the south-eastern and north-western type of family formation can be expected. The joint family system was characterised by the absence of servants and other hired help, who were usually not necessary since the need for labour force tended to be met by members of the extended family. In contrast, in north-eastern Europe, the term “family” was often used in an extended meaning to include even those members of a household who were not related to the head of the family either biologically or by marriage but were subjected to his authority. Still, even in north-western Europe, the presence of unrelated persons in a household was not universal. It was strongly dependent both on the family’s social status and on prevailing inheritance customs and laws. This brings us to the next factor influencing the “grandmother effect”, namely property law, which is necessarily closely linked to the socio-economic status.

Property strongly influenced not only the structure of the family but also the future social position of each individual as well as interpersonal relations. Especially in wealthier families, usually represented by farmers and some of the better-off smallholders, it was common for both related and unrelated persons to share the same house. When it came to infant care, farming families sometimes used the help of “little nannies”, usually girls who were formally employed as farm workers.<sup>53</sup> Naturally, one could wonder whether the care provided by young and inexperienced girls could have improved the survival chances of infants and children entrusted to their care. It seems more likely that this practice had a greater effect on future motherhood of these young women (as described above). It is also possible that farmers’ children may have been raised by women from houseless lodger families who already had their own children, or by older female servants who worked on the farm, perhaps never married, and in older age could thus function as a sort of “substitute grandmothers”.

Another topic worthy of attention is the position of step-grandmothers, i.e. women who married the grandchildren’s biological grandfather. In farming families, remarriage was common and it is legitimate to ask whether a woman who married a widower was likelier to help look after her own biological grand-offspring or whether it was more natural for her to assist in the care of her step-grandchildren, who would thus have benefited from co-residence with their step-grandmother. The system of remarriage often led to the creation of stepfamilies with a very complex structure, which grandmothers may have experienced also, so to

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53 MAUR, Eduard. Čeled' a tovaryši v Čechách v soupisu podle víry z roku 1651. In *Historická demografie*, 23, 1999, pp. 85–135. ISSN 0323-0937.

speak, from the other side. For instance, a married couple may have handed the farm over to a married son who later also died. The widowed daughter-in-law married again so that eventually the household included children to whom the original housewife (wife of the former head of the household) was not biologically related but could still function as a grandmother.<sup>54</sup>

There were still other ways, evidenced by our research, in which the “grandmother effect” may have been affected by specific conditions regarding property issues. In a considerable majority of European regions, including the Czech lands, inheritance law stipulated that the main heir inheriting the family farm was to be male, not female.<sup>55</sup> Consequently, in the wealthier social strata, grandchildren often used to live with their paternal grandparents.

Even if the wife of the principal heir to a family farm came from the same social class and could therefore be expected to have received a similar upbringing as her mother-in-law, the day-to-day life on the farm still carried with it the risk of various interpersonal conflicts and frictions, arising e.g. in connection with the handing over of various rights and competences linked to a degree of authority. This often occurred when the heir’s marriage coincided with his taking over the farm and becoming its new head. The heir’s mother was then supposed to retire, i.e. relinquish her authority in favour of her daughter-in-law, a process that did not always run smoothly. The question then arises whether, in view of similar conflicts, the daughter-in-law was at all able to agree with the grandmother (her mother-in-law) on a form of care that would really benefit the children. Some research shows that co-residence with the paternal grandmother, in fact, lowered the grandchildren’s survival chances.<sup>56</sup>

Looking again at the data in Table 2, we cannot overlook that children from the settled families (i.e. those families who held a farm, which was passed over from generation to generation in line with inheritance law), who were born in the same place where their grandmother lived, could more often benefit from the presence of their paternal (25 %) than maternal grandmother (21 %), despite the fact that in general maternal rather than paternal grandmothers had a higher chance of surviving long enough to see the birth of their grandchildren. (Our research has shown that children from the category of full peasant holders and smallholders, where the share of grandmothers with no available data was the

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54 VELKOVÁ– FIALOVÁ, ref. 27.

55 KASER, ref. 43; HEAD-KÖNIG, Anne-Lise – POZSGAI, Peter (eds.). *Inheritance Practices, Marriage Strategies and Household Formation in European Societies*. Turnhout: Brepols, 2012. ISBN 9782503543956; ZEITLHOFER, Hermann. *Besitzwechsel und sozialer Wandel. Lebensläufe und sozioökonomische Entwicklungen im südlichen Böhmerwald, 1640–1840*. Wien: Böhlau, 2014. ISBN 9783205795650; VELKOVÁ, *Krutá vrchnost*, ref. 20.

56 VOLAND – BEISE, ref. 7, pp. 210–214.

lowest, had at least 33.3% of the maternal compared to 29.8% of the paternal grandmothers alive). The reason why there were more paternal than maternal grandmothers living in the grandchild's birthplace is precisely due to the fact that the newly settled families had a much closer link to the paternal landholding.<sup>57</sup>

The strong bonds with paternal grandmothers become even more evident when we analyse the place of death of those grandmothers who died before their grand-offspring were born. Our data show that whereas paternal grandmothers had lived in their grandchild's birthplace already before the child's birth in 33.7% of the cases of full peasant holder/smallholder families and in 31.8% of the cottager families, maternal grandmothers died in the future birthplace of their grand-offspring less frequently: it was the case for only 15.6% of the children born into settled families. To summarize, a strong link to property, inherited patrilineally, existed not only among full peasant holders and smallholders but also among cottager families. A total of 59.3% of the children from full peasant holder and small holder families and 57.2% of the children from cottager families were born in the place where their paternal grandmother eventually died. In contrast, maternal grandmothers from settled families died in their grand-offspring's birthplace less often – only in about 36–37% of the cases.

An entirely different model applies to the non-settled families of houseless lodgers. Here, maternal grandmothers (19.2%) lived more often in the child's birthplace than paternal ones (12.4 %). This difference may be partly due to the age gap between spouses mentioned earlier. Another factor to consider is that in the houseless lodger families co-residence of several generations was often the result of existential difficulties, which this type of co-residence as well as mutual solidarity helped alleviate. It is especially in the poor social strata that we observe the benefits of three-generational co-residence, which in the Czech lands tended to consist of living together with the wife's rather than the husband's parents.<sup>58</sup> The typology of residents sharing the same house used to be very diverse and often rather complicated in terms of kin relationships. A closer look at the composition of households of cottagers and the landless reveals another important aspect, namely that grandmothers could often live together with several of their adult children and consequently with grandchildren born into several diffe-

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57 MORING, Beatrice. Family Strategies, Inheritance Systems and the Care of the Elderly in Historical Perspective – Eastern and Western Finland. In *Historical Social Research*, 1998, 23, pp. 67–82. ISSN 01726404. <http://www.jstor.org/stable/20756184>; HORSKÁ Pavla, Historical Models of the Central European Family: Czech and Slovak Examples. In *Journal of Family History*, 1994, 19, pp. 99–106. ISSN 0363-1990. <https://doi.org/10.1177/036319909401900207>

58 VELKOVÁ, ref. 2, pp. 225–226; GRULICH, Josef. *Populační vývoj a životní cyklus venkovského obyvatelstva na jihu Čech v 16. až 18. století*. České Budějovice: Historický ústav Filozofické fakulty Jihočeské university v Českých Budějovicích, 2008, pp. 302–309. ISBN 978-80-7394-091-1.

rent families.<sup>59</sup> Such forms of co-residence may have been mutually convenient since while the elderly (often widowed) grandmother helped with childcare, she benefited from the presence of her own children, receiving support in her old age, which she would have hardly found elsewhere.

Moreover, it is highly likely that in such families, personal relations were more intense and may have more significantly influenced certain demographic processes which formed a natural part of a life cycle. Among the landless, child and infant care provided by grandmothers may have played a crucial role since poor families usually could not afford to employ any other help, unlike the richer strata of farm holders, who shared their household with other persons who could function as substitute grandmothers. Preliminary results of our research project concerned with testing the influence of grandmother presence on under-five child mortality do in fact show that the presence of grandmother (maternal or paternal) had a positive effect on grand-offspring mortality precisely in the category of houseless lodgers.<sup>60</sup>

Another consideration based on our data is that where property did not play a decisive role, the model consisting in making use of care provided by maternal grandmother appears to be more natural since it is less risky in terms of potential conflict than co-residence with a paternal grandmother, who may have tried to defend a different style of upbringing. When we analysed data on children from houseless lodger families we found rather considerable differences based on whether the grandmother who died in her grand-child's birthplace was still alive when the child was born or not. While in the group of children whose grandmother had died before they were born, the child's parents more often settled down in the place of death of the paternal (17.2%) rather than maternal (11.5%) grandmother, those children who actually lived in the same place as their grandmother, who was still alive, benefited more often from the availability of the maternal (19.2%) rather than the paternal one (12.4%). This may have been a conscious strategy on the part of women who, after they married and started to have children, invited their mother to live with them and have them help with

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59 VELKOVÁ– FIALOVÁ, ref. 27.

60 Preliminary results of the above-mentioned project Testování „hypotézy babiček“ have been presented in the following conference papers: VELKOVÁ – TUREČEK, ref. 52; VELKOVÁ, Alice – TUREČEK, Petr. *Transgenerational Effect on Reproduction based on Parish Registers from the 17th–19th Century Bohemia*. European Population Conference, Brussel, 6. 6. 2018 – 9. 6. 2018; TUREČEK, Petr – VELKOVÁ, Alice – HAVLÍČEK, Jan. *The effect of paternal and maternal grandmothers on their grandchildren's survival in 17–19th century West Bohemia*. 5th International Conference of the Polish Society for Human and Evolution Studies, Centre of New Technologies, Warsaw, Poland 24.– 26. 9. 2018; VELKOVÁ, Alice – TUREČEK, Petr. *Child mortality in stepfamilies (West Bohemia, 1700–1850)*. European Society of Historical Demography Conference, Pécs, 26 – 29 June 2019.

childcare. The data on grandmothers living within the 15 km distance from the child's birthplace seem to support this assumption. While in the group of grandmothers who had died, maternal grandmothers living within that distance were twice as frequent as the paternal ones, among the grandmothers who lived to see the birth of their grand-offspring this ratio is balanced, possibly suggesting that grandmothers who originally lived in a different place than their married daughters came to live with them after their grandchildren were born.

Unfortunately, there is still no research dealing with the specific impact of various household types on young child mortality. In this respect, a more complex household structure with a large number of relatives was not necessarily an advantage, quite the contrary may have been true. In a situation where a limited amount of resources had to be divided between a number of (mostly economically dependent) people, competition may have replaced cooperation.<sup>61</sup> Similarly, there is also the issue of how grandmother care affected the survival chances of grandchildren in regions with the prevalence of joint families. On the one hand, this system may have made grandmother care more available (grandmothers lived directly in the same household with their grand-offspring). On the other hand, however, given that a joint family may have comprised the nuclear families of several of the woman's offspring, the advantage of co-residing with one's grandmother may have been offset by living with too many other grandchildren or even the grandmother's own young children in need of care.

It is precisely this aspect that most clearly reveals the issues connected with statistical testing of the "grandmother hypothesis". Since we are unable to assess how frequently various people participated in care for young children, nor the quality of such care, we are unable to effectively prove or disprove "grandmother effect" for the different types of families and households. There appears to be statistical power only when no other woman besides the grandmother lived in the household with the parents and children. In such cases, we can perhaps consider potential differences in infant mortality rates depending on the availability vs. unavailability of grandmother as statistically powerful. In the case of more complex family constellations, however, the answers are much more complicated. The mere fact that we are unable to statistically prove lower infant mortality rates due to the grandmother's presence does not necessarily mean that grandmother care did not actually have this effect. We may have cases when grandmother care was indeed unavailable and should have theoretically resulted in higher infant

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61 BORGERHOFF MULDER, ref. 9; CHAPMAN, Simon N. – PETTAY, Jenni E. – LUMMAA, Virpi – LAHDENPERÄ, Mirikka. Limits to Fitness Benefits of Prolonged Post-Reproductive Lifespan in Women Report Limits to Fitness Benefits of Prolonged Post-Reproductive Lifespan in Women. In *Current Biology*, 2019, 29, pp. 645–650. ISBN 978-3596273515. <https://doi.org/10.1016/j.cub.2018.12.052>.



mortality, but at the same time the negative impact of the grandmother's absence was eliminated by care provided by a different person living in the household.

This brings us to the important question of whether we are able to differentiate with sufficient precision between “grandmother effect” and the effects exercised by other factors (which may be labelled as “competing causalities”). It would be especially helpful if we were able to establish a ratio between the “grandmother effect” and the “effect” of other people, possibly described as unrelated “substitute grandmothers” (i.e. persons, whose care of their “quasi grand-offspring” would fall outside the scope of the principle of inclusive fitness).

Establishing the relative importance of effects exercised by these two groups of people would be of considerable interest also from the perspective of biological vs. cultural evolution of mankind. Cultural symbolic representations – as conceived, for instance, in the framework of Cassirer's theory of symbolic forms – create (intersubjective) bonds of sympathy which go beyond physical, physiological (and even genetic) ties.<sup>62</sup> If further research showed that assistance with delivery and care for infants and young children provided by other people than one's kin (i.e. by people linked to the mother by strong bonds of cultural-symbolic nature) had or still has a comparable or possibly even stronger “effect” (in terms of lowering infant mortality, shortening of inter-birth intervals) than the “grandmother effect”, it would be a significant contribution to the debate on whether and to what extent culture can complement or substitute the role of genes.

## Conclusion

In the present text, we discussed the role of grandmothers in pre-modern society as well as the extent to which the analysis of sources and various research methods are at all capable of revealing how the care for grand-offspring worked in practice and how it affected the reproductive success of the grandmothers' children. We mainly focused on two aspects – firstly on the conditions which need to be met so that grandmother care can be considered as potentially available in the first place, and secondly on the linkage between care for young children and the composition of households. In the context of research on the “grandmother hypothesis”, a theory from which our work draws its main inspiration, an important and unique feature of our work consisted in the separate treatment of families based on their socio-economic categories, since these were a decisive factor affecting both the availability of grandmother care and the composition of households.

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62 CASSIRER, Ernst. *Der Mythos des Staates. Philosophische Grundlagen politischen Verhaltens*. Frankfurt am Main: Fischer Verlag, 1994, pp. 53–69.

As for the availability of grandmother care, our analysis has demonstrated that in pre-modern society there indeed existed a strong potential for grandmothers to contribute to care for young children. Based on our results, we can estimate that about two thirds of the children could have at least one grandmother who was still alive when they were born, with about one quarter of the children possibly having both their grandmothers alive. Still, the fact that a grandmother lived long enough to see the birth of her grandchild did not automatically mean that she would help raise it. The second condition for potential grandmother care was geographical availability, where, in line with other studies, we set the limit of 15 km. Setting this limit also helped us deal with those cases when we did not know the grandmothers' date or place of death. Given that we looked for the death data in the 15 km radius, we could assume that if we failed to find it, it was because the grandmother most probably lived farther away and could therefore be considered as unavailable in terms of providing care regardless of whether she was still alive or not when her grandchild was born. Overall, we found that at their birth 45.9% of the children had at least one grandmother alive and living within the 15 km radius (10.6% of the children had both grandmothers alive). Interestingly, one of the two grandmothers of most of these children was available directly at the child's birthplace – in total this was the case for 37.4% of the children (5.3% of the children had both grandmothers living in the child's birthplace)

While these figures reflect the overall quantification of available grandmother care they do not reveal the considerable differences between the individual social categories. Here it was crucial to distinguish between the so-called settled families (those who held immovable property, albeit without fields) and non-settled families, often highly mobile. While half of the children from the full peasant holder, smallholder, and cottager families were able to benefit from care provided by their grandmother living within the 15 km distance (with 41% of the children having at least one of their grandmothers directly in their birthplace), this was the case for only 36.1% of the children from houseless lodger families (with 28% of such children having at least one of the two grandmothers living in their birthplace). As we attempted to show, these differences are closely linked with general cultural patterns, which affected the system of family formation and concrete inheritance practice. At the same time, these factors led to still other significant differences, which resulted in a different degree of availability of maternal vs. paternal grandmothers. While the settled families were more strongly connected with the paternal grandmother precisely due to inheritance law, which in the Czech lands clearly favoured male descendants, non-settled families more often co-resided with their maternal grandmother.

Even though in the present study, based on analyses of data reconstructed on the Štáhlavy estate in western Bohemia in 1708–1834, we attempted to find

out whether grandmother care for grand-offspring was at all possible in pre-industrial society, we realize that the actual quality of care and the extent of the grandmothers' participation depended on other circumstances which cannot be captured by the sources available to us. Such factors included the grandmother's health, her work duties or whether interpersonal relationships made it possible for her to help raise her grand-offspring in the first place. At the same time, we need to consider that raising young children was not restricted only to biological grandmothers since there were other individuals who could successfully fulfil the role of grandmother and obscure a possible "grandmother effect", which is usually assessed by means of quantitative methods. This is why further research should be conducted with the aim of shedding more light on interpersonal relationships in pre-modern society.

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DER EINFLUSS DES SOZIOÖKONOMISCHEN STATUS  
UND DER STRUKTUR DES HAUSHALTS AUF DIE VERFÜGBARKEIT  
DER GROSSMUTTER BEI DER BETREUUNG DER ENKEL.  
MÖGLICHKEITEN DER ÜBERPRÜFUNG

DER SOGENANTEN GROSSMUTTER-HYPOTHESE  
AN MITTELEUROPÄISCHEN HISTORISCHEN FAMILIEN

JAN H O R S K Ý – A L I C E V E L K O V Á

Die Studie befasst sich mit der Rolle der Großmütter bei der Betreuung der Enkel in vor-modernen Familien, und dies in breiten kulturellen Zusammenhängen dieses Phänomens. Der Ausgangspunkt sind quantitative Analysen von Daten, die durch die Methode der Rekonstruktion der Familien aus Pfarrmatriken in der Herrschaft Štáhlavy (Westböhmen) in den Jahren 1708–1834 gewonnen wurden. Der Zweck dieses Artikels ist jedoch eine qualitative Interpretation dieser Ergebnisse, die sich auf zwei Hauptaspekte richtet, nämlich die Fragen, inwieweit die Betreuung durch eine Großmutter verfügbar war und in welchem Maß das Phänomen dieser Betreuung von der Struktur des Haushalts und des sozioökonomischen Status der Familie abhängig war.

Rahmen der Verfügbarkeit der Betreuung durch die Großmutter werden drei Kriterien diskutiert: 1) War die Großmutter zum Zeitpunkt der Geburt des Kindes noch am Leben? 2) Lebte die Großmutter in entsprechender Nähe? (Die Grenze für eine zugängliche Betreuung durch die Großmutter wurde mit 15 km vom Wohnort des Kindes festgelegt.)

3) Wurde die Betreuung durch die Großmutter nicht durch andere Umstände verhindert, die für die Familiensituation besonders waren? Im zweiten Teil des Artikels wird überprüft, in welchem Maß die Möglichkeit einer Inanspruchnahme der Betreuung durch die Großmutter von der sozialen Stellung der jeweiligen Familie abhängig war.

Die hier vorgestellten Ergebnisse zeigen, dass sich die Großmütter tatsächlich auf bedeutende Weise an der Betreuung ihrer Enkel beteiligen konnten, denn etwa zwei Drittel der Kinder hatten bei ihrer Geburt wenigstens eine Großmutter, wobei fast bei der Hälfte der Kinder diese Großmutter bis höchstens 15 km vom Wohnort des Kinds lebte. Eine genauere sozioökonomische Analyse zeigte ebenfalls, dass die Betreuung durch die Großmutter öfter für Kinder aus angesessenen Familien zugänglich war, wobei dies hier mehrheitlich die Großmutter väterlicherseits war, während für Kinder aus nicht angesessenen Einmieter-Familien diese Betreuung weniger häufig erreichbar war, wobei hier die Großmutter mütterlicherseits dominierte.

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