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A Top-down Approach to the Historical Demography of 18th-Century Pomerania

Podejście top-down do demografii historycznej XVIII-wiecznego Pomorza

Abstract

Taking advantage of relatively well-preserved Prussian statistics, the author examines the dynamics of the Pomeranian population in the 18th century to suggest priorities for further studies at both the individual and local community level. He proposes to take the concept of the mode of reproduction as their common paradigm and also take a functionalist approach, even if detailed research may reveal that it was not external forces, as older theories proclaim, but internal forces of destabilization that finally destroyed the assumed system.

Keywords

Pomerania, 18th century, Prussian statistics, demography, population growth, mode of reproduction, mortality, age at marriage

Abstrakt

W analizie rozwoju populacji Pomorza w XVIII w. autor korzysta z relatywnie dobrze zachowanych statystyk pruskich, aby określić priorytety dalszych badań na poziomie jednostek, zbiorowości lokalnych czy też wspólnot. Za ich wspólny paradygmat proponuje przyjąć koncepcję sposobu reprodukcji i podejście funkcjonalistyczne, nawet gdyby szczegółowe badania pokazały, że to nie siły zewnętrzne, jak głoszą starsze teorie, lecz wewnętrzne, zdestabilizowały zakładany system.

Słowa kluczowe

Pomorze Zachodnie, XVIII wiek, statystyki pruskie, demografia, wzrost liczby ludności, sposób reprodukcji, umieralność, wiek zawierania małżeństw

Introduction

In a recent article, when revisiting the publications in *Population Studies* over the last few decades, Graham draws attention to a current problem in demographic research. She points out that there is a great deal of description, but little explanation. To avoid the establishment of apparent singularities, she calls for the development of coherent explanatory strategies, a consistent application of concepts, and the unambiguous use of terms. *Mutatis mutandis*, her claim for more groundwork also applies to historical demography.¹ For different reasons, the risk of an investment in isolated descriptions is even higher there, since collecting the primary empirical material is more demanding, people's motives (a principal vector of explanation in demography) are more difficult to detect, and the resources for research are more limited. In Polish and German historical demography in particular, where the map of case studies consists mainly of blank spots, it is essential to get results that can be compared to each other in the background of the larger framework into which they integrate. Thus, providing information for the design of such projects must be a key concern. The present paper is focused on the case of 18th century Pomerania. In this respect, some general problems of historical demographic research must be mentioned, without any claim to completeness. At first, however, the title of the present paper needs some explanation.

The expression “top-down” implies no more grading of appreciation than should, for example, the distinction between “classic”, used for family reconstitution studies, and “pre-classic”, for studies on the history of populations.² Whereas the latter expression refers to the history of the discipline, the former relates to three levels of abstraction. At the base are micro-studies dealing with people, families, and households considered individually. The second and the third level are about populations of different sizes. An investigation of small aggregates including villages, parishes, or communities can be called a micro-study for as long as individuals are still perceptible. It is unambiguously a matter of macro-studies only when regions or larger areas and just numbers are involved, so that an overview like the one presented here is at the so-defined top level. Depending on the degree

¹ Elspeth Graham, “Theory and Explanation in Demography: The Case of Low Fertility in Europe,” *Population Studies* 75 (2021), suppl. 1: 149. In 2007, Szoltysek was already expressing similar criticism about historical demography (Mikołaj Szoltysek, “Science without Laws? Model Building, Micro-Histories and the Fate of the Theory of Fertility Decline,” *Historical Social Research* 32 [2007]: 10–41), where the discussion of categories and concepts has gained in importance (see Simon Szreter, Hania Sholkamy, and A. Dharmalingam, eds., *Categories and Contexts. Anthropological and Historical Studies in Critical Demography* (Oxford: Oxford University Press, 2004)).

² Piotr Guzowski, and Piotr Rachwał, “Sprawozdanie z posiedzeń Zespołu Demografii Historycznej Komitetu Nauk Demograficznych PAN w 2017 roku,” *Przeszłość Demograficzna Polski* 41 (2019): 253.

of abstraction, methods are not identical, nor is the preliminary work, such as family reconstruction or tracking life courses versus the collection and critical assessment of already aggregated, although forgotten data. At each level numbers provide arguments.³ They bear a problem similar to that mentioned by Graham. Forty years ago, Schofield and Coleman called it a lack of “a central paradigm linking small-scale and large-scale processes.”⁴ The creation of individual-level data bases, for example, is intended to overcome this difficulty.⁵

In what follows, the development of the Pomeranian population in the 18th century will be revisited to shed new light on its dynamics. After this diachronic presentation we will turn to the system of reproduction of the population and thus to the structural or synchronic aspect of the issue. Then the following section of the article will look at the factors impacting such a system, before finally outlining the approaches considered useful for further research in the case of Pomerania.

Population Development and Population Balances

The number of inhabitants of a country and its evolution are of general interest, so generally, historical overviews mention them. Pomerania is no exception. Among the factors supposed to have influenced its demographic development in the 18th century, Szultka and Lesiński emphasize migrations and politics, less the social conditions in the country.⁶ Most of their information comes from the time series of births, marriages, and deaths, which were established in 1689 in the territories of the Hohenzollern dynasty and published by Süßmilch, Büsching, Brüggemann, and the Prussian statistician Behre. Their data are still referential today.⁷ For Pomerania, Szultka and Lesiński scrutinized the originals from the 17th and 18th centuries in the archives of Szczecin, Berlin, and Greifswald, so that they could complete and even improve Behre’s list. By taking the numbers of inhabitants as they

³ When it comes to aggregated data, not only the history of the concepts (see f.n. 1) used, but also the history of the generation of data must be taken into consideration. For more on the Pomerania and Prussia data see Rolf Gehrman, “Theoria cum praxi: Science et politique au XVIIe et XVIIIe siècles à l’exemple de la statistique vitale,” *Annales de Démographie historique*, forthcoming.

⁴ Roger Schofield, and David Coleman, “Introduction,” in: *The State of Population Theory: Forward from Malthus*, ed. David A. Coleman (Oxford: Blackwell, 1986), 11.

⁵ Tommy Bengtsson et al., *Life under Pressure. Mortality and Living Standards in Europe and Asia, 1700–1900* (Cambridge, MA: MIT Press, 2004), 19.

⁶ Zygmunt Szultka, and Henryk Lesiński, oprac., *Pomorze Zachodnie w latach 1648–1815* (Poznań: Wydawnictwo Poznańskie, 2003). Cf. Brage Bei der Wieden, *Die Entwicklung der pomerschen Bevölkerung 1701–1918* (Köln–Weimar: Böhlau, 1999).

⁷ Johann P. Süßmilch, *Die göttliche Ordnung in den Veränderungen des menschlichen Geschlechts, aus der Geburt, dem Tode und der Fortpflanzung desselben erwiesen* (Berlin: Realschule, 1761); Anton F. Büsching, *Zuverlässige Beyträge zu der Regierungs-Geschichte Königs Friedrich II. von Preußen, vornehmlich in Ansehung der Volksmenge, des Handels, der Finanzen*

appear in the sources, they stated the primary data of the evolution of the Pomeranian population, but did not tackle the problem of estimating migrations before the final third of the 18th century, an issue which, next to population size, interested them most, though. Other demographic problems were also left lying fallow.

If there had been no censuses, the population of Pomerania would just have to be estimated. A multiplier of the vital events, as applied by Süßmilch and again by Szultka and Lesiński, would be the last resort then. The drawback of this method is evident: it leads inevitably to circular reasoning and blocks the possibility of analyzing the evolution of birth and death rates. Fortunately, census data exist from 1728 onwards for the territory of Prussian Pomerania, whose frontiers remained virtually unchanged between the end of the Great Nordic War and the Napoleonic Wars.⁸ They require correction by reasonable estimation, based on the knowledge of the extent of under-registration in the so-called “Historische Tabellen”, before this kind of census was sufficiently complete on the eve of the Seven Years’ War.⁹ In addition, some administrative areas of the Lutheran church in Pomerania,

und des Kriegswehers (Hamburg: Bohm, 1790); Ludewig W. Brüggemann, *Beiträge zu der ausführlichen Beschreibung des Königl. Preußischen Herzogthums Vor- und Hinter-Pommern* (Stettin: Leich, 1800); Otto Behre, *Geschichte der Statistik in Brandenburg-Preußen bis zur Gründung des Kgl. Preußischen Statistischen Büros* (Berlin: Heymanns, 1905); Patrick R. Galloway, “Basic Patterns in Annual Variations in Fertility, Nuptiality, Mortality, and Prices in Pre-industrial Europe,” *Population Studies* 42 (1988): 275–303; Szultka, Lesiński, *Pomorze*.

⁸ After the towns, censuses included the rural areas of Bütow and Lauenburg from 1752 (a fact Behre ignored, which led to double-correction). Still, this part of the former Polish part of Prussia had separate vital statistics until 1776, which we do not know completely. In these cases, we estimated the missing values, which meant an increase in the annual totals of ca. 5%. A similar case was the *starostwo drahinskie* (Draheim) until 1750 (0.8% of vital events), of which the censuses previously included at least the town of Tempelburg / Czaplunek. On the other hand, Bernstein / Pelczyce disappeared after 1768 in the vital statistics (0.3%) and never appeared in the “Historische Tabellen”. As they are statistically insignificant, we can disregard the last changes. Unfortunately, we do not know to what extent civil officers counted soldiers on leave (*Beurlaubte*) in the countryside as residents. This was a source of under-registration (see Rolf Gehrman, *Bevölkerungsgeschichte Norddeutschlands zwischen Aufklärung und Vormärz* [Berlin: Berlin-Verlag, 2000], 48). If their number was only about 4,000, as Szultka and Lesiński presume (*Pomorze*, 494), then it was a negligible quantity. That means, as well in the sense of an under-registration, since until the Seven Years’ War, the vital events of the military population were partially reported by civic pastors, an over-registration, since afterward, this was not the case, so that the “Historische Tabellen” give potentially a too high population at risk. Only at the beginning of the 19th century were they counted separately. To sum up: Due to the imperfections in the separation of military from civil statistics, it cannot be excluded that, in proportion to the vital event registered, the denominator, i.e. the population at risk, is under-estimated before and over-estimated after the Seven Years’ War. However, this margin of error is not large enough to alter the general results.

⁹ In Pomerania, a minor improvement also occurred in 1770. This assessment is different from Szultka and Lesiński’s, who sometimes base their arguments on assumptions that provide only weak benchmarks (see Szultka, Lesiński, *Pomorze*, 484). It leads them to the erroneous conclusion that the quality of the data diminished during the 1770s and 80s (*ibid.*, 494). In analogy to Silesia, they consider the census of 1787 the first complete one (cf. Tadeusz Ładogórski, “Ludność,” in: *Historia Śląska*, t. 2, cz. 1: 1763–1806, ed. Waclaw Długoborski, 20–61 [Wrocław–Warszawa–Kraków:

the synods, are missing the number of births, marriages, and deaths for a few years.¹⁰ In order to minimize potential errors, obtaining thus the most reliable data possible, we digitalized all available information about the towns and the synods for the period 1689–1807. If not indicated otherwise, this data file is the source for all the tables and graphs in this article. Its original sources are listed before the general references as “Primary sources for vital statistics and census (“Historische Tabellen”) data”.

Still, even these controlled data do not allow the computing of short-term migration balances. One of the reasons is the lack of date homologation between civil and ecclesiastical reports. However, it is possible to establish migration balances, which are more than just a good guess, for more extended periods between reliable censuses. For this purpose we selected the years 1755, 1764 and 1804 as anchors, and added an estimated number of inhabitants in 1728 based on corrected rural census results and an estimation for towns in order to get information on the period before the Seven Years’ War (table 1).¹¹ It must be kept in mind that the numbers refer exclusively to the civil population, so that statistical artifacts can appear. The Prussian recruitment system in particular is a disruptive factor: A Pomeranian-born soldier was statistically an emigrant if he died before returning to civil life.

Despite these restrictions, the results reveal a consistent model and shed new light on migrations. Accordingly, the migration balance was far from being as disadvantageous as the numerous examples of flights from servitude and the Prussian military system or other kinds of emigration cited by Szultka and Lesiński may suggest. It was compensated by immigration organized by the Prussian kings,

Zakład Narodowy im. Ossolińskich, 1966], 21). For the evolution of the Prussian censuses in general, see Gehrman, *Bevölkerungsgeschichte*.

¹⁰ The statistical tables mention the Calvinist minority too. This minority and others were insignificant. The registration and statistical treatment of stillbirths are more of a problem. Until 1777, the pastors registered them in general only as burials and not as births. Therefore, the difference between baptisms and burials is a little too small. Finally, they had to note stillbirths on both sides of the balance sheet. Our model includes the following correction: until 1777, the part of incorrectly declared stillbirths is assumed as being 1.8 % of the registered births and withdrawn from the number of deaths. Consider that until the Seven Years’ War, the difference between the apparent and corrected natural increase is bigger than the apparent or real migration totals! In 1801, new rules artificially inflated the number of vital events in the general statistics, since vital events in the military population were included, when the official duties that accompanied them were performed by civic pastors, but the population at risk stayed unchanged. So for the computation of vital rates for the years 1801–1807, we had to correct the number of vital events by diminishing them along the lines of the 1799 and 1800 percentages (8.0% for births, 10.7% for marriages, 3.7% for deaths). Cf. footnote 8. For the military population of Pomerania see Szultka, Lesiński, *Pomorze*, 510.

¹¹ This choice does not mean that only these censuses were reliable. However, until 1751, 9% must be added for the categories of rural population not counted (cf. Gehrman, *Bevölkerungsgeschichte*, 44), and afterwards there were still sometimes erratic variations between consecutive years. As for other Prussian provinces, the census of 1763, exceptionally carried out in spring, leads to an overestimation of the losses of the Seven Years’ War that Szultka and Lesiński (*Pomorze*, 493) put at 55,000–60,000.

the so-called colonization, which, thus, all things considered, could not have a significant demographic effect either. However, it was not a negligible detail in the history of the Pomeranian population. According to Hertzberg, more than twenty thousand people came to the province, a number one and a half times the population of Stettin / Szczecin at that time, but inferior to the losses in the Seven Years' War. Wutstrack mentions a number of 13,503 settlers, 10,976 for 1740–1756, and 2,527 for 1763–1775.¹² Later, in the fifteen years before 1806, there must have been migration not only from rural to urban areas, documented by the detailed statistics in the historical tables of the towns, but also out of Pomerania. Wieden considers this phenomenon as a symptom of resource scarcity in relationship to population (“Nahrungsspielraum”), despite the fact that the population density (21 inh./km² in 1804) was still very low in this Baltic province.¹³

Table 1. The balance of natural growth and migrations in Pomerania, 1729–1804

Year	Population		Period total		Per annum			
	n	r (%)	natural	migratory	natural		migratory	
1728	284,483*
1755	373,423	1.01	87,433	1,507	3,238	0.99%	58	0.02%
1764	325,254	-1.53	-7,288	-40,881	-810	-0.23%	-4,542	-1.30%
1804	509,617	1.12	172,486	6,421	4,312	1.05%	297	0.07%

* Rural census (182,504) × 1.09 + 77,000 estimated urban population.

Source: “Primary Sources” in bibliography [and strike out “(first part of references)”].

The model presented in table 1 shows the overwhelming importance of a robust natural growth compensating for the effects of migrations. The margin of error that must be conceded to the data cannot be so large that it would alter this main information. However, migrations draw more attention to themselves. Moreover, they also refer to the issue of “qualitative” versus “quantitative” contributions to population development. It is an argument frequently applied for the Huguenots and

¹² Christian F. Wutstrack, *Nachtrag zu der kurzen historisch-geographisch-statistischen Beschreibung von dem königlich-preußischen Herzogthume Vor- und Hinter-Pommern* (Stettin: Leich, 1795), 54. Ewald Friedrich Graf von Hertzberg, *Sur la population des états en général et sur celle des états prussiens en particulier* (Berlin, 1785) counted 5,312 families between 1740 and 1786. Cf. Max Beheim-Schwarzbach, *Hohenzollernsche Colonisationen. Ein Beitrag zu der Geschichte des preußischen Staates und der Colonisation des östlichen Deutschlands* (Leipzig: Duncker & Humblot, 1874).

¹³ Wieden, *Entwicklung*, 12. The assumption may not be as absurd as it seems at first glance, since the new population density was probably higher than before the Thirty Years' War. Without an adaptation of the economy, Pomerania would again already have approached a Malthusian trap.

other minorities, but it is also relevant to the age structure of migration. This topic is out of scope here. Another question has priority: How can such extraordinary growth rates be explained in terms of reproduction and, if possible, contextualized?

Population Dynamics

One can argue that the speed of natural growth of the Pomeranian population in the 18th century was not surprising since the population density was low, and, like in Mecklenburg, the demographic impact of the Thirty Years' War probably disappeared only after the Seven Years' War.¹⁴ However, the long recuperation process alone does not explain the prevailing growth rate (r) of 1% in the 18th century, distinguishing Pomerania from regions west of the Oder like Mecklenburg or the Kurmark as well as from most European countries, including England before the industrial revolution, and certainly from the three core parts of Poland with their estimated value of 0.48% for 1720–1790.¹⁵ On the other hand, in the second half of the 18th century such a growth rate was not a unique case. In Württemberg it was similar, although under entirely different socio-economic conditions. In Pomerania, the demographic boom was to last, generating until the 1870s higher rates of natural growth than in all the other parts of Prussia east of the Oder. The data collected for 1820–1834 by the Prussian statistician Hoffmann give more details for this contrast, which appears even more striking, when smaller geographical unities are represented.¹⁶ With the exception of the area including Stettin / Szczecin, the demographic situation in Pomerania was uniform then.

¹⁴ Rolf Gehrmann, "Die Bevölkerungsgeschichte Mecklenburg-Vorpommerns im 17. bis 19. Jahrhundert als Forschungsproblem," in: *Geschichte – Kartographie – Demographie: Historisch-Geographische Informationssysteme im methodischen Vergleich*, eds. Michael Busch, Stefan Kroll, and Rembrandt Scholz (Berlin: LIT, 2013), 146. The findings for Mecklenburg raise skepticism against such excessive long-term rates before 1728, as cited by Szultka and Lesiński (*Pomorze*, 488), referring to Behre. Even with a high birth rate of 40, the mean natural increase from 1689 to 1725 should not have been higher than 1.3%. Then the population would have doubled in 59 years, that is until 1748.

¹⁵ Irena Gieysztor, "La Pologne," in: *Histoire des populations de l'Europe*, t. 1: *Des origines aux prémices de la révolution démographique*, eds. Jean-Pierre Bardet and Jacques Dupâquier (Paris: Fayard, 1997), 570. This is close to the 0.43% per annum computed for Germany, 1750–1800 (Gehrmann, *Bevölkerungsgeschichte*, 97). For England, Sweden and France see Edward A. Wrigley, and Roger S. Schofield, *The Population History of England 1541–1871: A Reconstruction* (Cambridge: Cambridge University Press, 1989), 213.

¹⁶ Johann G. Hoffmann, *Darstellung der Bevölkerungs-, Geburten-, Ehe- und Sterblichkeits-Verhältnisse, welche im preußischen Staate in den 15 Jahren 1820 bis mit 1834 bestanden = Abhandlungen der Königlich Akademien der Wissenschaften zu Berlin aus dem Jahre 1841*, Bd. 3 (Berlin: Dümmler, 1843); Rolf Gehrmann, "Der demographische Umbruch vom 18. zum 19. Jahrhundert in Norddeutschland – ein auf die Gebiete östlich von Oder und Neiße übertragbares Modell?"

Was this rapid growth of the Pomeranian population driven by low mortality or by high fertility? Prussian mortality statistics provide the elements necessary for a reasoned response to this question. They allow the computing of birth rates (CBR), death rates (CDR) and even life tables, for their division into age groups of deaths is highly appropriate for applying the mathematical formulas corresponding to the model of quasi-stable populations, as has been described by Bourgeois-Pichat.¹⁷ They do not require the age distribution of the living, missing for Prussia before 1864, and are suitable for the 18th century data too.

For 1820–1834 it can be ascertained that the rapid growth of the Pomeranian population was the result of a combination of low mortality or high fertility. Life expectancy at birth was 43.2 years for the four coastal areas of Pomerania highlighted by asterisks in figure 1, and 39.4 even in the Szczecin region. In the south-eastern neighboring districts it was significantly lower (34.3 in the Prussian province of “West Prussia”, for example). On the other hand, what they all had in common was high fertility, measured by the gross reproduction rate (GRR) under the assumption of a mean age at childbirth (the so-called *m*-value) of 31. Until the onset of the fertility decline in the first decade of the 20th century, this “eastern” cluster would persist.¹⁸ In 1820–34, the GRR was 2.47 in our reference area, i.e. Prussian Pomerania before 1815, and thus clearly beyond the divide of 2.39 between “high” and “low” in figure 1.

The same method can be used to calculate the corresponding indices for 1778–1803. Then, life expectancy was 38.5 years, whereas the mean age of all deaths was only 29.5 (supposing they occurred in the middle of each age group). This enormous difference demonstrates the drawbacks of the method which takes the average age at death for life expectancy at birth, which only holds for a stationary population. The Pomeranian population was far from such an equilibrium. In terms of life expectancy at birth, the Pomeranian values were remarkably good, like the East Frisian ones, which headed the provinces of 18th century Prussia.¹⁹ In combination with the GRR of that period (2.30) this meant that every woman had on average 4.7 live births, of which 2.9 survived childhood. It would need family

in *Przemiany demograficzne Europy Środkowej w czasach nowożytnych*, ed. Uniwersytet Zielonogórski (Zielona Góra: Uniwersytet Zielonogórski, 2010), 231–253.

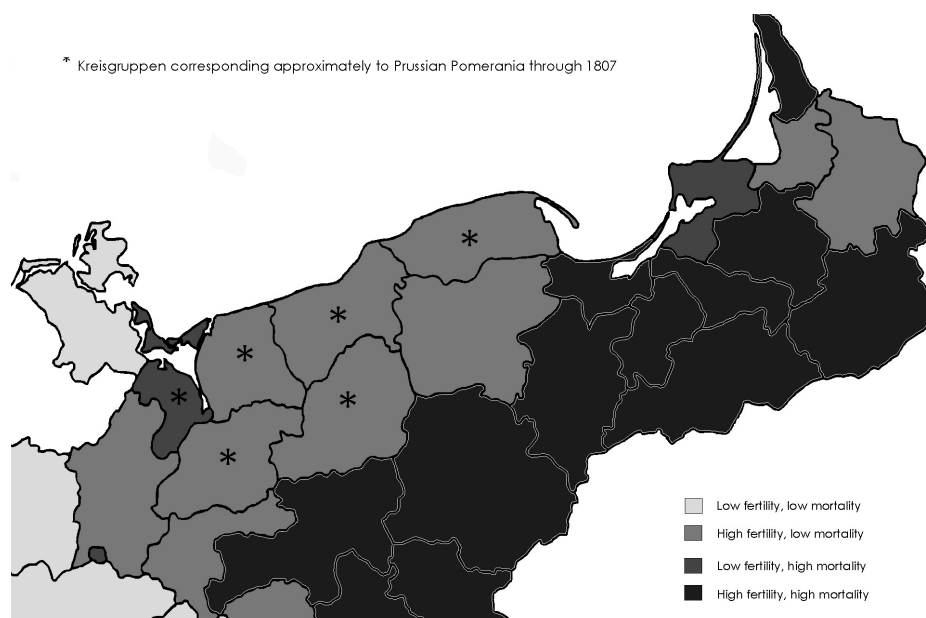
¹⁷ Jean Bourgeois-Pichat, *La dynamique des populations. Populations stables, semi-stables, quasi-stables* (Paris: I.N.E.D., 1994). Cf. Grażyna Liczbińska, “Ecological Conditions vs. Religious Denomination. Mortality among Catholics and Lutherans in Nineteenth-century Poznań”, *Human Ecology* 39 (2011): 797. In semi-stable populations fertility is supposed to be stable, so that for our purposes the intrinsic growth rate can be replaced by the observed growth rates.

¹⁸ John E. Knodel, *The Decline of Fertility in Germany, 1871–1939* (Princeton: Princeton University Press, 1974), 54, 99.

¹⁹ Gehrman, *Bevölkerungsgeschichte*, 482. Cf. Arthur E. Imhof, *Lebenserwartungen in Deutschland vom 17. bis 19. Jahrhundert. Life Expectancies in Germany from the 18th to the 19th Century* (Weinheim: VCH Acta Humaniora, 1990), 266, based solely on a rural sample.

reconstitutions to learn about the range of family sizes around this average, and thus about “real life”. Nevertheless, we can affirm that for women who were married at some point in time, the average number of pregnancies resulting in live births or stillbirths was approximately 5. Consequently, the number was higher for those reaching the age of 45 or 50. The associated net reproduction rate (NRR) of 1.35 (equals the number of daughters still living at age m , the mean age at childbirth) sustained the observed growth rate of 1%, or, in other terms, a doubling of the population in seventy years.

Figure 1. Demographic features of the north-eastern Prussian districts, 1820–1834



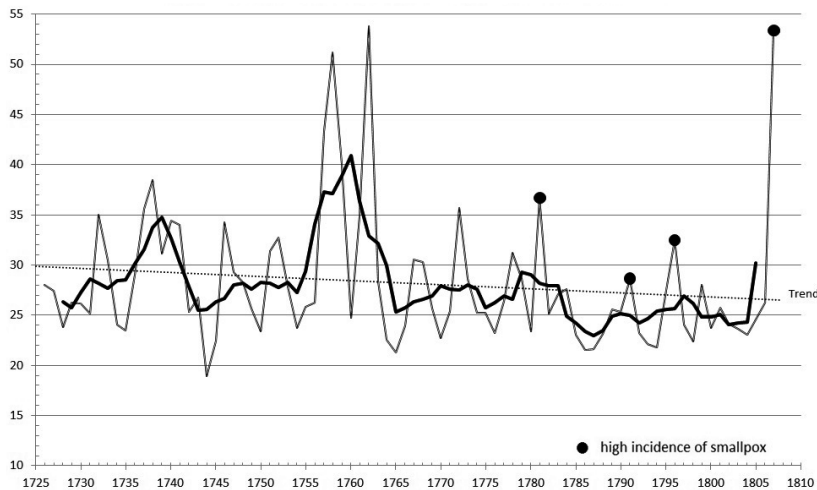
Source: “Primary Sources” in bibliography.

On the basis of the Prussian census data, corrected before 1755, the series of the number of births and deaths can be transformed into crude birth rates (CBR) and crude death rates (CDR), which provide more general, but nevertheless valuable information about the evolution of fertility and mortality in earlier periods. They reveal that the forces that brought about the dynamics of the last quarter of the 18th century were already at work before, on the base of a minimum CDR of 26, as for 1778–1803.²⁰ In the earlier period such a value was harder to maintain,

²⁰ For 1778–1807, the CBR and CDR are based on values without stillbirths, as is today’s rule. Otherwise there would appear to be an artificial decline of the CBR in relation to the former period.

however, since mortality was not only boosted by smallpox, but also by war and, in its wake, epidemics (figure 2). Despite these interruptions the general trend was slightly downward for both indices. Thus, contrary to what one may assume, in the long run a CBR of 40 was not necessarily the norm in Pomerania, no more than in the northern part of Germany, for instance. Therefore a multiplication of the number of births is not a reliable method for the estimation of population totals in the absence of population counts, and *a fortiori* not a correction tool for the results of existing counts.²¹

Figure 2. Annual death rates (CDR) and 5-year moving averages, Pomerania 1726–1807



Source: “Primary Sources” in bibliography.

Figure 3 shows the relationship between the number of marriages and the number of births. When better information is lacking, it can be seen as the most straightforward indicator of fertility, taking an average relation of 4 : 1 as the norm.²²

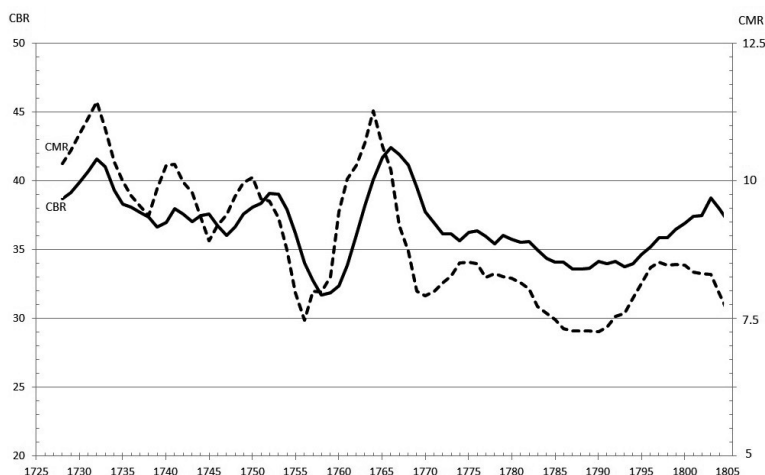
For its further evolution see Dariusz K. Chojceki, and Edward Włodarczyk, *Atlas historyczny Pomorza Zachodniego*, t. 1: *Topodemograficzny atlas gmin i obszarów dworskich Pomorza Zachodniego w 1871 roku* (Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, 2012), 40.

²¹ Cf. Szultka, Lesiński, *Pomorze*, 485.

²² Szultka, Lesiński, *Pomorze*, 480, 484, even judge the correctness of Pomerania data by this criterion, referring to the ratio in Silesia, although there is no evidence that the demographic features in the two provinces were the same. It may be noted that for his part Ładogórski, “Ludność,” 26, took Prussian provinces like Pomerania as benchmark for the Silesian data. In both cases, the method is highly debatable, but the Pomeranian data were probably indeed better than those of Silesia. The inclusion of the military population into civil statistics until the Seven Years’ War may have

During the last quarter of the 18th century, the ratio was higher. At the same time, the annual marriage rate (CMR) diminished (from the mid-1780s to the mid-1790s) first, and then recovered before declining again in the last three years of the time series studied here (1805–1807). The graph reflects the arrival of the generation born during the Seven Years' War onto the marriage market in the 1780s. The potential brides and grooms were not numerous then. In the following decade, the inverse effect is visible. Only micro-studies can answer whether there were also changes in marital fertility and the age at marriage.²³ The ratio of births to marriages results from so many factors that without further information a founded interpretation of this general evolution would be imprudent.

Figure 3. 5-year moving averages of birth rates (CBR) and marriage rates (CMR), Pomerania 1726/30-1803/07



Source: "Primary Sources" in bibliography.

Things are different for non-marital fertility, where it is nearly impossible to generate statistics on the community level because the incidence was low and mobility before and after childbirth probably high. In the field of non-marital fertility, information on Pomerania as a whole is valuable even beyond the regional

lowered the quotient to a certain degree, since in the army there were fewer births relative to marriages than in the ordinary civil population. This explanation is probably not sufficient, however.

²³ In Jasiénica, brides were younger in the 1780s than in the following decades. Since the 1780s were the first decade with reliable statistics in that parish, it is impossible to say if this was an exception or the rule before. Afterwards, the mean age was constant for a long time (Radosław Gaziński et al., "Śluby w parafii ewangelickiej Jasiénica pod Szczecinem w latach 1778–1880," *Przeszłość Demograficzna Polski* 28 [2007], 65).

scope, since it goes back to the 17th century. From the very beginning, i.e. for towns from 1684, for the twenty-six synods from 1689, the printed tables of the Prussian part of Pomerania mentioned such occurrences. Brüggemann later published data from 1757 onwards.²⁴ Superficially considered, changes in the rate of non-marital fertility were not impressive, and the general level was a moderate one in the second half of the 18th century (6.0%, 1757–1807), with the expected difference between towns (7.6%) and villages (5.5%). However, a remarkable upward movement began in the 1770s in urban and, in the following decade, in rural areas also, announcing a long period of increasing values. This kind of development was common in regions east of the Elbe.²⁵ In Mecklenburg, for example, where large parts of the population had material and legal difficulties getting married, and where access to housing was restricted, rates of illegitimate births doubled in the 19th century. In such circumstances emigration often became the last resort. Thus, the evolution of nuptiality (figure 3) may suggest that social conditions began to deteriorate in the last quarter of the 18th century in Pomerania, particularly as the landless became significantly more numerous. It is an issue that certainly deserves to be studied more thoroughly, but already the comparison between the number of “men” and the number of land owners shows that not only were there two and a half times as many house owners without land (“budnicy”) in the royal villages in 1805 as in 1763, but also 151% more “men” in all the villages, who were registered in none of the categories in the tables and thus were probably lodgers, who became agricultural laborers, especially in the manor districts.²⁶

One might suppose that a deterioration in the general social situation should have negative consequences for infant and child mortality. As shown for rural areas in the same period, this was not necessarily the case. Often the lower strata of agrarian society suffered less from infant mortality than the families of landowning peasants.²⁷ Consequently, an increase in landlessness would not

²⁴ Brüggemann, *Beiträge*, 378.

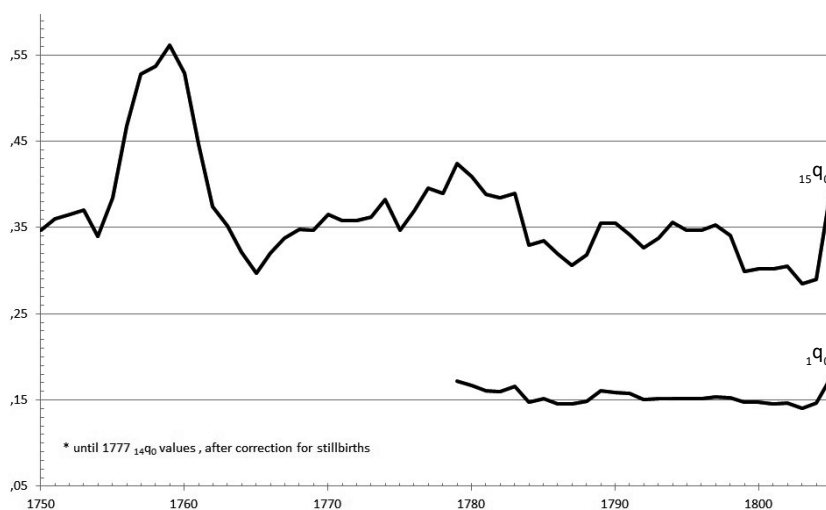
²⁵ For comparisons see Gehrman, *Bevölkerungsgeschichte*, 153.

²⁶ Szultka, Lesiński, *Pomorze*, 499–500.

²⁷ Jürgen Schlumbohm, “Sozialstruktur und Fortpflanzung bei der ländlichen Bevölkerung Deutschlands im 18. und 19. Jahrhundert. Befunde und Erklärungsansätze zu schichtspezifischen Verhaltensweisen,” in: *Fortpflanzung: Natur und Kultur im Wechselspiel: Versuch eines Dialogs zwischen Biologen und Sozialwissenschaftlern*, ed. Eckart Voland (Frankfurt a. M.: Suhrkamp, 1992), 339; John Knodel, *Demographic Behavior in the Past. A Study of Fourteen German Village Populations in the Eighteenth and Nineteenth Centuries* (Cambridge: Cambridge University Press, 1988), 71. For a case study showing the complexity of the problem see Ines E. Kloke, “Highlights from a Low-level Area: Infant Mortality and Social Structure in Eight East Frisian Parishes, 1740–1839,” *History of the Family* 7 (2002): 527–543, and for the relative handicap of owning land Ines Kloke, “*Kommts Abendroth, ists Kindlein todt*”. *Säuglingssterblichkeit in sechs ländlichen Regionen in Deutschland im 18. und 19. Jahrhundert* (Phil. Diss. Berlin: Freie Universität, 1997), 269, http://www.diss.fu-berlin.de/diss/receive/FUDISS_thesis_000000000023.

diminish the chance for children to survive. Pomerania, which once again stands out for its exceptional data, would fit this pattern well (figure 4). Infant mortality remained as low as expected in a region with low population density and infant care based on breastfeeding. Two out of three children survived until the age of fifteen. Typically for that time and especially before Jenner, the risk of dying was higher between age one and fifteen than in infancy. Since one in two burials was for a child (precisely 48.9% in 1778–1807), the slight decline in general mortality and child mortality are correlated.

Figure 4. Five-year moving averages of infant (${}_1q_0$) and child (${}_{15}q_0$) mortality, Pomerania 1750–1805



Source: “Primary Sources” in bibliography.

But: 50% of deaths under fifteen and only 35% of newborns dying before that age? Such a distortion appears when the age structure is shaped by a growth rate of 1%. Model life tables like the Princeton tables (see annex) provide the age structure for populations with different mortality patterns and growth rates. Although they are based on more recent data, they are a valuable tool for demographic research on earlier periods too.²⁸ Table North 9 represents a population, where the survival rate at age fifteen is virtually the same (65.0% vs. 65.3%) as in Pomerania in 1778–1802,

²⁸ Ansley J. Coale, Paul G. Demeny, and (1983) Barbara Vaughan, *Regional Model Life Tables and Stable Populations* (New York: Academic Press, 1966, ²1983). For the differences between the model life tables and mortality in the different age groups in historical times, see Imhof, *Lebenserwartungen*, 82.

and the predicted GRR (2.25), the CBR (35), and the CDR (25) are quite similar. In this stable “Northern” population, level 9, more than a third (34.7%) of the population is younger than fifteen, but 47.8% of all deaths occur in that age group. Thus, in combination with the Princeton model life tables, the Prussian mortality statistics provide even an estimation of the fundamental age structure of the whole Pomeranian population at the end of the 18th century, of course without the distortions caused by the Seven Years’ War in higher ages (see annex). The number of protestant confirmations in 1801–05 was the number expected from the model life table and from the life tables established for Pomerania (2.0%), whereas the number of communicants, which depends not only on the age structure, but should nevertheless represent nearly all persons after confirmation, was 60.3% and thus a bit smaller than the part of adults expected (65.9% in the model life table, 65.7% in the Pomeranian table 1787–1798).

Regional and Sub-regional Modes of Reproduction²⁹

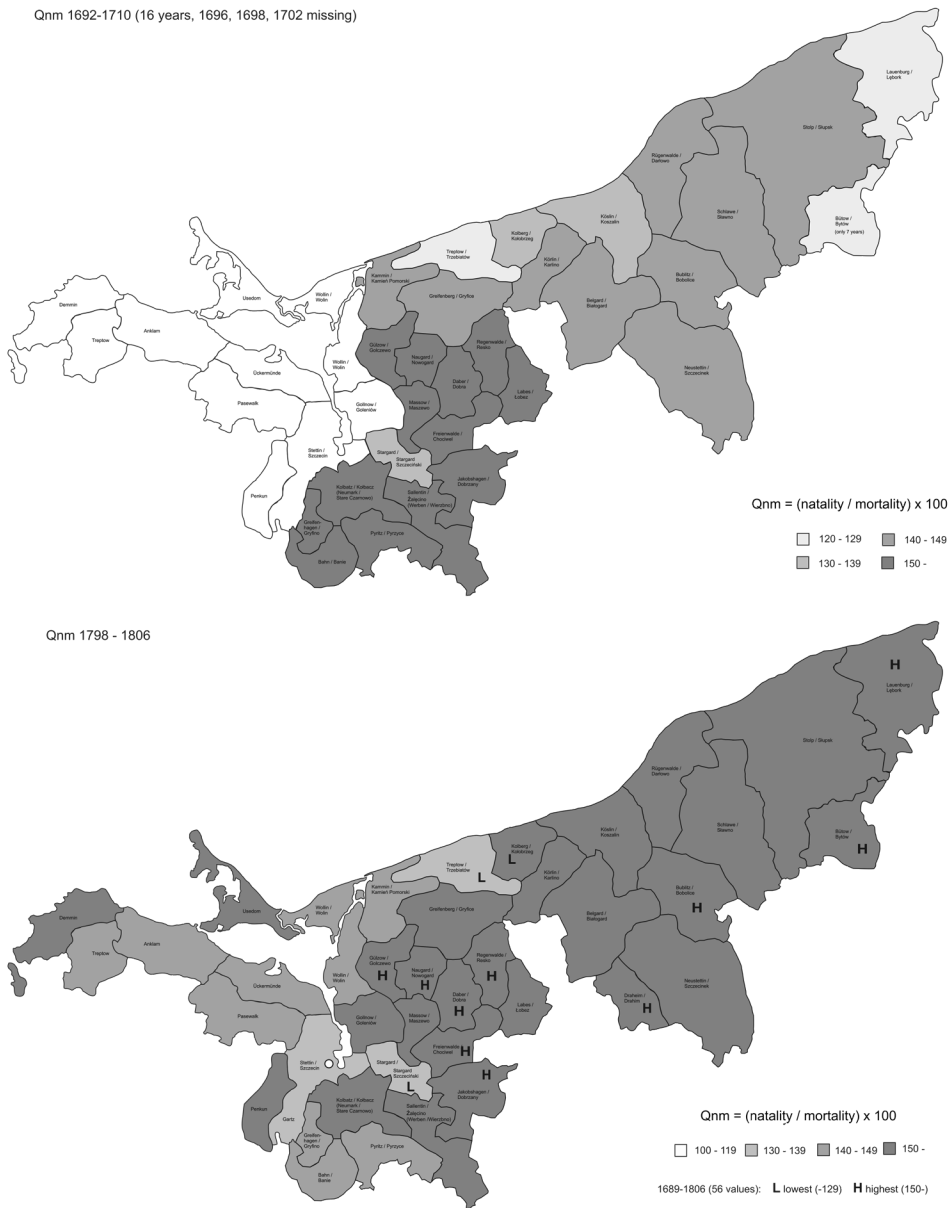
The statistics presented by the Hoffmann and Knodel tables lead to the conclusion that Pomeranian demography was uniform in the 19th century.³⁰ But does this mean it was the same a hundred years earlier, before the abolition of servitude and the old military system? And was it true for smaller units than Hoffmann’s Kreisgruppen (see figure 1) too? The synods, which remained constant with minor exceptions for more than a century, were such units, and the data of births and deaths show the interaction of the main demographic indices there.³¹ More sophisticated statistics have not been preserved, and the relation of births to marriages taken on its own is not a useful index. Thus, only the ratio of births to deaths, representing natural growth, can be used as a symptom of sub-regional differences. For 56 years such data exist, not counting the Seven Years’ War.

²⁹ Modes of reproduction are defined as “the technology and the practices employed for expanding, limiting, and maintaining population size” (J. Dennis Willigan, Katherine A. Lynch, *Sources and Methods of Historical Demography* [New York: Academic Press, 1982], 404). Thus, ‘mode of reproduction’ is virtually a synonym for ‘demographic system.’ However, whereas a demographic system is something abstract, static, or mechanical, “mode of reproduction” implies the concepts of adaptation and concertation, which apply to each level of abstraction presented here.

³⁰ Hoffmann, *Darstellung*; Knodel, *Decline*.

³¹ Reference for the parishes: Fritz Curschmann, and Gertrud Steckhan, „*Pommersche Kreiskarte. Die alten und neuen pommerschen Kreise nach dem Stande von 1817/18* = *Historischer Atlas der Provinz Pommern*, ed. Landesgeschichtliche Forschungsstelle (Historische Kommission) für Pommern, Abt. 1 (Stettin: Saunier, 1935), and for the synods: Ludewig W. Brüggemann, *Ausführliche Beschreibung des gegenwärtigen Zustandes des königlich preußischen Herzogthums Vor- und Hinterpommern* (Stettin: Effenhart, 1779–1784).

Figure 5. Spatial distribution of the natural population growth



Source: "Primary Sources" in bibliography.

Unlike in other coastal regions, for example, Schleswig-Holstein, a surplus of births existed in each sub-region, including even the estuary of the Oder (figure 5). In this respect, Pomerania was relatively homogenous in the long run. Nevertheless, the subdivision into smaller geographical units reveals differences, which perhaps still existed later, but disappeared in the mean values of the larger Kreisgruppen.³² It also brings to light long-term tendencies. Namely, there was a southwestern cluster of high fertility or/and low mortality in 1692–1710, which persisted in the center, whereas the general west-east gradient, present in the beginning, disappeared until 1798–1806, when the center of gravity had shifted to the east. The synods of Stargard / Stargard Szczeciński, which was mainly urban, and of Bütow-Lauenburg / Bytów-Łębork, with too few years documented, must be considered as incompatible and have to be excluded from comparisons. By contrast, the low rate of population growth in the synod of Treptow / Trzebiatów is noticeable. Was mortality higher there because of an insalubrious environment with marshes and brackish water, or was fertility lower due to seafaring and fishing? Such were, in general, the reasons for similar demographic characteristics of coastal regions. Only local studies could answer whether this applies here.

Families

Macro-data suggest that in Pomerania, families acted in a demographic environment of low pressure, to use a term coined for historical populations.³³ So they still had to cope with the losses of offspring in childhood, but they had more room for maneuver than families in a system of high pressure. Under these conditions, not only the differences between the gentry or a small urban elite and the rest of the population are supposed to appear more clearly. Different habits between landowning villagers and those who did not have to worry about the inheritance of property were likely to emerge, unless a shared set of values, i.e., culture, counterbalanced this divergence, so that demographic differences between groups of different cultural backgrounds were more important than differences between social strata. In addition, not only the general level of fertility may have varied by social status, but also the response to economic crises, for instance by spacing births.³⁴ In European societies under low demographic pressure the principal

³² For single *Kreise* of the Rejencja Szczecińska data also exist in the archives of Szczecin (AP Szczecin, 65/78/0/3.67, no. 1684 ff.). They have yet to be analyzed.

³³ David R. Weir, "Life Under Pressure: France and England, 1670–1870," *Journal of Economic History* 44 (1984): 27–47.

³⁴ For the abundant literature of demographic responses to crises and delaying births see Noriko O. Tsuya et al., *Prudence and Pressure* (Cumberland: MIT Press, 2016).

mechanism for fertility control was regulation by marriage patterns, i.e., female age at marriage and definite celibacy.

From this aspect, the contrast between Pomerania and the neighboring eastern and southeastern regions of Polish or German language, clearly visible in figure 1, is of particular interest. In a larger geographical framework than covered here, Szoltysek treats the internal gradation of the so-called European marriage pattern and its extension eastwards.³⁵ He also points out the west-east gradient of the age at marriage, on which the position of Pomerania is not clearly defined yet. Since households and families are conditioned not only by culture but also by the economic and social situation, more research on the local level would complement Szoltysek's findings. It would also contribute to an answer to the question, to what extent processes, which can be subsumed under the rough catchword "proletarianization", influenced, respectively biased, the mean values provided by household, family, and marriage patterns. 19th century census lists provide such information, but unfortunately they exist only for a small number of Pomeranian towns from 1843 to 1867.³⁶ For the preceding century, census-like surveys, especially the so-called "Seelenlisten", have not been found or analyzed yet.

About Causes and Factors

In historical demography it is necessary to handle a large panoply of factors to explain statistical findings, but often insufficient sources, especially at the local level, limit the possibilities to evaluate appropriately the relative weight of different influences acting directly or indirectly, and the more distant a period covered by a study is, the more the so-called independent variables are resistant to quantification and thus to regression or multivariate analyzes. Under these conditions, statistical methods, which seem the first choice for parrying the criticism cited in the introduction, can only be one tool amongst others. Moreover, individuals, groups with common characteristics, and populations cannot be treated independently, since otherwise the risk is either ecological fallacy, or a result that is of little value for the scientific community.

Dissimilar material favours different approaches. Working with aggregated statistics may favor a functionalistic point of view, and research based on individual

³⁵ Mikołaj Szoltysek, *Rethinking East-Central Europe: Family Systems and Co-residence in the Polish-Lithuanian Commonwealth* (Brussels: Peter Lang, 2015).

³⁶ About features of a possible "proletarianization" observed in the Pomeranian town of Neuwedell / Drawno see Rolf Gehrmann, "German towns at the eve of industrialization: household formation and the part of the elderly," *History of the Family* 19 (2014), 1: 22.

data methodological individualism.³⁷ Dissimilar formation backgrounds contribute to different approaches too. Historians are interested in evolution and change. Their favorite perspective is a diachronic one. Demographers with mathematical and sociological backgrounds are first of all interested in structural comparisons. Their favorite perspective is a synchronic one. Both form historical demography. The propositions for further research developed in what follows are a historian's confronted with problems of research in the proto-statistical era, who tries to promote the integration of historical demography into general history and the development of comparative regional, at best European, history. The mind map in figure 6 represents the categories and a selection of factors which historical explanations of demographic structures and changes have to take into consideration.

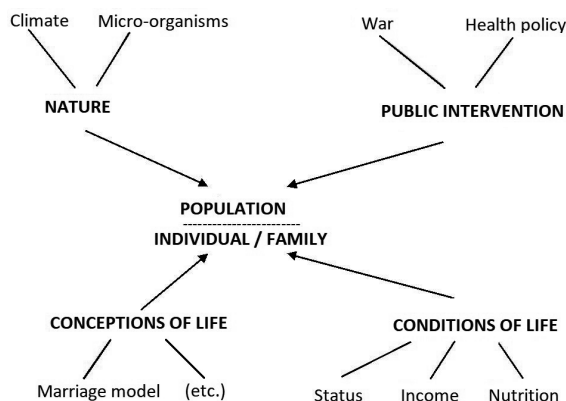
For an overview like the one presented here, and given the need for further research in this field, it will suffice to indicate the ranking by importance of the categories of factors which shaped the characteristics of the Pomeranian demography in early modern times. In the long run, nature figures in the first place, particularly in pre-modern rural societies. In connection with humans this also means population density, a factor that can foster either economic development or demographic reactions, which can be interpreted as Malthusian.³⁸ Wieden's remarks and the development of nuptiality at the end of the 18th century have raised questions of this order (figure 3). A possible answer must go beyond geographical features like density and distribution of population. The impact of social structure and living conditions, including legal impediments from servitude, were more significant, as they furthered or hindered marriages. However, geography can help explain

³⁷ Structural functionalism is more than just an element of modernisation theory (cf. Simon Szreter, *Fertility, Class and Gender in Britain 1860–1940* [Cambridge: Cambridge University Press, 1996], 21–45). For our purposes, it may be noteworthy to remind ourselves of three of its general assumptions, as summed up by John Holmwood, “Functionalism and Its Critics,” in: *Historical Developments and Theoretical Approaches in Sociology*, vol. 2, ed. Charles Crothers (Oxford: Eolss Publishers, 2010), 111: 1) “Actions of individuals are not to be explained by the immediate meanings they have for actors. They are to be explained by the function they serve for the wider social group.” 2) “Different elements of social life depend on each other and fulfill functions that contribute to the maintenance of social order and its reproduction over time.” 3) “The existence of a phenomenon or the production of an action is not explained by its direct efficient causes but rather by its indirect effects in relation to a social environment.” At least the two first named assumptions are worth discussing in historical demography; consider the model formulated by Gerhard Mackenroth (*Bevölkerungslehre. Theorie, Soziologie und Statistik der Bevölkerung* [Berlin: Springer, 1953]), which Wrigley and Schofield (*Population History*, 158, 268–269) appreciated, and which emerges partially by Szreter too (*Fertility*, 32: “The régime's effective nuptiality controls...”).

³⁸ See Oded Galor, “From Stagnation to Growth: Unified Growth Theory,” in: *Handbook of Economic Growth*, vol. 1, eds. Philippe Aghion, and Steven N. Durlauf (New York–Oxford: Elsevier, 2005), 239, for the positive effects of population increase in a Malthusian system. It would exceed the scope of the present paper to enter into the debate re-opened by Boserup in the 1960s. For “new Malthusian perspectives” see Bengtsson et al., *Life*.

the incidence of infectious diseases since the distinction between urban and rural is a manifestation of density differences that is easy to perceive even in historical populations. Although Pomerania, with its small towns, is not the best example, a higher mortality rate in urban areas appeared even there (29.1 vs. 25.6 for 1779–1796). This seems due not to age structure, but rather to a higher mortality rate in all age groups.³⁹ The category “nature” also comprises the nature and the evolution of micro-organisms that caused smallpox and other diseases not mentioned here.⁴⁰ Finally, climate issues like the so-called little ice age, which historians have studied for more vulnerable economies like Switzerland, must be considered.⁴¹

Figure 6. Categories of demographic factors shaping modes of reproduction



Source: own draft.

³⁹ Only the age group “under 10 years” was counted separately in the yearly censuses (“Historische Tabellen”) of the urban population. From 1778 to 1803, its part was 22.6%; for the rural population it is unknown. The expected value for a stable population Model North 9 was 24.3% (24.1% in the Pomeranian table, see annex). This value is too similar to infer to differences in age structure as the main cause of the different mortality rates. By contrast, infant and child mortality together were higher in towns. For ${}_{15}q_0$ (1801–1806) the relation urban-rural was 0.345 to 0.247. For 1757–1777 it was 0.451 to 0.364, then for the mortality rate ${}_{14}q_0$ including stillbirths. Another argument for the little importance of differences in age structure is the difference between the urban and the rural CDR in the years 1801–1806 (0.004). It was the same with and without the age group 0–14 (28 : 24 and 16 : 12). Thus, there was probably a relatively higher risk for all age groups in towns, so that the effect of possible distortions in the age structure should be limited.

⁴⁰ For a different approach to mortality, in figure 6 reduced to its exogenous appearance, see Bengtsson et al., *Life*, who establish a connection between mortality and decisions made at the levels of “individuals, households, communities and states” (19).

⁴¹ Christian Pfister, *Das Klima der Schweiz von 1525–1860 und seine Bedeutung in der Geschichte der Bevölkerung und Landwirtschaft* (Bern–Stuttgart: Haupt, 1984); Marcel Lachiver, *Les années de misère. La famine au temps du Grand Roi, 1680–1720* (Paris: Fayard, 1991).

Since historical science was traditionally focused on politics, it tended to overestimate the demographic influence of the state, unquestionable for wars but doubtful for other domains in the historical context discussed here. Especially for Prussian history, it is a pitfall to avoid. On the other hand, initiatives in the domain of health care, including midwifery, cannot be ignored. There was a growing concern about the quality of obstetrics and child care, and inoculation and then vaccination began to be considered an issue of public concern, which meant that it became an affair of the so called “well-ordered police state” too.⁴² Of course, it will be difficult to establish causal links between public intervention in this area and the evolution of mortality, and appropriate sources are not easy to find. Moreover, expectations about the effectiveness of medical interventions cannot be high.⁴³ Nevertheless, for the observed declining trend of mortality, all the possible explanations dealt with by historical demography must be taken into consideration.

Culture is another category that can be studied at the macro-level, when there are the means to define it properly, and the possibility for comparing it to other cultures in similar settings exists. The most common variable taken for this approach is religious differences.⁴⁴ In this respect, historical Pomerania, unlike Silesia, where such studies are promising, is not appropriate for intra-regional comparisons. The percentage of Calvinists and Jews (the latter 0.3% in 1799 and 0.4% in 1816), both urban, was tiny. An equally small Catholic minority only existed in the border regions of Bütow-Lauenburg / Bytów-Lębork and Draheim / Drahim, formerly parts of the Polish kingdom. For comparisons with other areas, one can take Pomerania as homogenously Lutheran.

⁴² See Tim Dyson, *Population and Development: The Demographic Transition* (London: Zed Books, 2010), 42. Cf. Roy Porter, ed., *Medicine in the Enlightenment* (Amsterdam–Atlanta, GA: Rodopi, 1995); Peter Razzell, *The Conquest of Smallpox: The Impact of Inoculation on Smallpox Mortality in Eighteenth Century Britain* (Firle: Caliban, 1977); James C. Riley, *The Eighteenth-Century Campaign to Avoid Disease* (Houndmills: Macmillan, 1987); Jürgen Schlumbohm, “Did the Medicalisation of Childbirth Reduce Maternal Mortality in the Eighteenth and Nineteenth Century? Debates and Data from Several European Countries,” in: *Historical Studies in Mortality Decline*, ed. William H. Hubbard et al. (Oslo: Novus, 2002), 96–112; Jan Sundin, “Culture, Class, and Infant Mortality During the Swedish Mortality Transition, 1750–1850,” *Social Science History* 19 (1995): 117–145.

⁴³ The influence of Thomas McKeown, *The Modern Rise of Population* (London: Arnold, 1976), has been considerable in this respect. See also f.n. 42 for relativization of his arguments. For the importance of the nutritional status see Robert William Fogel, *The Escape from Hunger and Premature Death, 1700–2100: Europe, America, and the Third World* (Cambridge: Cambridge University Press, 2004), who regards it as part of a “synergism between technological and physiological improvements” (p. 20).

⁴⁴ See Liczbińska, *Condition*, or Kevin McQuillan, and Rolf Gehrman, “The Impact of Religious Denomination on Mentality and Behavior,” *Historical Social Research* 42 (2017), 2: 7–22, Forum I, for references.

Although a geographical unit *per se* is not a variable, since statistically, it should dissolve itself into specifically interacting but ubiquitous characteristics, it sometimes appears as one. Then one may argue that the quantifiable variables were simply not powerful enough. But the answer is not so simple. Even in present times, Graham notes similar problems.⁴⁵ Thus, historical research based on statistical methods can run into a situation where the residual “region” has more explanatory value than any quantifiable variable supposed to be its component. The limits of quantitative factor analyses had already clearly appeared in the results of the European Fertility Project, especially in the case of Italy. It brought Livi-Bacci to the somewhat desperate conclusion that “data by region, province or circondario are poor substitutes for individual data.”⁴⁶ In the ideal case, population then should be reconstructed by and decomposed into individual data. In the case studied here, goals must be more modest.

An Agenda for Further Research

The first step in research on pre-transitional populations, like 18th century Pomerania, is to study its structure or demographic “régime”, expecting that a paradigm present at the different levels of abstraction is more likely to emerge from a transversal than a longitudinal approach spilling over to the following century. Thus, functionalist reasoning can be an appropriate method to conceptualize the interaction of its constituting factors. In the given historical context, the upper categories in the chart (figure 6) are supposed to be more important than after the liberal reforms, and the dominant force vector seems to be downward. In other words: the impetus is supposed to come more from the “system” than from the decision-making of independent individuals.⁴⁷ In relation to that situation, the two bottom categories, conceptions and conditions of life, have become more assertive today, especially for the evolution of fertility, and the concept of a self-sustained demographic system seems less adequate than ever. That may be one of the reasons why philosophers like Graham call for more reflection on concepts. Our problem

⁴⁵ Graham, “Theory,” 146.

⁴⁶ Massimo Livi-Bacci, *A History of Italian Fertility during the Last Two Centuries* (Princeton: University Press, 1977), 186.

⁴⁷ In historiographical terms, the strategy of research is to choose as the point of departure the “pre-industrial mode of reproduction” model, formulated by Mackenroth (see f.n. 37), and the description of the demographic transition in the eastern parts of Prussia by Conze (Conze, *Wirkungen*), expecting to overcome it by in-depth analyzes with new material on these provinces and current methods (cf. Georg Fertig, “The Invisible Chain: Niche Inheritance and Unequal Social Reproduction in Preindustrial Continental Europe,” *History of the Family* 8 [2003]: 7–19, and Gehrman, *Bevölkerungsgeschichte*).

also concerns the demographic reproduction of society, but it is less complex, since we can pin it down to marriage patterns. We have to ask how the female age at marriage and celibacy worked, by which category of influence these variables were determined most. Did they really fulfill the function of stabilizing the system, as they should from a functionalist point of view? A negative answer would be the point of departure for new explanations. Since marriage patterns were related to each level of analysis, from individual to population, it can be considered as the transversal paradigm requested. Unfortunately, the Prussian statistics did not collect information about the age at marriage before the end of the 19th century. Thus, the only way to get such information is research at the level of individuals and communities. How is the situation in this respect with regard to Pomerania?

There is no doubt that research on demographic matters in preindustrial times is less advanced in Pomerania than in Silesia. The reasons for this lie in the past and are multiple. Moreover, the province was largely rural and, as we have seen, relatively homogenous. Features like this do not invite intra-regional comparisons. And as for the parish registers, the situation is far from encouraging. In a recent review, Gaziński pointed out that just a few Pomeranian church registers are potential sources for fruitful demographic research.⁴⁸ So it is perhaps not surprising that only one parish has been the object of such a project: Jasienica, on the Oder estuary.⁴⁹ The study is exemplary in analyzing marriages, here from 1778 to 1880. It shows that from the 1790s on, the female age at first marriage was relatively high (about 25 years), but it had increased before, maybe due to a decrease on the part of landowning peasants. Unfortunately, an indication of the size of the natural population growth is missing, hence the possibility for assessing the mode of reproduction. For other villages, a shortcut of this kind is impossible because of a general lack of age indication in the marriage registers. In principle, this matter of fact makes the method of family reconstruction inevitable. However, it is a daunting task, requiring too much time investment to be recommendable. In face of these difficulties, easier ways to get to data are required.

Genealogists can be of help. Some do not limit their meticulous work of reconstructing to the families of their ancestors. Thus, in German historical demography, village genealogies have become a precious source.⁵⁰ For Pomerania it is different. There, nearly all of the so-called family books listed on genealogical sites do not contain data from the 18th century, and they often cover only a short period.

⁴⁸ Radosław Gaziński, "Parish Registers in the Archival Fonds of the State Archives in Szczecin," *Przeszłość Demograficzna Polski* 42 (2020), 193.

⁴⁹ Gaziński et al., "Śluby."

⁵⁰ John Knodel, "Ortssippenbücher als Quelle für die Historische Demographie," *Geschichte und Gesellschaft* 1 (1975): 289–324.

Furthermore, one cannot even be sure that they integrated each church book entry. Only one family book is likely to deserve a quantitative analysis: Marienthal / Baniewice.⁵¹ Being dominated by the primary sector, this village in the former synod of Greifenhagen / Gryfino may represent the prevalent mode of reproduction better than Jasienica.

In some cases it is even possible to use the genealogies of individual families as a demographic source, and to use them for more than just illustrating some general findings. When these families share particular social features, which turn them into a virtual community, collections of such genealogies can become of some use too. Although they do not provide reliable data for peri- and neonatal mortality, they do so for age at marriage and, to a certain degree, fertility. For Pomerania, four middle-class collections, published before 1945 and thus also based on material that has been lost since, have now been digitalized. They can be used for learning more about the urban demography of this province in the 18th century.⁵²

Conclusions

Was the demographic system of 18th century Pomerania exemplary? Süßmilch, who put the concept of order in the center of his philosophy, thought so. Whereas in his view, adverse moral and demographic effects prevailed in urban areas, Pomerania was close to an ideal of the natural order. Growth was compatible with his model.⁵³ Based on his observations on Pomerania, he even dared to give Frederic II advice on how to improve its requirements.⁵⁴ Süßmilch was a child of his time. He was not aware of the possibility that the force that drove population growth was bound to become a force of destabilization. At the end of the century, it triggered the stabilization mechanism of the system Süßmilch and Malthus described via nuptiality, but the expected break effect failed to materialize. It should not have worked after the Napoleonic wars either. Probably it never operated either, at least

⁵¹ Albert Breitsprecher, *Marienthal in der Komturei Wildenbruch. Dorfbuch eines südpommer-schen Bauerndorfes* (Greifenhagen: Kundler, 1940). It is not a typical family book since the author organized it according to properties with a lot of helpful information. The data listed on http://wiki-de.genealogy.net/Kategorie:Ortsfamilienbuch_zu_Pommern do not meet our criteria.

⁵² Pommersches Geschlechterbuch 1 (1923) and 4 (1942) in the Mazowiecka Biblioteka Cyfrowa, 2 (1929) and 3 (1936) in the Pomorska Biblioteka Cyfrowa. Their utility has already been shown for Hamburg (Gehrmann, *Bevölkerungsgeschichte*, 258).

⁵³ See Süßmilch, *Die göttliche Ordnung*, II: 308, for his use of the Pomeranian material and passim for his considerations.

⁵⁴ Johann P. Süßmilch, *Die königliche Residenz Berlin und die Mark Brandenburg im 18. Jahrhundert: Schriften und Briefe*, ed. Jürgen Wilke (Berlin: Akademie, 1994), 192–199.

in the area considered here, as the model of a homeostatic system may suggest.⁵⁵ There was no natural order, but human order with its imperfections.

If Pomerania was exemplary, it was so only for a specific mode of reproduction. Comparing it with others was beyond the scope here. Such a comparative study only makes sense in a larger European context since identical features existed across borders and different systems shared the same national space. Knowledge generated from such comparisons can help us to learn more about Pomeranian demography in the 18th century. Still, its reduction to a model already gives some orientation. Historians know that such models, just as theories in general, are only points of reference, at best like ideal-types in the Weberian sense. For historical demography, they are also the starting point for more work on the different levels of abstraction. Arguing for more research is not very original. Nevertheless, it seems particularly justified concerning Pomeranian historical demography. The preceding paragraph has suggested priorities and specific, though limited, possibilities for such research.

Annex

Life tables and stable populations

Age group	Sex					
	male		female		male and female	
	a) q_x	b) q_x	a) q_x	b) q_x	a) P'	b) P'
1	2	3	4	5	6	7
0	0.165	0.207	0.148	0.178	30	30
1	0.150	0.118	0.146	0.118	101	101
5	0.066	0.032	0.065	0.034	110	112
10	0.027	0.023	0.029	0.026	99	104
15	0.031	0.032	0.027	0.035	92	96
20	0.034	0.046	0.032	0.044	85	88
25	0.033	0.051	0.038	0.049	78	79
30	0.034	0.058	0.039	0.056	72	71
35	0.049	0.069	0.059	0.062	65	64
40	0.063	0.084	0.063	0.067	59	56
45	0.087	0.099	0.083	0.075	52	49
50	0.108	0.128	0.100	0.097	45	42
55	0.147	0.160	0.159	0.126	37	35
60	0.207	0.218	0.222	0.182	29	28

⁵⁵ Cf. Jacques Dupâquier, "L'autorégulation de la population française (XVIe–XVIIIe siècles)," in : *Histoire des populations de l'Europe*, t. 1: *Des origines aux prémices de la révolution démographique*, eds. Jean-Pierre Bardet, and Jacques Dupâquier (Paris: Fayard, 1997), 424.

1	2	3	4	5	6	7
65	0.288	0.289	0.309	0.246	21	20
70	0.392	0.389	0.410	0.349	13	13
75	0.513	0.523	0.515	0.477	7	7
80	0.610	1.000	0.595	1.000	3	4
85	0.692	×	0.679	×	1	×
90+	1.000	×	1.000	×	0.2	×
e_0	38.8	37.3	39.4	40.0	39.1	38.7*
CBR	×	×	×	×	0.034	0.035*
CDR	×	×	×	×	0.025	0.025*
r	×	×	×	×	0.0096	0.0100
GRR	×	×	×	×	2.26	2.31*
p(m) for m = 31	×	×	×	×	0.594	
NRR	×	×	×	×	1.34	

a) Pomerania 1787–1798, b) Coale/Demeny, Model North 9.

* $(m + f)/2$.

P – stable population (p. 1000).

GRR – gross reproduction rate, for Pomerania based on mean age at childbearing 31, for Model North 29.

Comment

The Coale/Demeny tables are based on a synthesis of life tables from the 19th and 20th centuries, except for Sweden. Thus, they reflect the effects of vaccination against smallpox, and changing living conditions in the 19th century, with its negative effects of increased alcohol consumption and tuberculosis (Norström, Wages; Puranen, Tuberculosis). In Pomerania, mortality risk at childhood was distributed differently, and the level of risks for middle aged men was lower. As indicated in the paper, the data for Pomerania come from the mortality statistics published by Brüggemann and the records of the GStA. The concept of (quasi-) stable populations made it possible to transform them into a life table and a population pyramid (P') without census data providing age groups.

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A Top-down Approach to the Historical Demography of 18th-Century Pomerania

Summary

Historical demographic research can become problematic when it only results in a description of singularities. Thus, investigations at the levels of individuals or families, communities, and populations must be related to each other. Similar to Süßmilch’s and Malthus’s approaches, functionalism is still suitable for dealing with historical populations like the Pomeranian one in the 18th century. Szultka and Lesiński already presented its general evolution. However, they only detailed migrations and neglected fertility and mortality. Our analysis fills the gap by taking advantage of the concept of stable populations applied to the data collected by the Prussian authorities. It shows that the essential features of the demographic system of Pomerania at that time were a low and slightly declining mortality, with a life expectancy at birth of 38.5 years in the last quarter of the century, 2.9 children per woman surviving to adulthood, and annual population growth of 1%. The demographic impact of migrations was comparatively low, whereas the repercussions of the Seven Years’ War were still perceptible a generation later. Overall, it was a system of low pressure. Before the fertility decline, the female age at marriage and rate of celibacy were the regulating variables in such a system. The question is still pending if and how this model worked in reality, where individuals made decisions and communities imposed restrictions. Although the choice of sources is more restricted than in other parts of Europe, more research can be done in this field for Pomerania, too.

Podejście top-down do demografii historycznej XVIII-wiecznego Pomorza

Streszczenie

Historyczne badanie demograficzne może stanowić problem, jeśli sprowadza się wyłącznie do opisu poszczególnych przypadków, dlatego badania na poziomie jednostek lub rodzin, społeczności i populacji muszą się do siebie odnosić. W badaniach populacji historycznych, takich jak ludność Pomorza w XVIII stuleciu, funkcjonalizm, podobnie jak podejście Süßmilcha i Malthusa, nadal się sprawdza. Ogólną ewolucję tej populacji przedstawili już Szultka i Lesiński, potraktowali jednak wybiórczo kwestię migracji i nie uwzględnili wpływu płodności i śmiertelności. Te luki można uzupełnić, jeśli do analizy danych, które zebrały pruskie władze, wykorzystano koncepcję populacji stabilnych. Wyniki pokazują, że ówczesny system demograficzny Pomorza charakteryzował się niską i lekko spadającą umieralnością, oczekiwana długość życia w momencie urodzenia wynosiła w ostatnim ćwierćwieczu 38,5 lat, 2,9 dzieci na kobietę dożywało dorosłości, a przyrost naturalny utrzymywał się na poziomie 1%. Demograficzne skutki migracji były stosunkowo niewielkie, ale reperkusje wojny siedmioletniej dawały się odczuć jeszcze w następnym pokoleniu. W sumie był to system o nikłej presji. Zanim nastąpił spadek płodności, decydujące znaczenie dla jego regulacji miały wiek kobiety w momencie zawierania małżeństwa i celibat. Pytanie, czy i jak ten model funkcjonował w rzeczywistości, w której jednostki podejmowały decyzje, a społeczności narzucały ograniczenia, pozostaje nadal pytaniem otwartym. Choć na Pomorzu mamy mniej źródeł do wyboru niż w innych częściach Europy, dałoby się jednak przeprowadzić jeszcze więcej badań w tej dziedzinie.