NATURE OR NURTURE?
JEWISH CHILDCARE AND POPULATION GROWTH IN EASTERN AND CENTRAL EUROPE, 1500-1930[1]

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First draft: December 2016
(Preliminary and Incomplete: Please do not quote)

ABSTRACT

We document that between 1500 and 1930, the Jewish population in the Polish-Lithuanian commonwealth increased at an annual rate of 1.37 percent, which is strikingly high relative to any population at that time. While in 1500 only 0.13 percent of the Polish-Lithuanian population was Jewish, this figure reached more than 15.4 percent by 1880, with Polish-Lithuanian Jews amounting to about 61 percent of world. We then investigate what were the sources for this exceptional Jewish population growth in the early modern and modern period. We show that there is evidence that a large proportion of the Jewish population in Poland-Lithuania originated from the Germany-Austria area with significant immigration until the mid-seventeenth century. Moreover, we document that there is *no* evidence for the immigration of Khazars or any other Jewish group from the East. We then provide a lot of evidence that while their birth rate was about the same as that of non-Jews, infant and child mortality among Jews was much lower in both Poland-Lithuania and Germany-Austria. This lower infant and child mortality among Jews account for the main difference in Jewish natural population growth (about 70 percent) compared to the total population. Our contribution is in documenting that Jewish childcare, as manifested in the immediate first feed and duration of breastfeeding, wet-nursing at home, remarriage, and family support are known today, based on medical research, as enhancing infants' and children's wellbeing more than the childcare practices commonly used among Christians in eastern western Europe in the early modern and modern era until the 20th century. These norms and practices that are routed in Talmudic rules certainly accounted for the much lower infant and child mortality among Jews.

Keywords: breastfeeding, child care, demographic transition, Germany-Austria, infant death rate, Jewish population, Poland-Lithuania, total population
JEL: N00, N30, N33

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[1] We extremely grateful to Dima Kolotilenko and Stas Tarasov for their excellent and devoted research assistance in many tasks related to this project. We also thank Tali Berner, Sergio DellaPergola, Avner Greif, Judith Kalik, Jonathan Karp, Aviad Kleinberg, Joel Mokyr, Yochanan Petrovski-Stern, Moshe Rosman, Noga Rubin, Tamar Salmon-Mack, Merav Schnitzer, Shaul Stamper, Adam Teller, and Dorota Żołądź-Strzelczyk for their generous advice and helpful comments. Financial support from the Israeli Science Foundation (grant no. 1401/2012) and the Pinhas Sapir Center for Development, Tel Aviv University, is greatly appreciated and acknowledged.
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1. Introduction

This paper documents that the Jewish population of the Poland-Lithuania commonwealth (hereafter: PL; see also Map 1) increased at an annual rate of 1.37% (see Figure 1.1) from 1500 to 1930, which is exceptionally high relative to any population at that time. What are the demographic sources for this exceptional growth of the Jewish population is the main question of the paper. Based on existing demographic data presented here, we reach the conclusion that the low infant and child mortality account for the main difference (about 70%) in natural population growth of the Jews from the total population.[3]

Towards understanding the exceptional population in PL we also document the growth of the Jewish and total populations in the regions of Germany-Austria (hereafter: GA; see Map 1) from 1500 to 1930. We divide the period into two sub-periods: a) 1500-1800, which is roughly the period of the beginning and the end of the Polish-Lithuanian state; and b) 1800-1930, which was a period of changing borders, industrial revolution and large-scale migration of Jews out of Central-Eastern Europe (see Map 2).

We keep the geographic territories of GA and PL as constant as possible throughout the period. The territory of GA approximately corresponds to the area of the Holy Roman Empire or the Reich in around 1500-1800. Although the territory has changed, it was that of German states, Austria, Bohemia and Moravia in 1800-1930 with some adjustment. The territory of PL corresponds to the Polish-Lithuanian Commonwealth at the beginning of the 17th century (see Map 1). We choose these vast territories for the comparison of the demographic trends among Jews and total populations to understand how eventually PL became the largest community of the world Jewish population that was originated from the Jews of GA. [4]

Furthermore, this division is a combination of the territorial borders that existed in the 15th and 16th centuries and the traditional Elbe River demarcation between two different systems of property rights: the capitalist West and the feudal East. That is, the boundaries between GA and PL are consistent with the

[3] The natural growth rate is about the births minus natural death that abstracts from death caused by wars and population growth that caused from immigration.

[4] Appendix A provides the details on the population data sources, their limitations and the boundaries of each region. Here we discuss the data sources in brief. Regarding the period before statistics become available, the analysis is based primarily on secondary sources. We use the estimates provided by key historians of German Jewry (including Guggenhaim, Toch, Battenberg, Israel and Bell) and the Holy Roman Empire (including Rabe, Schormann, Whaley, Hartmann), who collected data from the occasional local population counts, tax lists, church registers and other available primary sources. We are aware of the scarcity of reliable data and the problematic character of the estimates, but feel that the data is sufficient to grasp long-term trends. Regarding early modern Poland-Lithuania, the data is gathered from YIVO and various widely accepted works by leading demographic historians of Polish Jewry (including Kupovetsky, Weinryb, Ettinger, Stampfer and Kalik) and Poland (including Gieysztorowa and Kuklo). Although we generally accept the numbers provided by Weinryb and Stampfer, we nonetheless describe the ongoing debates over various demographic issues and outline the problematic character of the sources. For the modern period, we use a variety of secondary sources and the available statistical data. Since early tax-oriented censuses (such as the one in 1764) usually suffer from underrepresentation of the Jewish population, in addition to other inadequacies, we accept the corrections carried out by modern scholars (such as Mahler, Stampfer and Kalik). When possible, the analysis is supported with data gathered by government statistical offices and published in *Zeitschrift für Demographie und Statistik, Statistisches Jahrbuch für den Preussischen Staat* and reports of the Central Statistical Office of Poland (GUS). For the regions subject to Russian rule, we use critically adjusted figures published in authoritative secondary sources.

different property rights regimes in place in each region prior to 1800 and make it possible to track the flow of internal migration and migration between the regions.[5]

The paper is based on a comprehensive effort to collect and compare the available demographic data necessary for the analysis of Jewish demographic history and the understanding of long-term population trends. Since the data suffers from a number of limitations and the geographic comparability of the data is beset with difficulties, our conclusions are subject to some unavoidable limitations and some uncertainty, part of which can perhaps be eliminated with further investigation (see Appendix A that is available on demand).

In 1500, there were only 10–15 thousands Jews in PL, which constituted less than 2% of the global Jewish population and only 0.13% of the population in PL. In section 3, we describe the origins of the Jewish populations in GA and PL and summarize evidence that during the 12th to 15th centuries the majority of the Jews arrived to PL from GA. The Jews in PL and GA shared the same religious, educational, and cultural background. In 1880, there were 4.7 million Jews in the former PL who accounted for about 61% (7.6 million) of the global Jewish population and over 15% of the total population in PL.[6] In around 1500, there were only 40,000 Jews in GA and by 1880 their number had reached only 760,000 (1.35% of the total population in GA).

Figure 1.1 summarizes the population data collected for this study. The data shows that the total populations of GA and PL grew at almost constant rate of about 0.43 percent from 1500 to 1930 (during the earlier period of 1500-1880, the rate was about 0.20 percent; see Figure 3.1). The growth rate of the Jewish population was, in contrast, much higher in both regions and even more so in PL where the growth rate was 1.37% for the entire period. In what follows, we will endeavor to explain the reasons behind this exceptional growth in the Jewish population of PL.

This rapid growth of the Jewish population in PL is again generating interest, following the recent claim by Sand (2009) that the Jews of PL may have originated from the Khazars who are claimed by some to be converted to Judaism in the 8th century. There is vast historical literature that disproves the existence of a significant Jewish community in the Khazarian Kingdom. However, even if there was a Jewish population in the Khazarian Kingdom and they indeed migrated westward to the PL region, either before or after the Mongol invasion in the 13th century, no unambiguous linguistic or genetic traces can be found of them among the Jews of PL around 1500.[7] Other Jewish groups who settled in Christian areas of Europe, including Karaite Jews who migrated to the eastern frontiers of PL and remained there for generations, usually preserved their distinct practices and as a community were granted privileges by the king or the local ruler and paid taxes to him. No evidence of this can be found for the Khazars in PL. Hence, even if

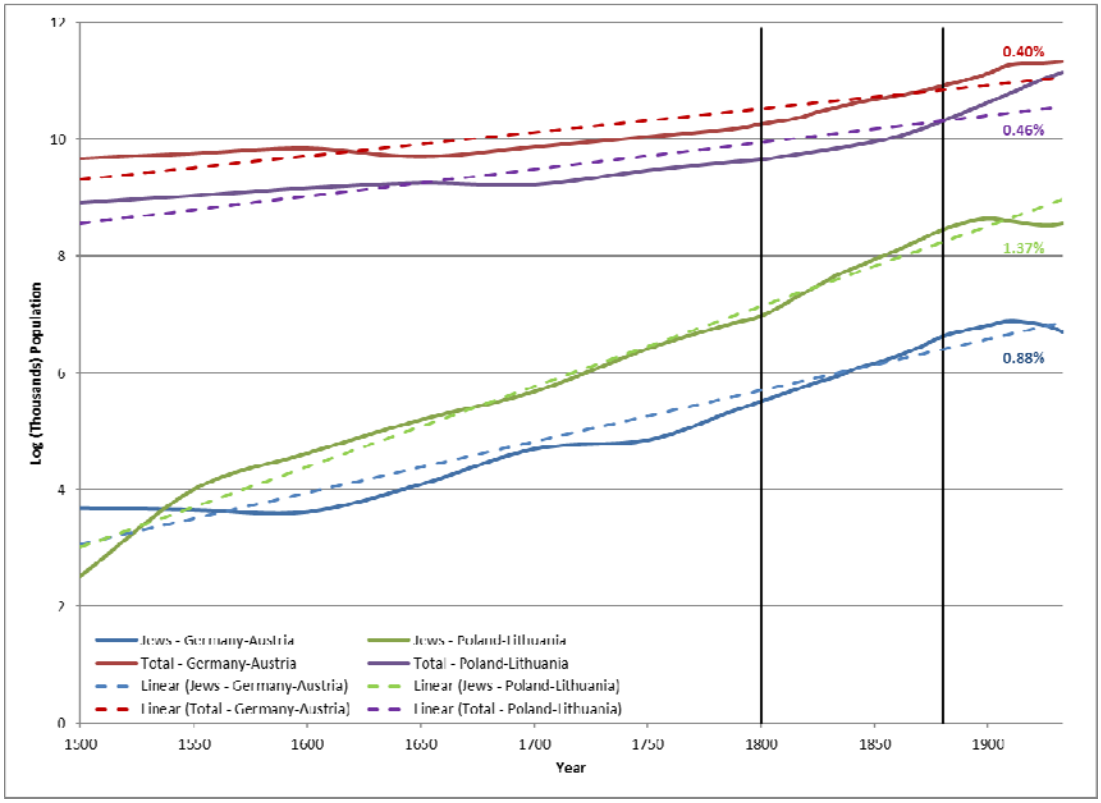
[5] See the analysis of economic regimes in Hunt (1978).

[6] For the global population estimate see S. DellaPergola (1997, p. 20, table 2). The estimates of the proportion of the Jews are based on table 3.5 below.

[7] For more details on the origin of the Jews in PL, see section 3.

possible, the movement westward of Jews into PL cannot be compared in scale to the migration of Jews from GA eastward into PL.

Figure 1.1: The Jewish and total populations of GA and PL, 1500-1930 (in logs)



The claim we make is that the massive growth of the Jewish population in PL can be explained by birth and death rates and migration from GA. There is only limited data on births and deaths prior to the second half of the 19th century. It indicates that prior to the demographic transition in 1870, the Jewish population in GA and PL had a birth rate of about 35 per 1000 which is similar to the overall rate for Europe. Yet the death rate among the Jewish population in GA and PL was only 20 per 1000 while that of the total population was between 25 and 30.

In the pre-modern period, the lower Jewish death rate in GA and PL relative to the total population cannot be due to their relatively higher concentration in urban centers and their comparably higher income since the death rate in urban centers was in fact much higher than in rural areas up until the 20th century. In contrast, the eastward movement of the Jews within PL and their concentration in small villages (*shtetls*) may partly explain their lower death rates. The demographic data indicate that the main explanation for the lower death rate among Jews is a lower rate of infant and child mortality. In section 4, we provide the existing evidence for this from the 19th and early 20th centuries, which is accepted as accurate by most demographers and historians.

Our analysis of the lower infant death rate among Jews than total population prior to 1870, accounts for *half of the difference* in the rate of natural increase between the Jews and the total population. If we take the survival to age 5 from Posen prior to 1870 (table 4.5) we get that the number of surviving children among Jews account for 70% of higher rate of Jewish natural population growth prior to 1870.

Condran and Preston (1994), leading demographers from the US, studied the Jews and other ethnic groups who arrived in the US prior to the censuses of 1910-20. They found that the particularly low rate of infant and child mortality among the Jews was due to three factors: i) a higher degree of parental devotion to their children and the practice of breastfeeding for longer periods; ii) a higher level of hygiene in food production; and iii) greater access and acceptance of medical knowledge.

The central contribution of this study is the historical analysis that supports our claim that the lower infant and child mortality among Jews is due to the Jewish social norms and religious rules and practices of care for infants and children from the Talmud era to the early modern and modern era in PL. We provide an extensive historical discussion of infant and childcare among Jews and Christians based on a critical assessment of evidence related to religious norms and practices and available historical sources (see section 5). We analyze these social norms and practices in light of modern medical knowledge. Whenever possible, halachic norms are supported with historic and contextual arguments and we start the Jewish norms as they were expressed in Biblical and Talmudic writings.

We compare childcare practices of Ashkenazi Jews and Christians for the period from 1500 to the late 19th century. Despite the risk implicit in generalization, the problematic nature of the sources and the question of whether religious norms actually determined everyday practice, we attempt to outline some general trends and show that childcare practices, which were already adopted in earlier periods by the Jews, are now known by medical knowledge to be particularly effective in lowering infant mortality. For example, the Talmud in fact requires 24 months of breastfeeding, allows the use of contraception to enable the long breastfeeding, use one sources of breast milk and first feed the infant following the birth. These and other rules, which were enhanced in medieval and early modern Jewish sources, were usually not common among the Christian communities neither in GA, PL and the rest of Europe, nor in the US later on. We also point to the unique Jewish family supports system, known in the Yiddish term *kest,* as one of the factors that might have contributed to lower infant mortality among Jews in PL.

The Jewish rules and practices suggest that the infant and child welfare was the central reason to many internal family rules of daily life already in pre-modern period. This contrasts with the famous book by Philippe Aries "*Centuries of Childhood*", according to which childhood in pre-modern Europe was not recognized as a distinct stage, with its own unique traits, and children were regarded as merely little adults.[8] It is our hypothesis that the place of the child in Jewish rules and practices is strongly related to

[8] Ariès (1962).

the important role of children education among Jews as it is documented in Botticini and Eckstein (2012).[9] This claim is strongly supported by Goldin (2004) who studied the Jews attitude to children in Northern France and Germany in the 12th-13th centuries in light of Aries thesis on Christians. Goldin concludes that the small child was the heart of Jewish family and small child is defined up to "the age of education" and "knowledge of understanding". Hence, the cognitive development of the child was at the center of the Jewish religion social norms and the family actual practices in the Middle Ages.

2. The Origins of German and Polish Jewry, 800-1500

This chapter describes the evolution of the Jewish population in Germany and Poland prior to the 16th century. As such, we present the currently available information on the origins of the Jewish communities in the territories that included most of Central and Eastern Europe.

BE described the emergence of the Jewish population in Germany and France.[10] The Jewish population in 1500 in Germany are the continuation of the early part of the 9th century arrival of Jews from Italy and southern France during the reigns of Charlemagne (771–814) and Louis the Pious (814–40) and were composed primarily of itinerant merchants. In 1238 Jews lived in about 90 towns and villages, by 1348 there were already more than 1,000 Jewish communities in Germany.[11] The first half of the 14th century (until the Black Death) marks the high point of Jewish settlement in medieval Germany, with a geographical dispersion not seen again until the 19th century.

The dominance of professions related to trade and commerce among the early Jewish immigrants led them to settle in new towns and urban centers. The main occupations of German Jewry from the second half of the 10th century onward included shop keeping, local trade, long-distance commerce, toll collection, minting, and money changing. In addition, the Jews could and did own land, which they cultivated as orchards and vineyards by means of Christian tenants and agricultural laborers. Many German Jews also became heavily engaged in lending money at interest.[12]

As in other locations in Europe, the settlement of Jews in medieval Germany was based on privileges, which specified their legal status and economic activities. On the one hand, the charters granted the Jews the right to own land and engage in trade (and later in moneylending), as well as religious freedom and the ability to regulate internal matters according to their own laws.[13] On the other hand, these charters

[9] The place of the child in modern Christian society has changed as the education become a central objective of children that replaced the importance of physical strength as for farmers or wariers.
[10] This section is based on Botticini and Eckstein (2012, Chapter 7, pp. 186-90).
[11] Toch (2005, 2008, 2011b, 2012); Abulafia (2011).
[12] Baron (1952, vol. 4, chapters 20 and 22); Toch (2000a, 2000b, 2003, 2005, 2008, 2010, 2011a, 2012); Ben-Sasson et al. (2007).
[13] Parkes (1934, 1938); Marcus (1938); Pakter (1988); Linder (1997). Examples include the charters of Trier (919), Magdeburg (965, 973, 979), Speyer (1084, 1090), Worms (1074, 1090, 1157), Ratisbon (1182, 1216, 1230), and Vienna (1238).

represented a fundamental downgrading of Jews' legal status, from permanent Roman residents free to live among Christians to a group that was dependent on the hospitality of Christian rulers.[14]

German emperors also issued charters, which granted Jews a special legal status under exclusive imperial jurisdiction.[15] In return for imperial protection, the Jews became "serfs of the treasury" and the Emperor gained the right to exploit any potential income from them. In 1238, Duke Frederick II granted a charter to the Jews living in Vienna, which was later extended to all the Jews of Austria and served as one of the models for royal charters in Eastern-Central Europe.[16]

The pre-Crusades High Middle Ages was a period that saw the consolidation of Jewish communal leadership in Germany. The Jews increasingly restricted themselves to living in Jewish quarters and the average community maintained a synagogue, a cemetery and a bathhouse. It was characterized by a uniformity of interests, homogeneity of family structure and a class structure, where the upper class included the wealthy, scholarly elite, and a body of community leaders, [17] and often the same wealthy individuals were also the scholars and the leaders.[18] In parallel to the development of community institutions, there were irregular meetings (synods) of leading rabbis on fair days who issued rulings to establish general norms for Jewish behavior and also imposed regional taxes.[19] Throughout the Middle Ages, scholars continued to develop *halacha* and also wrote religious poetry. After the Black Death, the customs and traditions of the Rhine communities were carried on by "the Sages of Austria".

With the increase in anti-Jewish incidents, growing taxation and oppression by the authorities, followed by repeated episodes of temporary expulsion, Germany ceased to be a destination for Jewish immigration at some point, and in fact there began a net outflow of Jews. Although there was never a total expulsion of Jews from Germany, some Jews migrated first to Italy and, later on, eastward to Bohemia, Silesia and Poland. A large number of emigrants joined the German colonization movement whose destination was Polish cities (see below).[20] Later on, the Plague Massacres of 1348-1349, which destroyed the majority of the German Jewish communities, led to accelerated migration eastward and brought to Poland "the German element [that] quickly left the most salient cultural and social imprint on the character of the East European Jewish community."[21] This laid the foundation for the rise of the large and prominent Ashkenazi Jewish communities in Poland in subsequent centuries.[22]

As to legal status, the Jews remained imperial serfs during the 14th and 15th centuries. The Emperor could and did transfer to his creditors and political allies the revenue owed by the Jews. Eventually, organized

[14] Stow (1992, p. 101).
[15] Teller (2010, pp. 112-13).
[16] For the text, see Botticini and Eckstein (2013, Chapter 8, Annex, pp. 244-47).
[17] Stow (1992, p. 90).
[18] Grossman (1975, pp. 177-78).
[19] Stow (1992, pp.172-73).
[20] See Zaremska (2011, p. 116).
[21] Ruderman, (2010, p. 30).
[22] Baron (1952, vol. 4, chapter 22); Toch (2005, 2011b, 2012).

communal life disintegrated and the Jews' special group status was gradually replaced by fragile charters granted by local authorities, which only applied to individuals and their families and usually involved large payments for the privileges they provided. In addition, the 15th century was marked by blood libels and expulsions.

During the first decades of the Polish Kingdom, some small Jewish colonies were established to serve the needs of itinerant Jewish traders. In the mid-12th century, following the rise of towns, the Polish Kingdom became attractive to both German and Ashkenazi Jewish immigrants.[23] The Jews, like others, were attracted mainly by the burgeoning economic opportunities.[24] The first permanent communities, though small in size, were probably established in the 12th century by wealthy Jews who worked for the Polish kings as minters, bankers and commercial agents.[25] From the second half of the 13th century onward, waves of Ashkenazi immigrants, who were part of the large-scale migration from German-speaking lands eastward, established organized communities modeled on the Ashkenazi diaspora.

There is ample evidence of the Ashkenazi roots of Polish Jewry. Both diasporas had a common core of religious practice called *Minhag Ashkenaz*.[26] They had similar burial practices, as can be seen from a comparison between the oldest remaining Jewish tombstones in Poland and the typical late-medieval Ashkenazi sepulchral forms.[27] The new communities accepted the Ashkenazi rabbinic authority, consulted often with Ashkenazi rabbis via responsa and held in high esteem those who had studied under Ashkenazi scholars. For example, already in the mid-13th century Jacob of Cracow, a rabbi and scholar, consulted Ashkenazi rabbis in order to avoid censure. Both early settlers and early settlements had German-sounding names, and both diasporas spoke a common medieval Judeo-German dialect, an early form of the evolving Yiddish language.[28]

In 1264, following the growth of Jewish settlement, the strengthening of the Roman Catholic Church and the acceptance of the Magdeburg constitution in Polish towns (*locatio*), the Jews received their first charter of privileges, the aforementioned Statute of Kalisz.[29] Extremely similar to the German model of Duke Frederick II of 1238, the charter granted the Jews freedom of worship, trade and travel, exempted them from city and church courts and placed them under the jurisdiction of the ruler or his representative, who would benefit from Jewish contributions to the treasury. However, in contrast to the situation in the Empire where Jews were given the status of serfs of the treasury, the charter established the Jews as an urban group, gave them rights parallel to other urban newcomers and integrated them within the economic

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[23] Weinryb, (1972, p. 27); Bell, (2008, p. 55); Zaremska (2011, p.116).
[24] *Atlas* (2010, p. 32).
[25] Rosman (1990, p. 36).
[26] Bartal (2005, p. 16); Ruderman (2010, pp. 30-1).
[27] Wodzinski (2010).
[28] Sources from the 14th and 15th centuries mention places with names using the Middle-High-German diminutive suffix *lin*, while series of appellations mention names with the Germanic element *man*. For more details, see Beider (2001, pp. 184-98; table and map pp. 212-13).
[29] Zaremska (2011, p. 133).

and social life of Polish towns.[30] As minters, bankers, moneylenders, merchants, tax farmers and toll collectors, lessees of royal salt mines, administrators, and royal creditors, Jews began to play a prominent role in the royal and national economies. While in the Empire Jews were appreciated first and foremost as a source of direct income, in Poland the rulers were more interested in the Jewish contribution to economic development. Hence, while in the Empire the fate of the Jews was determined by the commercialization of their taxation and its sale to local potentates, in Poland the Jews' situation depended on the power struggle between the king and the nobility (see chapter two).[31]

In 1453, King Casimir the Jagiellon granted the Jews of Major Poland a detailed charter which strengthened Jewish physical security, religious freedom and economic rights, and formally recognized the structure of Jewish autonomy. Although the charter was canceled in 1454 due to the opposition of the nobility, it was reconfirmed later on by the early modern kings of the Polish-Lithuanian Commonwealth who buttressed the Jewish community as a source of economic benefits and a counterweight to increasingly autonomous municipalities.

By 1500, the Jewish community numbered between 10,000 and 30,000, dispersed in about 100 small communities (see below).[32] The Jews paid the poll tax to the State and were free to "travel, change residence, swear and sue in court, bear arms, and own homes and businesses; in principle, they were allowed to deal in any commodity and could sell retail as well as wholesale."[33] They enjoyed a status parallel to that of the burgher estate, and their occupational structure developed according to the economic and political changes in Polish cities.[34]

The Jews lived in mostly urban communities and although their self-government combined Talmudic and Ashkenazi tradition with Polish influences, they became "religious ethnic corporations recognized by law and protected by the monarchy and [later by the] nobility."[35] The community (*kehila*) had a board (*kahal*), which was usually comprised of affluent merchants related to the developing rabbinic elite. The board imposed taxes and collected them and maintained a synagogue, ritual bath house (*mikveh*), cemetery, and a Jewish court of law.

The Polish Church advocated an inferior status, physical segregation and various other restrictions on the Jews but it was never able to impose them. The strongest opposition to Jewish economic activities came from the Christian guild merchants and craftsmen. The increase in Jewish retail trade and crafts was met with complaints, accusations, municipal restrictions, and sometimes street violence. The conflicting interests were often resolved through the king's intervention or by means of agreements known as "pacts" between the Jewish community and the Christian municipality, which prescribed the limits of Jewish

[30] Teller (2010, p. 114).
[31] Teller (2010, pp. 114-116).
[32] Guldon (2000). See also Horn (1974).
[33] Rosman, (1990, p. 37).
[34] Lukowski (1991, p. 78).
[35] Ruderman (2010, p. 86).

economic activity in the city. In spite of this complicated reality of power struggles between royalty and nobility and between royal privileges and municipal pacts, the Polish Jewish community began to grow and expand eastward.

What about the Khazarian Jews? There is evidence that Jews lived in a small area of Eastern Europe located at the north end of the Black Sea, though there is no evidence of Jewish settlement on the nomadic lands of Asia Minor.[36] Around the 7th century, the Khazarian Kingdom expanded and the Jews reached the Caspian Sea.[37] The Khazarian Jews settled in the cities, but there is no evidence of a large Jewish community in the Kingdom. The current historical evidence indicates that with the destruction of the Khazarian Kingdom in 965-9 the Jewish settlements near the Caspian Sea ceased to exist. "Some Jews mixed with non-Jewish population, some escaped or migrated to neighboring countries; the central point of Jewish settlement in Eastern Europe moved […] to Kiev."[38]

Kiev was centrally located on a commercial crossroads. The city must have attracted Jewish settlers from the Byzantine Empire, the Crimea, Persia, and the Caucasus. In the 12th century, the Jewish traveler Benjamin of Tudela mentioned Kiev as a great city.[39] The oldest written document that mentions Jews in Kiev is the so-called "Kievian Letter" from ca. 930.[40] Ashkenazi scholars mentioned rabbis from Rus, such as Rabbi Moses of Kiev who was one of the pupils of the *tosafist* Jacob Tam (d. 1170).[41] Although sources are scarce, it is probable that this medieval non-Ashkenazi community included both Rabbinic and Karaite Jews.[42]

It has not been decisively proven that the Kievan community had Khazarian roots and furthermore the hypothesis that the Khazars converted to Judaism has been based on only a few unreliable written sources.[43] It has never been proven using credible contemporary sources, nor has any material evidence been found.[44] Even if the Khazars did convert to Judaism and later migrated to the Kievan Rus, no evidence of a separate community that maintained its own traditions has been found.[45] On the other hand, other non-Ashkenazi Jewish groups, such as Karaites and the Sephardic Jews, did preserve their religious practices and culture for centuries within the Jewish communities of Eastern Europe.

Furthermore, even if a large Jewish community with Khazarian origins did exist at the beginning of the second millennium, it was most likely destroyed together with the rest of Kiev during the Mongol siege in

[36] Dubnow (2000, vol. 1, p. 1).
[37] Dubnow (2000, vol. 1, p. 6).
[38] Halpern (1968). For evidence of the Jewish presence in Kiev, see Kulik (2010, vol. 1 pp. 189-213).
[39] Benjamin of Tudela (1840, p. 164).
[40] For more information on the Kievian Letter, see Golb and Pritsak (1982).
[41] *Sefer ha-Yashar le-Rabbenu Tam* (1811, pp. 52a, 522).
[42] Meir (2010). Zaremska tends to rule out the existence of the Karaite community (2011, p. 77).
[43] For an analysis of Arabic sources, see Gil (2010). For an analysis of all literary and non-literary sources, see Stampfer (2013).
[44] No material evidence have been found for the conversion of the Khazars to Judaism or for the existence of a notable Jewish community in the kingdom. See Stampfer (2013, p. 30-2).
[45] Since the late 18th century, the hypothesis of the Khazars' conversion to Karaite Judaism has attracted interest, but has never been decisively proven. For a concise examination of this theory and its history, see Shapira (2007).

1240. While it is known that some of the refugees from the Jewish community, mostly Karaites, migrated to the Crimean peninsula and established Karaite settlements, we have no evidence of substantial migration to the West or the formation of eastern communities in Polish territories at that time. On the contrary, there was probably an eastward migration from Poland in response to the policy of Russian Prince Daniil Romanovich (1259) and his son, who invited Germans, Jews, Poles, and other foreigners to settle in Kiev in order to revive the city.[46]

The Jews returned to Kiev and lived under Tatar-Mongol rule (1240–1320). With the annexation of the city by the principality of Lithuania (1320), the Jews were granted rights that ensured their safety and their property. During the reign of Withold (1392-1430), the Jews of Lithuania were granted privileges. At the end of the 14th century, the Karaite community of Lithuania appeared in Troki and later on in other towns of the Polish-Lithuanian Commonwealth as well.[47] In the Tatar raid on Kiev in 1482, many Jews were taken captive, and the Karaite community moved to Łuck.[48] Karaite communal institutions were formed in Lithuania in the 15th century under the influence of the Karaite center in Constantinople. In 1495, the Jews of Lithuania were expelled by Alexander Jagiellon and most of them moved back to the Crimea region.

We have no indication of a large non-Ashkenazi Jewish migration to Poland from the East. There is some possibility, though no concrete evidence, of a minor Jewish migration to Poland-Lithuania following the Mongol invasions during the 13th century. Some migration westward, as well as the presence of non-Ashkenazi Jews in small settlements on the eastern Polish frontier during the 15th century, cannot be dismissed either. Nonetheless, these movements were insignificant and random and left no genetic or linguistic traces.[49] Hence, the movement westward cannot be compared with the Jewish migration from German lands eastward. It was these immigrants who "formed the nucleus which served as the basis of demographic growth (…)" of the Jewish community in Central-Eastern Europe, a community which continued the Ashkenazi traditions.[50]

3. Jewish and Total Populations of Poland-Lithuania (PL) and Germany-Austria (GA): 1500-1930

This chapter summarizes the detailed work presented in Appendix A on the population sizes and trends in Central and Eastern Europe during the period 1500-1930. As indicated above we divide this vast area into Germany-Austria (GA) and Poland-Lithuania (PL) (see Maps 1 and 2).[51]

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[46] Rosenthal (1906, p. 488).
[47] Akhiezer (2010).
[48] Slutsky et al. (2007), Akhiezer (2010).
[49] See Elhaik (2013) and his critics in Stampfer (2014). There are at least 12 DNA studies which disprove the Khazar theory. See, for example, Costa et al. (2013)'s study of Ashkenazi DNA found no significant evidence of Khazar influence. For a discussion of the lack of Turkic linguistic influence, see Kulik (2014, pp. 105-43).
[50] Rosman (1991, p. 32).
[51] See Appendix A for details regarding the borders and areas that are used for the population as well as the territorial changes.

The period under consideration is divided into two sub-periods: 1500 to 1800, which roughly covers the three centuries before Jewish emancipation, the partitions of the Polish-Lithuanian Commonwealth and the Industrial Revolution, three centuries during which PL became the center and home to the majority of world Jewry; and 1800 to 1930, during which we have more statistic data but face many political changes. The population estimates are based on existing secondary sources, most of which calculated the Jewish population based on the number of Jews who were members of an established community and subjects to joint taxation rules until the end of the 18th century. During the 19th century almost all the population data is based on national censuses.

3.1 Jewish and total populations German-Austria (GA)

Table 3.1 provides our estimates of Jewish and total populations of GA from 1500 to 1750. The recent historians estimate that in 1500 there were approximately 40,000 Jews (or perhaps somewhat less) within a total population of 16 million in GA.[52] By the end of the 16th century there was a minor reduction in Jewish population and the Jews constituted a mere 0.2% of the total population. Following the common historian observation, we shall argue below that the main explanation for this reduction is the immigration of Jews from GA to PL.[53]

Table 3.1: The Jewish and total populations of Germany-Austria (GA): 1500-1750

Year	Jews (in thousands)	Total (in thousands)	Share of Jews (%)	Annual growth rate of Jews (%)	Annual growth rate of total (%)
1500	40	16,000	0.25		
1600	35-40	18,000-20,000	0.2	0.00	0.11 to 0.22
1650	60	16,000-17,000	0.35	0.81	-0.23 to -0.32
1700	110	19,000-20,000	0.55	1.21	0.34
1750	128	26,265[a]	0.49	0.30	0.32-0.38

a) In 1786

Sources: **1500** Jews: Guggenheim (1989, pp. 130-31); Toch (2003 (1), p. 13); Total: Rabe (1989, p. 27); Whaley (2012 vol. 1, p. 50); **1600** Jews & Total: Battenberg (2001, p.10); **1650** Jews: Battenberg (2001, p. 33); Bell (2008, p. 48); Total: Schormann (2001, p.269); Whaley (2012, vol. 1 p. 633); **1700** Jews: Israel (1985, p. 170); Battenberg (1990, part 2, pp. 1-2); also see Battenberg (2001, pp. 32 ff); Total: Battenberg (2001, pp. 32 ff); **1750** Jews: Israel (1985, p. 303); Thon (1908, p. 5 for the year 1776); Hartmann (1995, p. 348 for the year 1796). Total: Kolb (1875, p. 36 for the year 1786); Hartmann (1995, p. 348 for the year 1796).

[52] Guggenheim (1989, pp. 130-31) estimate is based on *Germania Judaica* III, particularly the first and second volumes which contain demographic information for over 1,000 Jewish communities. The total is based on Rabe (1989).
[53] Friedman (1983, p. 34).

It is interesting and surprising that by the end of the Thirty Years' War the Jewish population in GA is estimated to increase by more than 50% from 1600 to 1650 have while the total population reduced by about 15%. According to various estimates, the direct decline in population as a result of the war was 15-20%. Whaley (2012) summarizes various estimates of GA's population losses during this period, mentioning that "hard statistical evidence is [...] difficult to come by."[54] The Jewish population of GA was less affected partly because there was some migration of Jews from PL to GA in the wake of the Khmelnitsky Uprising in 1648.[55]

The key fact emerging from table 3.1 is that the Jewish population of GA was stagnant during the 16th century, while it grew by more than by one percent per annum during the 17th century, mainly during the second half. While the total population collapsed during the Thirty Years' War in the mid-17th century, the Jewish population remained stable. During the first half of the 18th century, we observe a moderate growth rate of 0.3% percent per annum which is below that of the non-Jewish population. However, by the mid-18th century the Jewish population was 0.5% of the total population, which is twice what it was in 1500.

Regarding the period of 1800 to 1930, it should be noted that Europe's geopolitical maps underwent major changes during the last thirty years of the 18th century as well as in 1815, following the Congress of Vienna (see Appendix A). In 1871, the German states were united to form the German Empire or the Second Reich, also known as the *Kaiserreich,* which lasted until 1918.

In table 3.2, we present the Jewish and total populations of Germany for the period 1800-1930 within the borders of 1934, that is, after the restoration of the Polish state. The estimates include areas of Germany that were parts of the GA for the earlier period and exclude areas of Germany that were not part of GA as defined for 1500 to 1800 approximately.[56] The Jewish and total populations of Austria, including Bohemia and Moravia, are presented separately in Table 3.3 as the populations of Austria. We take tables 3.2 and 3.3 for the total GA population analysis.

The starting point for the populations in tables 3.2 and 3.3 is 1816, since at this point the borders become more stable and the calculations can be based on censuses during the 19th century.

Based on multiple sources described in Appendix A, the number of Jews in Prussia and the other German states in 1816 is estimated by us to be at around 214,000 and the total population in 1816 at 21.989 million.[57] In 1871, the Second Reich conducted the first imperial census and the population numbers are certainly more accurate but they fit the pattern of change and levels of the earlier estimates. Until 1880 the

[54] Whaley (2012, vol. 1 p. 633). Whaley mentions that the estimates depend on the geographical focus of the demographic studies, i.e. whether the focus is on the German borders of 1871-1914 (the Second Reich) or on those of the early Reich. Schormann's estimate (fn. 26) refers to the early Reich.

[55] Battenberg (2001, pp. 32-33).

[56] See Appendix A for details on Table 3.2 including the borders areas in 1934.

[57] Note that we subtract the provinces of Posen and West Prussia.

Jewish population grew at a slightly higher rate than the total and increased from about 1% to 1.15% of total population. From 1880 the rate of growth of Jews was significantly lower than the total and by 1933 their share was only 0.76%, which is based on the census of 1933.

Table 3.2: Jewish and total population of Germany: 1816-1930*

Year	Jews (in thousands)	Total (in thousands)	Share of Jews (%)	Annual growth rate of Jews (%)	Annual growth rate of total (%)
1816	214	21,989	0.97		
1825	245	24,804	0.99	1.50	1.34
1834	270	27,064	1.00	1.08	0.97
1843	309	29,748	1.04	1.50	1.05
1852	329	31,693	1.04	0.70	0.70
1861	353	33,652	1.05	0.78	0.67
1871	383	36,323	1.05	0.82	0.76
1880	437	40,218	1.09	1.50	1.13
1890	467	44,639	1.04	0.67	1.04
1900	497	50,626	0.98	0.62	1.26
1910	539	58,451	0.92	0.81	1.44
1925	564	63,181	0.90	0.30	0.52
1933	503	66,022	0.76	-1.43	0.55

*For the borders of Germany see Appendix A and Map 3.2.Sources: Blau (unpublished manuscript, p. 276, table 54); Bennathan (1932, p. 95, table 5).

Table 3.3 provides the Jewish and total populations of Austria and it is based on Jacob Thon (1908). We exclude Galicia from the data which was annexed from Poland, since it is included in the figures for Poland. Apart from Galicia, which accounted for 70-80% of Austrian Jewry, the regions of Moravia and Bohemia also had significant Jewish populations.

Table 3.3: Jewish and total population of Austria: 1784 -1930*

Year	Jews (in thousands)	Total (in thousands)	Share of Jews (%)	ual growth rate of (%)	nual growth rate of t (%)
1785	70	7,724	0.90		
1830	106	11,065	0.96	0.92	0.80
1857	172	13,006	1.32	1.79	0.60
1869	246	14,128	1.74	2.98	0.69
1880	319	15,180	2.10	2.36	0.65
1890	371	16,144	2.30	1.51	0.62
1900	413	17,587	2.35	1.07	0.86
1910	442	20,546	2.15	0.68	1.55
1934*	308	17,433	1.77		

*Includes the Austrian republic (post WWI country), Bohemia, Moravia and Silesia (part of Czechoslovakia). See Appendix A and Map 2 for the borders on Austria.
Source: 1785-1900: Thon (1908, pp. 5-6, 8 table 1); 1910 Jews: Haas (1912, p. 149); Total: *Österreichische Statistik*, Neue Folge (1910-1915, vol 1 (1), p. 36); 1934: *American Jewish Year Book* (Vol. 37 (1935-1936), p.360, table 8); Vobecka (2013, for Bohemia, p. 47, table 4.1; for Moravia p. 219).

Until 1850, general censuses were conducted by the military in Austria and the data from these censuses is not always reliable. Starting from the census of 1880 following the introduction of universal conscription, the population figures for both the Jewish and total populations become more reliable.[58]

Using trends provided by Thon (1908) help us to estimate the demographic changes. In 1830 the share of Jews in Austria was close to 1% as many as in Germany. From that time the growth rate of the Jews in Austria until the end of the 19th century was much higher than that of Jews in Germany and much higher than the total population and the Jews reached 2.3% of the population.

In 1934, there were 191,408 Jews remaining in the diminished territory of Austria following the defeat in WWI, with a total population of 6,759,062.[59] In the former Austrian regions, which were now part of the new state of Czechoslovakia, there were 76,301 Jews out of a total population of 7,109,376 in Bohemia and 41,250 Jews out of a total population of 3,565,010 in Moravia and part of Silesia, according to the 1930 census data cited by Vobecka (2013).[60] Overall there was a significant reduction in the Jewish population in Austria during the period after WWI.

3.2 Jewish and total populations of Poland-Lithuania (PL)

We divide the demographic history of Poland-Lithuania into two periods: 1500-1764 and 1764-1930. With regard to the first period, the year 1500 marks the first attempts by historians to estimate the size of the Jewish population in Poland while the first Jewish census in Poland-Lithuania was carried out in 1764-1765. The second period, begins after the census and the partitions of Poland-Lithuania (1772-1795) between Prussia, Russia and Austria (see Appendix A) and ends with the outbreak of World War II, well after the establishment of the Second Republic of Poland in 1918.

By around 1500, the Jewish population in Poland had reached a level of 10-15 thousand, which is based on the estimates of a number of leading historians derived from tax collection data.[61] The year 1648 marks the beginning of a decade of wars, including the Khmelnitsky Uprising, which caused serious damage to the Polish economy, reduced its population and resulted among other things in a temporary interruption of the rapid growth of the Jewish population in Poland.

Table 3.4 provides an estimate of the Jewish and total populations of the geographic region of Poland-Lithuania as defined above. The figures for 1500 are according to the estimates of Weinryb (1972), Stampfer (1997) and Kupovetsky (2010) which are mostly based on limited fiscal registers that mention the existing Jewish communities. The earliest of them is the Coronation tax register of 1507, which lists

[58] Thon (1908, p. 5).
[59] *American Jewish Year Book* (Vol. 37 (1935-1936), p.360, table 8).
[60] Vobecka (2013, for Bohemia, p. 47, table 4.1; for Moravia p. 219).
[61] Rosman (1991, (1-2), p. 40).

54 communities: 29 in Great Poland, 10 in Mazovia, 10 in Red Russ and 5 in Lesser Poland.[62] A number of leading scholars have attempted to complement the information in the registers. Schiper (1932) and Salo Baron (1976) estimated the Jewish population at 30,000.[63] In contrast to them, Weinryb (1972) provided a much lower estimate of 6,000-8,800 Jews in the Kingdom of Poland and an unknown number in Lithuania, and estimated a total number of 10,000 Jews.[64] Stampfer (1997) supported Weinryb's figure.[65]. Based on these studies we estimated the number of Jews to be between 10 to 15 thousands in 1500.

Table 3.4 Jewish and total population in Poland-Lithuania 1500-1764

Year	Jews (in thousands)	Total (in thousands)	Share of Jews (%)	Annual growth rate of Jews (%)	Annual growth rate of total (%)
1500 [a]	10-15	7,500	0.13	--	--
1550	55	8,500[b]	0.65	2.6-3.4	0.25
1648	185	11,000	1.68	1.24	0.26
1660	163	8,000 or 9,000	1.81-2.03	-1.05	-2.0
1764[c]	750	14,000	5.36	1.5	0.4-0.5

a) The date is approximate. The estimate is for the end of the 15th century. (b) Second half of the 16th century. (c) 1764/1765. Sources: Jews: Weinryb (1972 p. 320); Stampfer (1997, pp. 263-67). Kupovetsky, YIVO (2010, October 12); Total: 1500, 1648, 1772 Gieysztorowa (1968, table 1, n.p.); (1981, p. 430, table 1); Jezierski & Leszczyńska (2003, p. 41, table 2.1); 1550: Łukasiewicz et al. (2014, p.49, table 2); 1660: based on Kuklo (2009, p. 212).

The total population of Poland-Lithuania was estimated by Gieysztorowa (1968, 1981, table 1) to be 7,500,000 people in 1500 and this estimate was recently adopted by Jezierski and Leszczyńska (2003, table 2.1, p.41). In the 264 years (1500-1764) the Jewish population of PL grew extremely fast and from about 0.13% to 5.36% of the total population. The highest growth occurred at the beginning of the 16th century with the documented migration of Jews from Germany.

It is interesting to note that during the period of the wars from 1648 to 1660 the Jewish population is reduced by -1%, but the total was reduced at a double rate of -2%. Contrary to the significant decline in the Jewish population reported by contemporary chroniclers as a result of Khmelnitsky's uprising (over 100,000 killed and hundreds of communities destroyed),[66] Stampfer (2003, pp. 218-22) shows that the number of Jewish casualties was in fact much lower, most likely in the range of 18,000-20,000.

[62] Horn (1974, pp.11-15).

[63] Baron (1976, p. 207). Among other studies, Smasonowicz (1989, p.36) reported 89 communities (excluding Silesia) and estimated the Jewish population of Poland at 4,500. Guldon (2000) presented the longest list which consisted of 106 Jewish settlements established in Poland before 1507. However, since many of those communities were only temporary, his list is not a relaible basis for calculating population. For a critique of Guldon's list, see, for example, Zaremska (2011, pp. 241-42).

[64] Weinryb (1972, pp. 309-11).

[65] Stampfer (1997, p. 263-267).

[66] See Weinryb (1972, p. 194). Dubnov seems to accept the enormous scale of losses (1916, vol. 1, pp. 156-7) while Weinryb's estimate is more moderate (1972, p. 197).

Kupovetsky (2010, table 1) follows Stampfer's assessment of the losses and estimates that 163,000 Jews were probably living in Poland-Lithuania after the period of the wars in 1660.

The special Jewish census of 1764-5 provides the most important milestone for estimating the Jewish population of Old Poland. The results of the census are reported by Mahler who added 6.35% for children under the age of one who were not included and increased the figures by a factor of 20% to compensate for the underreporting due to tax evasion.[67] The original census data showed a Jewish population of 587,658 (430,009 in Poland and 157,649 in Lithuania).[68] Following Mahler's corrections, this figure increases to 750,000.

Stampfer (1985) supported Mahler's conclusions since they correspond well to the data and the annual rate of growth during the 19th century. Further support comes from Kalik (2009) study on the Jewish poll tax lists. After examining the newly discovered tax lists for Crown Poland for the period 1717-1764, Kalik estimated a difference of 21.28% between actual to potential tax, which is close to the correction factor suggested by Mahler and corroborated by Stampfer.[69]

As mentioned above, there were three partitions of Poland-Lithuania: in 1772, in 1793 and in 1795 (see Appendix A). As an outcome of the Congress of Vienna, the former Jewish population of Poland-Lithuania was now belong to other countries. The provinces of Posen and West Prussia, which belonged to Prussia; in Galicia, which belonged to Austria; in the Pale of Settlement, which are regions within the Russian Empire where Jews were permitted to continue to reside; and in the Congress Poland which was subject to the Russian Empire. Congress Poland was part of Russia but was not formally part of the Pale even though Jews were residing there.

Table 3.5: Poland-Lithuania: Jewish and total population, 1800-1939

Year	Jews (in thousands)[a]	Old/new total population (in thousands)[b]	Share of Jews[c] (%)	Annual growth rate Jews (%)	Annual growth rate Total Population (%)
1800	1,066/9	15,751/19,735	6.77	1.00	0.33
1834	2,176/27	19,198/24,784	11.33	2.09	0.58
1850	2,811/41	21,402/27,740	13.13	1.60	0.68
1865	3,599/??	24,527/32,324	14.67	1.54	0.91
1880	4,702/155	30,520/40,710	15.41	1.78	1.46
1897	5,764/315	39,799/53,106	14.48	1.20	1.56
1926	5,037	64,305	7.83	-0.46	0.66
1939	5,377	75,715	7.10	0.50	1.26

[67] Mahler (1958, ch. 1).
[68] Mahler (1958, pp. 45-46).
[69] Kalik's data consistently shows a higher tax potential than that indicated by the census results not only for Crown Poland as a whole but also for individual fiscal units (2009, p. 42).

a) The first figure in this column is the number of Jews on the territories of the former Poland-Lithuania as well as in the "non-Polish" areas of the Pale of Settlement. The second figure after the slash shows the number of Jews in the Russian Empire outside the Pale of Settlement.

b) The "old total" number shows the total population of the pre-partitioned Poland. The "new total" includes the total population of the pre-partitioned Poland as well as the "non-Polish" provinces of the Pale of Settlement. (See below ft. 139).

c) The share of Jews based on the "old total" numbers.

Sources: **1800** Jews: SJE (1994 vol. 7 col. 385, table 7); Rosenfeld (1914, p. 140); Kupovetsky (2010, table 3); Silbergleit (1930, p. 7, table 5; pp. 18-19, table 9); Total: Rashin (1956, pp. 28-9, table 10); Gieysztorowa (1968, table 2); Zamorski (1989, p.45, table 1, p.46, table 2); *Jahrbuch für die amtliche Statistik des Preussischen Staates* (1883, p. 74, table 4). **1834**, SJE (1994 vol. 7 col. 385, table 7); Himka (1999, p. 26, table 1); Silbergleit (1930, pp. 18-19, table 9); Kemlein (1997, p. 58, table 2); Total: Rashin (1956, pp. 28-9, table 10); Guesnet (1998 p. 31 table 1); Zamorski (1989, p.45, table 1, p.46, table 2); *Jahrbuch für die amtliche Statistik des preussischen Staates*, (1883 p. 74, table 4). **1850** Jews: SJE (vol. 7, col. 385, table 7); Himka (1999, p. 26, table 1); Kemlein (1997, p. 58, table 2); Silbergleit (1930, pp. 18-19, table 9); Total: Rashin (1956, pp. 28-29, table 10); Gieysztorowa (1968, table 2); Zamorski (1989, p.45, table 1); *Jahrbuch für die amtliche Statistik des preussischen Staates*, (1883 p. 74, table 4). **1865** Jews: SJE (vol. 7, cols. 385, table 7); Rosenfeld (1914, p. 142); Kemlein (1997, p. 58, table 2); Silbergleit (1930, pp. 18-19, table 9); Total: Rashin (1956, pp. 44-45, table 19); Guesnet (1998 p. 31 table 1); Zamorski (1989, p. 69, table 12A); *Jahrbuch für die amtliche Statistik des preussischen Staates,* (1883 p. 76, table 4); **1880** SJE (vol. 7, cols. 382–90, table 7); Zamorski (1989, p. 69, table 12A); Silbergleit (1930, pp. 18-19, table 9); Total: Rashin (1956, pp. 44-45, table 19); Guesnet (1998, p. 31 table 1); Zamorski (1989, p.45, table 1); *Jahrbuch für die amtliche Statistik des preussischen Staates,* (1883 p. 76, table 4); **1897** Jews: SJE (vol. 7, cols. 382–90, table 7); Zamorski (1989, p. 69, table 12A; Silbergleit (1930, pp. 18-19, table 9); Total: Rashin (1956, pp. 44-45, table 19;); Guesnet (1998, p. 31 table 1); Zamorski (1989, p. 69, table 12A; *Jahrbuch für die amtliche Statistik des preussischen Staates,* p. 76, table 4. **1925** Linfield (1931, vol.33, pp. 283, 315); Eberhardt (2003, p. 40, table 2.14); Jezierski (2003, p.357, table 84). **1939** Tolts (YIVO 12 October 2010 table 1); Linfield (1941-1942, p.668); Lorimer (1946, pp. 241-42 table 22A).

Table 3.5 provides the estimated Jewish and total populations of PL which now consists of the Pale of Settlement, Congress Poland, Galicia, West Prussia and Posen based on the existing historical and demographic studies.

Based on the estimates appearing in the Shorter Jewish Encyclopedia (SJE), the Jewish population of the Pale of Settlement (including the Kingdom of Poland) was 811,000 in 1800 and there were 9,000 Jews in other parts of Russia outside of the pale. This estimate includes the Jews in Galicia (201,277 in 1803) and the 45,000 Jews in Posen in 1800.[70]

The second column shows two numbers for the total population until 1897: "old total population" and "mew total population". The former includes only those territories that were part of pre-partition Poland.[71] This figure for the total population in 1800 is based on Rashin (1956)'s data for the population of the Russian provinces.

The growth rate of Jews exceeded that of the total population until 1880 when the grand migration to the US started. At that time the share of the Jews in the "old" PL territories reach the rate of 15.4%, this was the highest share of Jews in Eastern Europe ever. The growth rate of total population exceeded that of the Jews from that period towards 1930. Yet, it was not as high as the population growth of Jews prior to the grand migration period, which is, prior to 1880.

[70] See Appendix A for details.

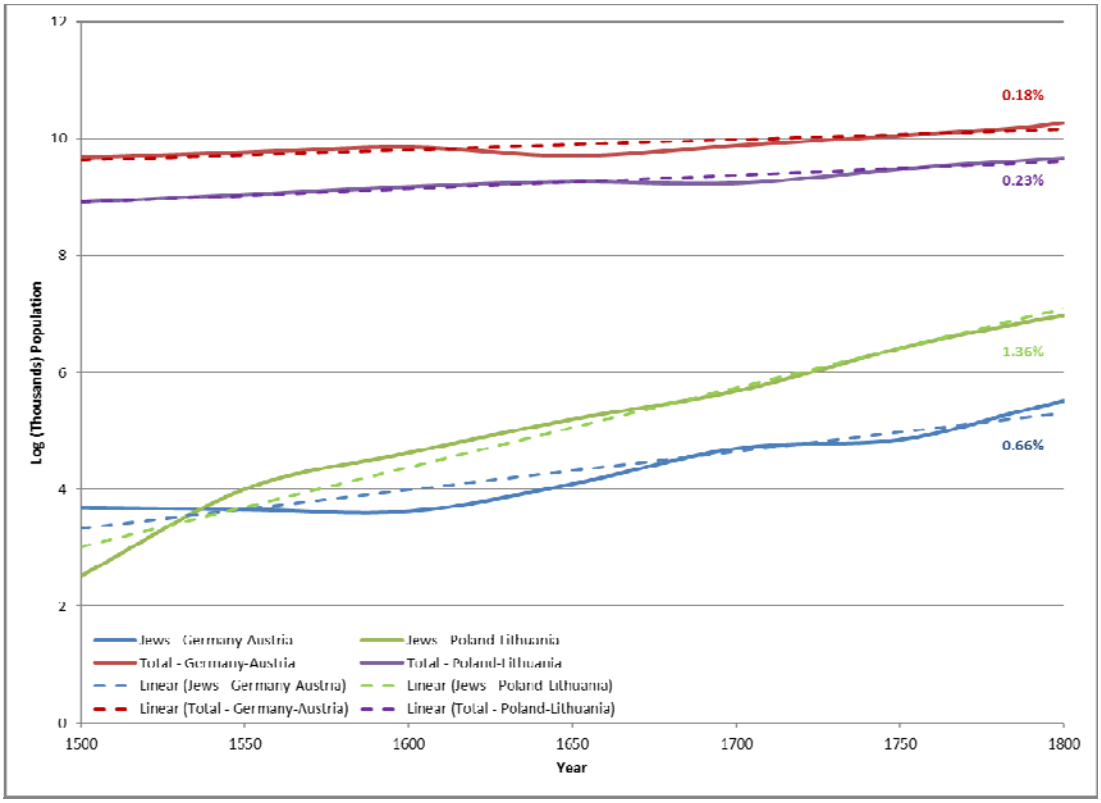
[71] Rashin (1956, pp. 44-5, table 10). The provinces included in the "old total" are Vilna, Vitebsk, Grodno, Kovno, Minsk, Mogilev, Podolia, Volhynia and Kiev. We also add Courland which had been subject to Poland-Lithuania prior to the partitions.

The data for 1897 is based, among other sources, on the most comprehensive survey of the Russian territories carried in that year. This survey is a milestone for the population research and other aspect of Jewish studies of the 19th century. The Jewish population in the Pale and in the Kingdom of Poland in 1897 is estimated at 4,899,327. This is a result of our method that is explained in Appendix A, which also explains the figures for the "old total population" of 39,798,925 and the "new total population" of 49,731,000 in 1897. The figures for 1925 and 1939 are based on different sources but similar methodology and should be highly accurate as these are based on relatively new and well conducted censuses.

3.3 Summary

A number of conclusions emerge from the analysis of the Jewish and total populations of Germany-Austria and Poland-Lithuania. Figure 3.1 presents the log values of the population figures appearing in Tables 3.1 and 3.4 and uses the calculated growth rate between each pair of observations to provide the log estimates in between. The dashed lines represent the calculated constant rate of growth for the entire period. The average annual rates of growth appear on the right hand side of the graph. The following conclusions emerge for the period 1500-1800.

Figure 3.1: The Jewish and total populations in logs: 1500 to 1800



1. The total populations of Germany-Austria and Poland-Lithuania grew at similar natural rates of 0.18% and 0.23%, respectively. The ratio of the total population of PL to that of GA remained relatively constant throughout the period at about 0.55. The Thirty Years' War in GA and the wars of 1648-60 in PL had a

significant negative impact on the total population growth rate over the 300 years and adjusting for the these wars the natural population growth rate was about 0.3-0.4%.

2. The Jewish population of PL grew at the exceptionally high rate of about 1.36% annually, while that of GA grew by only 0.66%. Both of these populations grew much faster than the corresponding total population.
3. The ratio of the Jewish population of Poland-Lithuania to that in GA was 0.25 in 1500. By the end of that century, however, the Jewish population in Poland-Lithuania was twice as large as that in GA and by 1650 three times as large.
4. During the Thirty Years' War, the total population of GA declined dramatically, while the number of Jews remained almost constant. During the period of wars in 1648-1660, the total population in Poland-Lithuania declined at twice the rate of the Jewish population.
5. If birth, death and conversion rates were identical between the Jewish populations in GA and PL, then net migration from GA to PL must have continued throughout the period and at a particularly high rate in the 16th century. There are various references to Jewish immigration from GA to PL until 1648 but the much higher growth rate of Jewish population in PL than in GA continued from 1660 to 1760.[72] This reflects potentially a small continued flow of immigration of Jews from GA to PL.
6. Under the assumption of point 5 above it is possible to claim that the natural annual growth rate of Jews from 1500 to 1800 was one percent and the net immigration average rate from GA to PL was 0.35-0.37, such that the average growth of population in PL was 1.37-1.35 and in GA was 0.63-0.65. Yet, the widening difference in levels of population in the late 18th century imply that potentially the natural growth of Jews in PL at that time was slightly above 1%.

Figure 3.2 summarizes the growth rates of the Jewish and total populations in Germany-Austria, which includes most of the "old" Reich, and the "old" Poland-Lithuania, based on the figures in Tables 3.2, 3.3 and 3.5. The observations are calculated as in Figure 3.1. The following conclusions emerge for the period 1800-1930:

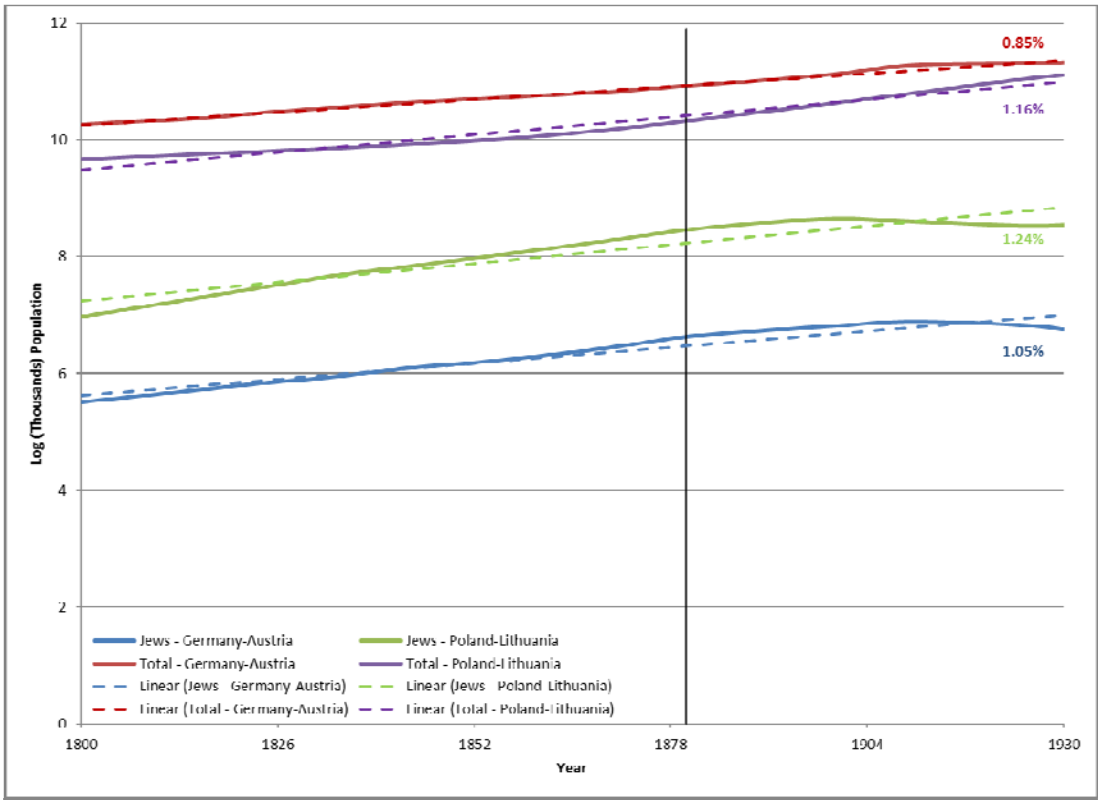
1. The Jewish population of Poland-Lithuania grew at an almost constant rate of 1.35% until 1880, when growth slowed and later became negative at the beginning of the 20th century. The change in 1880 is due to the vast immigration of Jews from PL to the west and in particular to the US. The Jewish low growth after 1900 indicates both reduce natural rate of growth and immigration away from GA and PL.
2. The Jewish population in GA grew at a rate of somewhat more than 1%, which was close to that of the Jewish population in PL.
3. The non-Jewish population of PL grew at a rate of less than 1% prior to 1900 and subsequently at a rate above 1%. The total population of GA grew at a rate of about 1% until the beginning of the 20th century and slowed subsequently.

[72] Kupovetsky (2010).

4. The Jews constituted about 6% of the total population in PL in 1800, and their share increased to a peak of 15.4% in 1880. The proportion of Jews fell to just above 7% by 1930. Jews in GA constituted about 0.6% of the total population in 1800, which increased to about 1.3% by 1880 (and above 2% in Austria alone). By 1930, Jews were less than 1% of the population in GA, and the percentage of Jews in the total population in Austria alone had grown to twice that.
5. The year 1880 was clearly a turning point when the Jews of Eastern Europe began immigrating to the West and primarily to the US. However, immigration to Western European countries began even earlier following the Napoleonic wars and emancipation in the Western and Central European countries.

   It should be noted that the data for the three largest cities in GA, presented in BEV, indicate that the proportion of Jews in these cities began to increase already in the 16th to mid-18th centuries, eventually reaching more than 10 percent. It subsequently declined and again started to increase significantly just prior to 1880. On the other hand, the proportion of Jews in almost all of the large cities in PL increased continuously during the entire period and in the majority of the examined cities, reaching a peak in the early 20th century. The proportion of Jews in large and small towns varied from 20% to over 80%, which reflects the significance of the Jewish presence in the urban population of PL. The proportion of Jews was higher in the smaller cities than in the larger ones, which developed into industrialized centers in the late 19th century.

Figure 3.2: **The Jewish and total populations in logs, 1800 to 1930**



4. Birth and death rates among Jews and Gentiles

In section 3 we documented the higher growth rate of the Jewish population relative to the Gentile population in PL and GA from 1500 to 1880. Given the grand migration away from central and eastern Europe to the west it is clear that the Jews had higher natural rate of population growth than non-Jews. The higher growth rate of the Jewish population can also be seen from the fact that for the region as a whole the proportion of Jews in the total population increased continuously from 1500 to 1930.

A population's growth rate is determined by the difference between birth and death rates, by immigration and by conversion.[73] Unfortunately, there is scant reliable data on births, deaths, immigration and conversion for either Jews or non-Jews in Germany-Austria and Poland-Lithuania prior to the 19th century. However, researchers worked on the exceptional Jewish population growth. Ruppin (1940), Weinryb (1972) and DellaPergola (1983), all of whom are demographic historians, have provided estimates of Jewish birth and death rates in Poland-Lithuania during this period. Based on anecdotal evidence and population growth rates, Ruppin (1940, p.76) proposed the following estimates for birth/death rates among "World Jewry" (per 1000 people): 1650-1750 – 45/40; 1750-1800 – 40/30; 1800-1850 – 40/25; and 1850-1900 35/20. These natural population growth rates are consistent with the observations on Jewish population growth from 1750 to 1900 in PL of about 1.4%. These are lower than the observations for the period of 1500 to 1750 as pointed by Weinreb (1972).

Weinryb (1972, p. 319-20), despite the scarcity of data, attempted to reconstruct the birth and death rates in order to explain Jewish population growth from 1500 to 1764. He proposed a birth rate of 55-60 and a death rate of less than 40, which yields a natural rate of increase of 1.5-2%. Weinryb bases his estimates of the death rate on data collected by Wettstein from the *pinkas* of the Jewish burial society in Cracow for the period 1543-1790.[74] These birth rates seem to be above natural rates observed by most studies on European countries and are set to be more at the range of 40-35 per 1000.

DellaPergola (1983, p.59, fig. 3) estimated Jewish birth and death rates in Poland-Lithuania using data from Galicia. According to DellaPergola (1983, p. 58), there were 40 deaths and 50 births per 1000 during the period 1650-1750. Death rates then began to decline, reaching about 13-15 in the 1920s while birth rates began to decline in around 1870 to about 20 in the 1920s. Based on these figures, DellaPergola

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[73] It should be noted that during the 19th century, the rate of migration of Jews out of Europe was higher than for non-Jews (see Kuznets (1975, pp. 39-51, tables I to V), which reinforces the conclusion regarding the difference in birth and death rates between Jews and non-Jews.

[74] Weinryb (1972, pp. 319-320). The data is problematic since it does not include the deaths of children up to the age of thirteen or fourteen. However, Wettstein was able to locate data on deaths, including the deaths of children, in the *kehilla's* records for the end of the 18th century. The number of deaths was twice that registered in the Jewish burial society records. During the period 1543-1590, the average number of deaths was 37-38 per 1000 excluding children. Doubling this number in order to account for children, Wettstein obtained 74-76 deaths. Thus, the total number of Jews in 1578 was 2,080 (Weinryb, 1972, p. 320). Dividing 2,080 by 74-76 yields 36 deaths (about 40) per 1000. Weinryb's estimate of the birth rate at 55 to 60 per 1000 is not based on data from Poland-Lithuania but rather on the situation in underdeveloped countries in Asia, Africa and the Middle East which in his view are comparable to the situation then in Poland-Lithuania.

claimed that demographic transition started much earlier (by between several decades and a century) among Jews than among non-Jews.[75]

In order to evaluate the natural growth rates of Jews and Gentiles for the period 1500-1930, we follow the demographic transition literature and divide the period into four stages.[76] **Stage 1** is the Malthusian period of pre-demographic transition which is the period of constant birth and death rates with small population growth rates that were reduced further due to epidemic cycles and wars. For Germany-Austria this period ends in about 1800 and Poland-Lithuania it continue for few additional decades. **Stage 2** is the early transition period which begins just before industrialization and is characterized by the same constant birth rates but declining death rates. For Germany-Austria and Poland-Lithuania, this period ends in about 1870. The modern demographic transition period is divided into two stages until 1930: **Stage 3** from about 1870 to 1910, which is the main period of transition to modernity where the fertility rates decline with additional decline in mortality rates and population growth increased. **Stage 4** is defined from 1911 to 1930 which establish the industrialized modern demographic birth and death rates that are much lower and relatively stable. This division essentially corresponds to the main periods discussed in the demographic transition literature for Northern, Central and Eastern Europe where industrialization began in the late 19th century and the discussion ends in early 20th century.

The main underlying assumption is that during stage 1 almost all of the Eastern European countries, including Poland-Lithuania and Germany-Austria, were at the so-called “Malthusian equilibrium”, in which the natural rate of population growth, i.e. the rate in a "normal environment", ranged for less than 0.5. The term "normal environment" reflects a situation in which population growth is not affected by sever epidemics or wars. From Figure 3.1 we see that prior to 1800 the population growth rates in both regions is about 0.2% and the main difference from the natural rate are mainly due to the wars of the 17th century, but also to spreads of local epidemics.

4.1. Total birth and death rates

Discussion of birth and death rates for Jews and non-Jews and aggregate demographic analysis require a hard-to-find data from many locations. Table 4.1 presents the best we could get for a comprehensive comparison of birth and death rates for Jews and non-Jews for Galicia at the end of the 18th century and for Posen at the beginning of the 19th century. The data from Galicia is representative of the whole region since its average birth and death rates for both Jews and non-Jews are those of a "normal environment" in PL during stage 1 of the demographic transition. Although this was a period of partitions in which large parts of the original Poland-Lithuania Commonwealth were divided up among its neighbors, the general

[75] DellaPergola (1997, p. 5, 14 fig. 4). Vobecka (2013) makes the same point for Jews in Bohemia.

[76] See Coale (1987) and the references there for the development of the demographic transition literature. See also Vobecka (2013) discussion of the stages.

socioeconomic conditions for the Jews were similar throughout most of the period. Jews lived mainly in urban centers. Moreover, medical knowledge and the socioeconomic relations between Jews and non-Jews remained basically unchanged until the second half of the 19th century. The main exceptions are the Thirty Years' War in Germany and the period of wars in PL during the mid-17th century.

The main conclusion to be drawn from the table is that Jews and non-Jews had almost the same birth rate of about 35(+- 3) per 1000 and the average death rates are 20.2 and 25.4 for the Jewish and total populations, respectively. The birth and death rates figures for the Jews are much lower than those given by Ruppin, Weinryb and DellaPergola. However, the rate of growth of about 1.5% is somewhat above to what we find for Jews in PL over that period as seen in Figures 3.1 and 3.2. For the total population, the 1% growth rate is higher than the overall numbers we find for GA and PL prior to 1800.

Table 4.1: Births, deaths and natural increase per 1000 for the Jewish and total populations of Poland-Lithuania (Galicia and Posen) 1777-1873

Year	Locality	Births Jews	Births Total Population	Deaths Jews	Deaths Total Population	Natural increase Jews	Natural increase Total Population
1777-1800	Galicia[a]	36.5	35.4	20.2	25.4	16.5	10.0
1824-1873	Posen	35.3	41.1	22.2	30.0	13.1	11.1
Average		35.9	38.25	21.2	27.7	14.8	10.55

a) Data from 9 cities
Sources: Budzyński (1993, vol. 1, p.108. table 7); Bergmann (1883, p. 136).

However, these are consistent with other estimates of average birth and death rates prior to the demographic transition from Germany and Sweden as are presented in main sources.[77] The most cited case is that of pre-industrial Sweden from 1759 to 1869, where the average birth rate was 32.5 per 1000 inhabitants, the infant death rate was 189 per 1000 births and the non-infant death rate was 19.7 per 1000 inhabitants. Consequently, the total death rate was 24.5 per 1000.[78]

Table 4.2 provides the birth and death rates in pre-industrial Germany-Austria (before 1870).[79] The figures for Germany are very close to these of Sweden prior to 1870. Hence, it appears that the figures we report for Poland-Lithuania are within the statistical confidence intervals of the rates for Sweden and other regions. We conclude from Table 4.1 and Table 4.2 that at the end of the 18th century the average natural rate of population growth among Jews was 1.5% and 1% among the total population. The latter figure is

[77] See most recent graphs in https://ourworldindata.org/wp-content/uploads/2013/05/ourworldindata_demographic-transition-5-countriesi.png. Here one can see data for Germany after 1820.
[78] Eckstein, Schultz and Wolpin (1984, table 1).
[79] Vobecka (2013) reconstructed the Jewish birth rates for the period 1793-1849 based on the population growth rates and on reported death rates. Based on that, the average death and birth rates of the Jews in 1793-1849 are 32.99 and 23.48, respectively. That is 0.95 natural growth rate. For total population, we use Fialová, Pavlík and Vereš (1990) and conclude that the average birth and death rates are 41 and 32.14 in 1800-1850, i.e. 0.88 natural growth rate. The difference in the average natural increase is negligible but the pattern of lower Jewish fertility and mortality is evident.

somewhat higher than the Swedish rate of 0.8% but is nonetheless within the confidence interval.[80] Stage 3 of the demographic transition (i.e. the period 1870-1910) is characterized by a decline in both birth and death rates, resulting in a substantial increase in the rates of population growth. This occurred in parallel to the process of industrialization and the major acceleration of urbanization and immigration, both within Europe and from Europe to the Americas.

Table 4.2: Births, deaths and natural increase per 1,000 for the Jewish and total populations in pre-industrial Germany-Austria (prior to 1870)

Year	Locality	Births Jews	Births tal Populati	Deaths Jews	Deaths Total Population	Natural increase Jews	Natural increase Total Population
1822-1864	Prussia	35.3	39.8	20.25	29.3	14.85	10.5
1863-1869	Hessen	29.5	34.5	18	24.5	11.5	10
1869	Bohemia	29.5	37.2	16.8[a]	27.6[a]	12.7	9.6
Average		31.4	37.2	18.35	27.1	13	10

Sources: For Prussia 1822-1864, Lestschinsky (1926, p. 26, table VIII). The calculation for Prussia in 1840-1864 is also based on Silbergleit (1930, pp.14-15, table 8). For Hesse, see Schmelz (1996, p. 108, table 3.1, p.112, table 3.5). For Bohemia, see Vobecka (2013, p.92, table 7.5; p.105, table 8.4).

Table 4.3: Births, deaths and natural increase per 1,000 for the Jewish and total populations in Poland-Lithuania and in Germany-Austria :1870-1910

Year	Locality	Births Jews	Births Total Population	Deaths Jews	Deaths Total Population	Natural increase Jews	Natural increase Total Population
1882 - 1910	Galicia	39.8	44.3	21.5	29.2	18.3	15.1
1896-1904	European Russia	35.15	49.4	17.15	31.65	18	17.75
1876-1910	Prussia	23.25	36.45	15.4	21.65	7.8	14.8
1870-1909	Hesse	23.9	33.1	16	20.9	7.9	12.3
1880 - 1910	Bohemia	20	34.35	15.35	23.9	4.65	10.45

Source: For Galicia, European Russia and Prussia Kuznets (1975, pp. 63- 64, table 6). For Hesse, see Schmelz (1996, p. 108, table 3.1, p. 112, table 3.5). For Bohemia, see Vobecka (2013, p. 92, table 7.5; p. 105, table 8.4).

For old PL, we use the data for Galicia and European Russia. Table 4.3 shows that the birth rates for Jews and the total population were somewhat higher than those shown in Table 4.1, while death rates were lower for both, thus generating higher natural rates of population growth, particularly for the total population. Thus, during the period of early industrialization, the eastern European locations had

[80] It should be noted that the standard deviation of the net growth rate is about 7.4-7.6 indicating very large fluctuations in birth and death rates across time and locations.

progressed to stage 3 of the demographic transition. The Jews had a somewhat higher rate of population growth than the total population, but the difference is small. This is consistent with Figure 3.2 that does not consider the immigration from PL to the west.

During Stage 3 in GA, we find lower birth and death rates for both Jews and the total population. Thus, the rate of population growth in Prussia, Hesse and Bohemia is about 1.3% for the total population and less than 0.7% for Jews. This is a result of the fact that while the death rate among Jews was much lower than among non-Jews, the Jewish birth rate had declined significantly. This is consistent with DelaPergula claim that Jewish demographic transition came earlier than that for the total population in Germany. Indeed, table 4.4 shows that there is a significant drop in Jewish birth rates at the beginning of the 20th century in all three regions, which rapidly lowered the rate of population growth to less than 1%. The total population, on the other hand, had higher birth rates (close to 35 per 1000) while its death rates dropped, as one would expect in stage 2 of the demographic transition. As a result, its rate of growth remained higher than 1%.

During stage 4, which begins around 1910, modern medicine becomes more available and industrialization reaches its peak in Eastern and Central Europe following WWI. Table 4.4 provides actual data for Poland after the war. For Jews, we observe a decline in the birth rate to about 29 per 1000 and in the death rate to about 14 per 1000. As a result, the rate of natural increase is about 1.4%, which is almost equal to what it was during the late 18th century. For both the total population and Jews in Poland, the end of WWI marks the beginning of stage 4 of the demographic transition, during which birth rates decline less than death rates and the rate of natural increase reaches 1.6%.

Table 4.4 Births, deaths and natural increase per 1000 in Poland-Lithuania and Germany-Austria: 1911-1930

Year	Locality	Births Jews	Births Total Population	Deaths Jews	Deaths Total Population	Natural increase Jews	Natural increase Total Population
1921-1930	Poland	28.8	33.5	14.3	17.6	14.5	15.9
1911-1925	Prussia	14.7	26	13.4	14.5	1.3	11.5
1914-1932	Hesse	11	18.5	15.5	13.25	-2.5	5.25
1926-1930	Bohemia	8.2	18.7	14.9	14.3	-6.7	4.4

Sources: For Jews in Poland, we use Marcus (1983, p. 173, table 25). For the total population in Poland, see GUS (2003, p.361, table 90 (355). For Prussia, we use Kuznets (1975, pp. 63- 64, table 6); for Bohemia, we use Vobecka (2013, p.92, table 7.5; p.105; table 8.4); and for Hessen, we use Schmelz (1996, p. 108, table 3.1, p.112, table 3.5).

With regard to GA, table 4.4 indicates that Jewish birth and death rates in Prussia were very close to those of both Jews and the total population during the modern period. However, Jewish births are somewhat less than 15 per 1000 and deaths are somewhat more than 13 per 1000, such that growth is slightly positive

(0.13%). For the total population, the birth rate of 26 is higher than that of the Jews, while the death rate is similar. Hence, the rate of natural increase for non-Jews is above 1%. For Hessen and Bohemia, the shift is similar and the rate of natural increase for Jews becomes negative.

The main observation is that for PL and Germany until the WWI the Jewish birth rates were similar to those of the total population but death rates were lower. Natural growth among Jews was higher and close to 1.5% on average until the great migration period of 1880. What were the reasons for the lower death rates among Jews?

4.2 Infant and child death rates

The view that lower infant mortality is the main explanation for the high rate of natural increase among the Jews of Poland-Lithuania is commonly accepted among historians and demographers.[81] Baron estimated that early child mortality was much lower among the Jews than among the general population. This, in addition to lower adult mortality, led to an increase in the proportion of Jews in the population of Poland-Lithuania.[82]

DellaPergola attributes the Jewish "population surge" that began in the late 18th century to "early improvements in morbidity and mortality levels."[83] According to the demographic transition model adopted by DellaPergola, the Jews were far more advanced than the surrounding population, which resulted in lower child mortality.[84] Derosas prefaces his study of child mortality among Jews in Venice with the comment that Jews were known for lower mortality rates already in the late 18th century. He cites Toaldo (1787), who discovered that "only" one-fifth of Jewish newborns died in the first year of life.[85] Schmelz, following DellaPergola, used the demographic transition model to explain the reduction in mortality. The data he collected, from both primary and secondary sources, exhibits overwhelmingly lower Jewish infant and early child mortality.[86] Schmelz (1971) became the main early source for data on the subject and has frequently been cited and used in other studies.

The data presented here back up historians' claims and to the best of our knowledge present the most up-to-date picture of infant mortality among Jews and non-Jews. We again divide the data according to the stages discussed above. In this section, we aggregate the data for PL and GA in view of the similarity between the two regions and the lack of extensive data on each separately. This allows us to calculate the impact of lower infant mortality among Jews on their rate of natural increase prior to and during the 19th century.

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[81] See Hundert (2004, p. 24).
[82] Baron (1976, vol. 16, pp. 203-4).
[83] DellaPergola (1993, p. 5).
[84] DellaPergola (1993, p. 13). See also Derosas (2003, pp. 110-11).
[85] Derosas (2003, p. 11).
[86] Schmelz (1971, pp. 13-14; 15-25, table 1; pp. 28-33, table 3).

Civil registers of births, marriages and deaths were not common in most European countries prior to the 19th century; however, some demographic data is available from registers maintained by religious institutions. It is roughly estimated that in early modern Western Europe, as many as a quarter of all babies died within the first year and another quarter before they reached adulthood. According to Zemon-Davis (1995), between one-third and one-half of children born in Europe in the 17th century did not reach the age of 10.[87] In early modern England, the rate of infant mortality was around 150-200 per 1000 live births.[88] In London, deaths exceeded births and its population would have decreased if not for migration from the countryside. In 1764, 49% of all recorded live births in London ended in death by the age of two and 65% by the age of five.[89] France before 1750 had over 200 deaths per 1000, Denmark 206 per 1000 (1645-99), and Geneva 296 per 1000 (1580-1739).[90] According to Wyczański, in Europe, 20-30% babies died in the first year of their lives, 75% reachched the age of 15, and 50% reached adulthood.[91] Of course, the death rate varied between regions and over time. In general, the urban population was at higher risk than the rural population.

In comparison to Western Europe, there are even less sources of data available on infant mortality in early modern Poland-Lithuania. According to the examined death registers and graves, the majority of deaths were children in the age group defined as infants (under the age of one). Infant mortality was clearly very high and the figures are likely to be even higher since many of the deaths among children, especially newborns, were not recorded. In general, the old-Polish family had 4-5 children. An average married couple had 9 live births, but only 4 children reached adulthood.[92]According to Tyszkiewicz, more boys were born (105 boys for 100 girls), but more boys died in their infancy.[93] Families with many children were more common in the country, especially among country gentry and well-off peasants.[94] In the urban area the average family had 2-3 children.[95]In the early modern period, the conditions in Polish country side deteriorated and the children mortality rates increased. Although more children were born, fewer survived. In 16th-18th century an average Polish family of a noble estate had 3.6 – 4.2 children.[96]

The earliest census that provides reliable data on infant mortality in early modern Poland was carried out in 1777.[97] According to its findings and other available data, it is estimated that infant mortality in Poland

[87] See: Zemon-Davis (1995, p. 12, 225 ft.23).
[88] Wear (1995, p. 215).
[89] Matthews-Grieco (1991, p. 39).
[90] Lawrence (1995, p. 216).
[91] Wyczański (1991, p. 24)
[92] Tyszkiewicz (1983, p. 172 and ft.)
[93] Tyszkiewicz (1981, p. 189).
[94] Koczerska (1975, p. 122).
[95] Tyszkiewicz (1981, p. 190).
[96] Furtak (1937, p. 43)
[97] For more information on sources, see Żołądź–Strzelczyk (2010).

in the 17th and 18th centuries was about 350 per 1000.[98] Child mortality up to the age of 15 was 550, and up to adulthood was 650 per 1000.[99]

There is almost no data on infant and child mortality prior to the 19th century that can facilitate a comparison between Jews and non-Jews. One of the best sources of data is for the province of Posen, which was part of the Polish-Lithuanian Commonwealth until the partitions. In 1793, it came under the control of Prussia and its birth and death rates continued at levels that resemble those which we claim are characteristic of stages 1 and 2 of the demographic transition.

The data in Table 4.5 indicate that Jewish infant and child mortality per 1000 live births was much lower than that of the total population. In fact, it is 27% lower for infants up to the age of one and 20% lower for children aged one to five. The Jewish child mortality was significantly lower for all ages and on average from birth to 5 years old it was 23 percent lower.

Table 4.5: Infant and child mortality rates among Jews and the total population per 1,000 live births in the Province of Posen: 1819-1863

Age of death	Jews	Total Population	Percent difference
Just before or at birth	24	29	-17
From birth till one year old	146	200	-27
Total until one year old	170	229	-26
1-3 years old	91	107	-15
3-5 years old	33	47	-30
Total 1-5 years old	124	154	-20
Total from birth to 5 years old	294	383	-23

Source: The calculations are based on von Bergmann's data (1883, p. 158 and Appendix F after p. 260).

Table 4.6 Infant mortality rates among Jews and the total population per 1,000 live births 1819-1870

Locality	Year	Jews	Total	Difference
Posen	1819-1863	170	229	-26
European Russia	1867-1869	154	272	-43
Bohemia	1851	162	257	-37
Moravia	1851	163	226	-28
Prussia	1822-1840	129	174	-26
East Prussia	1819-1870	136	208[a]	-35
Westphalia	1819-1870	96	140[a]	-31
Baden	1857-1870	186.5	275	-32
Average		150	223	-33

a) Non-Jews

Sources: Posen: based on von Bergmann's data (1883, p. 158 and Appendix F after p. 260). For the total population in Russia between 1867 and 1869, see Mitchell (2003, p. 122, table A7). For the rest of the data, see Schmelz (1971, pp.15-25, table

[98] Bartnicka (1992, p. 41).
[99] Salmon-Mack (2012, p. 93); Gieyszterowa (1979, p. 169).

3). Wherever Schmelz provided data for two denominations (i.e. Catholics and Protestants), their average is calculated for the sake of simplicity.

Tables 4.6 provides information on infant mortality among Jews prior to 1870 and the result is of infant mortality rates of 150 and 223 per 1000 births for Jews and the total population, respectively. Therefore, according to this data Jewish infant mortality prior to 1870 was lower by about 73 per 1000 live births which are 33% lower for Jews than the total population. If we take the commonly held view that prior to the demographic transition the live birth rate was about 35 per 1000 (see table 4.1), then the lower infant (first-year) death rate is equivalent to saying that the birth rate was higher by 7.3%, or an additional 2.5 births per 1000.

In other words, the lower infant death rate accounts for *half of the difference* in the rate of natural increase between the Jews and the total population. If we take the survival to age 5 from table 4.5 we reach 9% higher number of surviving children which account for 70% of the higher rate of Jewish natural population growth that we estimate to be prior to 1870 at about 0.45% (see table 4.1). Tables 4.7 and 4.8 present the available data for infant mortality in stages 3 and 4 of the demographic transition as discussed above. We see that the infant mortality rates for Jews are significantly lower than for non-Jews and even at a higher percentage difference than in earlier periods**.** In Eastern European regions prior to 1920, the rates are similar to those of phase I. It is also worth noting that the rates decrease earlier in Germany-Austria than in other regions.

Table 4.7: Infant mortality rates among Jews and the total population per 1,000 live births in Poland-Lithuania and in Germany-Austria: 1870-1910

Locality	Year	Jews	Total	Difference
European Russia	1870-1897, 1900-	133	265	-50
Bavaria	1878	152	296	-49
Baden	1871-1873	182	277.5	-34
Average		155.6	279.5	-44

Sources: For the total population of Russia between 1870 and 1894, see Mitchell (2003, p. 122, table A7). For the rest of the data, see Schmelz (1971, pp. 15-25, table 1).

Table 4.8: Infant mortality rates among Jews and the total population per 1,000 live births in Poland-Lithuania and in Germany-Austria: 1911-1930

Locality	Year	Jews	Total	Difference
USSR	1926	57	174	-67
Poland	1926-1930	64	160[a]	-60
Lithuania	1927-1930	36	158	-77
Latvia	1926-1930	43	93	-54
Carpatho-Russia	1921-1929	109	181	-40
Bohemia	1921-1929	58	168	-66
Moravia	1921-1929	69	168	-59
Hessen	1920-1929	49	83	-41
Bavaria	1925-1929	42	124	-66
Average		58.5	145.4	-60

[a] Non-Jews.
Source: Schmelz (1971, pp. 15-25, table 1).

The lower child mortality among Jews has attracted the attention of demographers since the beginning of the 20th century. Condran and Kramarow (1991) and Condran and Preston (1994) provided the most up-to-date demographic analysis of child mortality among Jews in comparison to the total population up to 1920, when modern medical services become widely available.

Condran and Kramarow provide data similar to that presented above, as well as some data for the US, and in particular New York, Amsterdam, London, Rome and Florence prior to 1910.[100] According to their results, Jews in all locations had infant mortality rates that were lower by between 20 and 60 percent as we find in the tables above for Germany-Austria and Poland-Lithuania. During the period 1885-89, the infant death rate per 1000 in the US was 81 for Jews and 167 for the general population. These figures are similar to those for Frankfurt in Appendix. Condran and Kramarow's main contribution is the analysis of the 1910 US census data which will be described below.

As mentioned above, the only systematic analysis prior to Condran and Kramarow is that of Schmeltz (1971). The main reasons cited by Schmelz for low Jewish infant mortality are childcare practices and family formation, due to their impact on the environment of Jewish infants and young children. In poor urban neighborhoods, Jewish mothers provided better care for their children than other mothers. In addition, the incidence of breastfeeding was higher and the proportion of mothers working outside the home was lower. Furthermore, the lower frequency of illegitimate children also contributed to low Jewish infant mortality. Schmelz also cited a number of other reasons for low Jewish mortality: religious rituals (such as hand washing), attention paid to health issues, access to physicians, low rates of venereal disease and alcoholism, and earlier family planning. Schmelz offered some indirect and fragmentary evidence to back up some of these claims. There is in fact contemporary data to support him, and his suggestions echo many modern views on the low infant mortality of Jews.

Condran and Kramarow's main contribution is their analysis of the 1910 census, which sheds light on the massive wave of immigration to the United States in the late 19th and early 20th centuries and provides individual and household-level information on the respondents. They define ethnic group using census information on mother tongue or place of birth, or a combination of the two. Their sample includes all of the Jewish immigrants who reported Yiddish as their mother tongue. Poles, like Jews, were identified exclusively by their mother tongue. Italians, in contrast, were those born in Italy and whose mother tongue was Italian while the Irish were identified as those born in Ireland, regardless of their mother tongue. Their goal was to identify the covariate of child mortality and behavior of Jewish households relative to other ethnic groups. They focused on the cities with the largest Jewish populations: New York, Chicago and

[100] Condran and Kramarow (1991, pp. 225-27, table 1).

Philadelphia. The data indicate that the rate of child mortality among Jewish immigrants was higher than that of native-born whites but lower than that of other immigrants, such as Italians and Poles.

The dependent variable in their regression is an index of child mortality developed by Trussell and Preston (1982) while the covariates are several independent variables that are meant to capture the main hypotheses suggested by demographers to explain infant mortality.[101] The control variables included the following: ethnic group dummies, length of residence, naturalization, ability to speak English, husband's occupation, home ownership, husband's employment, literacy of the mother, the mother's labor force status and overall fertility. All of these variables were included in the 1910 census and are considered potential explanations for differences in child mortality.

Although most of the covariates had the right sign and many were significant, the multivariate regression analysis was unable to eliminate the Jewish mortality advantage. That is, the dummies for Jews and probably Jewish East Europeans have large and significant negative coefficients of -0.35 and -0.27 respectively where native-born white is the default group. Thus, **the results indicate that Jews had 27-35 percent lower child mortality conditional on behavioral and other indicators**. In addition, it should be emphasized that only for Jews did the infant mortality decrease with number of years since immigration. Furthermore, for all ethnic groups the fact that the mother works increases infant mortality, yet for Jews it had no significant impact.[102]

Finally, Condran and Kramarow claimed that "the data do not support the notion that scientific medicine was an important determinant of low Jewish mortality. The explanation for their low mortality rate in the early twentieth century should reflect the fact that the Jews had mortality advantages in Europe well before the turn of the century and in Eastern Europe at mid-nineteenth century that were certainly unrelated to medical advances or their earlier adoption by Jews."[103]

Condran and Preston (1994) further studied the behavioral aspects of infant and child mortality. To this end, they compared the data on French-Canadians and Jews using the data from the 1910-1917 census. The rates of infant mortality were found to be 173.3 per 1000 for French-Canadians and 53.5 per 1000 for Jews.[104] The most striking evidence they found was the difference in the prevalence of breastfeeding and whether mothers stayed at home before and after birth.

5. Child Care among Jews and Gentiles

The low infant mortality rate among Jews documented above has received widespread attention among demographers and historians.[105] Schmeltz (1971, p. 37) concluded that the reasons for low child mortality involved childcare practices and other factors that influenced the environment of Jewish infants and young

[101] Trussell and Preston (1982).
[102] Condran and Kramarow (1991, p. 251).
[103] Condran and Kramarow (1991, p. 253)
[104] Condran and Preston (1994, p. 175, table 8.1).
[105] See, for example, Hundert (1986, p. 19).

children. According to Condran and Preston (1994), the studies of the Jewish and non-Jewish populations in the US during the period 1900-1930 show three main reasons for the low rates of Jewish infant and child mortality:[106] (1) a higher level of parental devotion (for example mothers staying at home rather than working; continuous breastfeeding for longer duration; low rates of desertion by fathers and low numbers of single mothers), (2) a higher level of food hygiene due to the practice of frequent hand washing and cleaner food at the table, (3) higher access and acceptance of medical knowledge.

The relatively low infant and child mortality rate among Jews raises numerous questions. In this section, we will address only the question of the historic roots of the unique behavior patterns among Jewish immigrants in the US prior to the accumulation of medical knowledge in the late 19th century and first half of the 20th century. Since "among historical demographers there is an agreement that breastfeeding is a key factor in determining the infant mortality level,"[107] we will discuss the roots of Jewish breastfeeding and early childcare practices and the social and cultural factors that had the greatest influence on them.[108]

Our main hypothesis is that social and cultural norms that were shaped by religion are central to the practices of Jews and Christians in the way they treated infants and children. We examine the main religious norms and known practices related to and indicating the importance of early childcare among Jews from the biblical and Talmudic period to early modern and modern times. While trying to avoid generalization and to distinguish between descriptive and prescriptive sources, we use various available sources to discuss rules and practices related to childbirth, postnatal care, breastfeeding, contraception and remarriage.

5.1 Childcare in biblical and Talmudic sources

The ideal of fulfilling a child's basic physical, emotional, spiritual, social and intellectual needs is deeply rooted in Judaism. This is evident already from the biblical references to the importance of childrearing, motherly love and a father's responsibility.[109] The Bible imposed a commandment to procreate on men and suggested that the fruitfulness of a family is proof of God's blessing.[110] It prescribed special care for a newborn,[111] and emphasized the importance of breastfeeding and its priority over all other domestic duties of a woman.[112] Following the theological concept that all God's creations had purpose, the Bible related to the female breast as having been created for breastfeeding.[113] It viewed milk-producing breasts as a

[106] Condran and Preston (1994, p. 176-78).
[107] Løkke (2002, p. 128).
[108] Quandt (1995, p. 131): "social and cultural factors have their greatest effect if they influence the initiation and duration of breastfeeding, the spacing and frequency of breastfeeding episodes and the role other foods play in the infant's diet".
[109] For example, Deut. 11:18; Proverbs 1:8.
[110] Genesis 49:25.
[111] Genesis 1:28 and 9:7; Ezekiel 16:4. All quotes from the Bible are taken from the King James Version.
[112] Numbers 11:12; Feldman (1917, p. 180) on the basis of Samuel 1: 21-23.
[113] See the prayer of the childless Hannah in Samuel 1: 12-17.

blessing and dry breasts (and a miscarrying womb) as the greatest curse.[114] Consequently, if a woman couldn't nurse her baby, the Bible allowed for the employment of a wet nurse in order to fulfill the infant's nutritional needs and prescribed to treat her with respect.[115] The Bible spoke of children as "an inheritance from the Lord".[116]

The Talmudic literature followed in the footsteps of the biblical approach. It praised procreation and discussed a child's needs, legal status, rights and health. While proclaiming marriage as an ideal it stated that a man who did not marry and had no children was committing a sin of omission and could be considered dead.[117] The Talmudic tradition of 'the sanctity of life' led to a closer watch over children, while its emphasis on father's duty to educate his son created a greater awareness of the parent-child relationship.[118]

Although the specific term "child welfare" was probably not used until the time of the Geonim in the late first millennium, the idea itself seems present in the Talmudic rulings regarding children.[119] Talmud allows a desecration of Sabbat if a care of a mature newborn or a nursing lying-in mother demands it.[120] Furthermore, Talmudic discussions of childcare, divorce, breastfeeding, remarriage, education or child custody, suggest a notion that child's welfare is above the interests of the father and mother.[121]

While elaborating on the mandatory care to be provided to infants,[122] the Talmud lists three major principles in nurturing their development, as reflected in the advice given by a nanny of Abaye: (1) personal hygiene, (2) proper nutrition, and (3) developmental play:[123]

> The care and development of the infant requires first that he be bathed and anointed with oil, later, when he grows older, that he be given eggs and dairy products; and when he grows older still, that he be given the freedom to play with toys.[124]

Following the Bible, the *halacha* also elaborated on the subject of breastfeeding and emphasized its importance as the best possible source of nourishment in infancy**.** The Talmud expressed the most positive attitude towards breastfeeding and stated that it was natural for a woman to nurse her child.[125] It discussed the qualities of breast milk, patterns of breastfeeding, and the status of the breastfeeding mother. For example, the Babylonian Talmud ruled that the work obligations of the nursing mother should be reduced

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[114] Genesis 49:22; Hosea 9:14.
[115] Exodus 2:7,9.
[116] Psalms 127:3.
[117] Talmudic saying based on the lament of barren Rachel in Genesis 30:1. See Schenker (2011, p. 343). According to Beit Shamai, a man was obligated to have a minimum of two sons. Beit Hillel ruled that the minimum is one son and one daughter. Mishnah Yevamot 6,6.
[118] Ta-Shma ((1991, pp.265-6).
[119] See Shochatman (1977).
[120] Mature newborn: one with fully developed nails and hair. Mishnah Yevamot 80b; Sabbath 129a; BT Sabbath 129b.
[121] Shochatman (1977, p. 290).
[122] See also BT [Babylonian Talmud], Shabbat 147b
[123] Abaye was one of the Amoraim (died 339 CE).
[124] Mishnah Yoma 78.
[125] Eidelman (2006, p.39). See for example the prayer of Hannah in Berachoth 31b

in order to preserve the quantity and quality of milk,[126]and stated that mother's diet should not include foods that might affect her milk.[127] The Jerusalem Talmud prescribed, that a baby must nurse every hour of the day,[128] and at night it should nurse from the breast of its mother towards the morning.[129] In order to insure mother's commitment, the Mishna granted the nursing mother some special privileges,[130] and made breastfeeding one of a woman's duties to her husband.[131] Furthermore, Tosefta prescribed that the nursing woman should not be allowed to do other jobs, to get engaged or to get married,[132] since the baby has a right to nurse all day.[133]

In *halacha*, one of the more discussed aspects of breastfeeding was the period of nursing. While Rabbi Joshua, spoke about an unlimited time, even up to five years,[134] and the Hillel's disciples ruled for 18 months,[135] the Talmud in general prescribed that a baby should nurse for 24 months. Although it acknowledged that a completely healthy child can be weaned before,[136] it aimed at protecting the babies and stated that weaning a child before it reaches two years may cause a risk to its health.[137]

Child's best interest was the intention also in *halachic* rulings ensuring the provision of breastmilk for every baby.[138] The school of Hilel ruled that, if the mother refuses to nurse the infant, she can be forced to do so, and a husband can compel his wife to nurse the baby.[139] If a woman is ill or has died, or her status prevents her from nursing, then a wet nurse is to be hired. She must be given abundant food and may not nurse more than one child.[140] The Tosefta permits heathen wet nurses to be used.[141] "Although it was customary to give the child to a wet-nurse in her own house, the Mishnah requires that the heathen wet-nurse nurse the baby in the domain of the baby's father, for safety's sake."[142]

Childcare - understood as provision of best nutrition and care - was crucial also to *halachic* rulings on procreation and contraception. In general, the laws express the idea that caring for a baby and nursing it was more important than the commandment to procreate for men and a new pregnancy. Breastfeeding,

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[126] BT Kethuboth 60b.
[127] BT Kethuboth 60b.
[128] JT Berachoth 9, 14d.
[129] BT Berachoth 3a.
[130] Mishnah, Kethuboth 5:9.
[131] Mishnah, Kethuboth 5:5.
[132] Tosefta, Nidah 2, 4.
[133] Tosefta Sotah 4:3. Preuss (1993, p. 405).
[134] BT Kethuboth 60a. R. Eliezer R. Joshua said: [He might be breast fed] even for four or five years. If however, he ceased after the twenty-four months and started again he is to be regarded as sucking an abominable thing (unkosher insect). A breastfeeding period of three years is mentioned in the book of Maccabees. See Second Maccabees 7:27.
[135] BT Kethuboth 60b.
[136] JT Niddah 1, 49b. In the case the child was weaned during an illness, it may again be nursed.
[137] BT Berachoth 10a, BT Yomah 75a, BT Yevamot 75a.
[138] Orphan babies were often nursed by neighborhood women in turn or were fed with milk and eggs, which were considered the second-best source of nutrition for infants. See BT Yevamot 42b.
[139] Feldman, (1917, p. 178) based on Kethuboth 59b.
[140] BT Yevamot 42a, Tosefta , Niddah 2:4, BT Kethuboth, 60b.
[141] Tosefta, Niddah 2:5.
[142] Preuss (1993, p. 408).

including the provision of breast milk and care for its quality and quantity, was so important that it became one of the three cases in which the use of mechanical prevention of pregnancy was permitted:

> Three [categories of] women may use an absorbent in their marital intercourse.[143] A minor, a pregnant woman and a nursing woman. […] A pregnant woman because [otherwise] she might cause her fetus to degenerate into a sandal. A nursing woman, because [otherwise] she might have to wean her child prematurely and this would result in his death.[144]

The rabbis understood that while a new pregnancy would reduce the quality and quantity of the mother's milk, it could cause premature weaning and thus endanger the baby. They were probably aware of the fact that lactation only reduces the possibility of a new pregnancy (especially during the first three months) but does not eliminate it, and hence allowed contraception in order to preserve the mother's ability to nurse. Although it is not stated explicitly, by fostering a prolonged period of breastfeeding and supporting it with contraception, the rabbis had created a mechanism of spacing between children and thus contributed to each child's welfare. Today, it is also known that there is a connection between long birth intervals and low infant mortality.[145]

Child's best interest seems fundamental also in *halachic* rulings regarding remarriage. The *halacha* feared that a newly married women would devote more attention to the new husband than to the baby, thus causing harm to its development. The rabbis also worried that the stepfather might not provide for the sustenance of the child. Hence, the *halacha* prohibited a nursing mother from remarry until the baby reached the age of 18 or 24 months.[146] This prohibition was also relevant in case of pregnant or nursing widows.[147]

Similarly, child's welfare was crucial in *halachic* laws regarding a replacement of breastfeeding mother or wet nurse.[148] According to *halacha*, an infant that is already used to breastfeeding from his mother ("knows her") may not be given to a wet nurse because of "the danger to the baby." It is not clearly stated whether the danger was due to the change of milk, the risk that the baby may refuse to suck from a strange woman, or the separation from its mother and her care.[149] The age when a child can recognize its mother by smell and taste and might refuse to be nursed by other woman was set at fifty days.[150] Furthermore, the

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[143] *Moch* - a female barrier contraceptive device, usually made of hackled wool or flax. Although breastfeeding was known to have a contraceptive effect, the risk of pregnancy was recognized.
[144] BT Yevamot 12b.
[145] See Lithell (1981) on the connections between a long birth interval and low infant mortality. Modern research into the causes of the rapid decline in infant mortality in England and Wales during the period 1861-1921 showed that the decline in fertility increased intervals between successive births which in turn helped to reduce the level of infant mortality (see, for example, R.I. Woods, P.A. Watterson and J.H. Woodward (1989)). With regard to parental responsibility, see, for example, BT Kidushim 30b and Dorff (2012, p. 33).
[146] BT Yevamot 42 a-b.
[147] See also Zimmerman (1999, p. 54).
[148] See BT Kethuboth 59b.
[149] Tosefta Niddah 2, 4; Shochetman (1977, p. 291).
[150] Kethuboth 60a.

idea of remaining with one wet nurse was reinforced by the ruling that if a baby was nursed by another woman then it cannot be given back to its mother, and by forcing a divorcee to continue nursing if the baby already "knows her." [151]

In addition to ruling on early childcare, the Talmud also acknowledges that childhood is a distinct and dynamic phase in human life, a kind of "a garland of roses"[152], that has its own reality and stages. Parents or the community are responsible not only to provide children with food, clothing and protection, [153] but also with education suitable to their age and cognitive development: "In Talmudic society [a child] was not described merely in adult terms or as the negation of adulthood; rather, the child demands special sensitiveness and consideration, and their change as the child approaches closer […] to adulthood."[154]

The rabbinic discussion of various aspects related to child's welfare has only been briefly summarized here and will be discussed further in the context of the early modern period. Nonetheless, the following conclusions can be drawn. First, in many laws the child's welfare seems more important than the mother's. Second, in addition to the child's nutrition, the *halacha* also attempts to ensure the child's emotional and cognitive development in different stages of childhood. Third, education of children is important as source of values by which children are to live and build the society of the future.[155]

5.2 Childcare in the Middle Ages

In general, the sages in the Middle Ages continued to elaborate on the approaches to childcare as prescribed in the Bible and the Talmudic literature. The commandment to procreate was regarded as a central religious obligation of a man, and one was considered pious if had children,[156] preferably at least one son and one daughter. [157] The birth of a child and childcare were seen as essential to a woman's life, and a barren woman was perceived us unhappy.[158] The sources reveal that although men were not present during the actual act of delivery and they related to the issues of pregnancy and labor indirectly in discussions of various *halakhot*, they did know a lot about pregnancy and about the process of childbirth.[159] In their remarks regarding early childcare the concern for the infant remained central issue.

In medieval Askenaz the pregnancy was generally viewed as a dangerous period. Thus, a pregnant woman was expected to undergo a number of checks by a midwife,[160] and to care for fetus' needs already after she

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[151] Tosefta, Kethuboth 5:5.
[152] BT Shabbat 152, 119.
[153] BT Kethuboth 49; Sukkah 42; Shabbat 121.
[154] Kraemer (1989, pp. 70-71). See below the comment on Ariès (1962).
[155] Sukkah 42; Shabbat 121.
[156] Baumgarten (2005, p. 51).
[157] Baumgarter (2005, p. 52).
[158] This idea was present in biblical commentaries and works of poetry about Sarah, Rivka and Rachel. See Baumgarten (2005, p. 42).
[159] Baumgarten (2005, p 69, 73).
[160] We don't know much about the profession of midwife or their training in those days. A midwife, also called "a wise woman", was the most important assistant during the pregnancy and labor. They did not have formal training. Deducing from the

feels first movements in her womb.[161] Facilitating the birth of a child justified the desecration of Sabbath.[162] Immediately after the birth, the umbilical cord was ligatured and cut, and the baby was bathed, rubbed with salt, and wrapped in swaddling clothes.[163] According to Jewish sources, there were two common ways of swaddling the baby: one that wasn't intended to alter the infant's body (i.e. straighten it) and one that was.[164]According to Rashi, "The object of swaddling-clothes was to straighten the delicate limbs, which have been pressed upon and bent during delivery."[165] A mother and the baby were usually waited upon by other women during the first few days after labor.[166] The birth of a child was an important family and communal event. The birth of a boy was celebrated during the ceremony of circumcision which due to its importance was carried out in a specially-prepared synagogue.[167] From the 15th century on, there are evidence also of a name-giving celebration for a girl, which was called Hollekreisch and was connected with mother's first visit to the synagogue ("*Shabbat yeziat hayoledet*").[168]

In Jewish sages' attitude towards breastfeeding, breast milk remained crucial to a child's survival and the "two most important principles continued to be the duration of breast-feeding and women's obligation towards their husbands to breast-feed their children."[169] The sages accepted the *halachic* ruling of 24 months as the minimal period of breastfeeding, and it seems that this directive was observed at least when mothers nursed their own children. In some unusual cases, children were nursed for even longer, until age of four or five, and some were weaned early and given food prepared especially for them.

The 24-month rule was prescribed for both boys and girls, although in practice there might have been differences.[170] Furthermore, a special care for a nursing mother was extended by Rambam who ruled that: "As long as a woman is nursing a child, her husband must add wine and other things to her maintenance that are beneficial for her milk."[171]

The sages continued the Talmudic policy regarding hiring of wet nurses. They ruled that a wet nurse should be brought to mother's home, and despite some exceptions this was the prevailing practice.[172] One of major disagreements among the sages regarded the employment of a non-Jewish wet nurse.[173] Their

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descriptions we have of midwifes, it seems to have been an important and respected profession. In medieval Jewish Europe, employing Christian nurses as midwives was a common practice. See Baumgarten (2013, p. 120).

[161] Rashi, Genesis 49, 25.

[162] Levin (1987, pp. 3-38).

[163] Baumgarten (1999, p. 67).

[164] Baumgarten (2005, p. 86 fn. 227).

[165] Feldman (1917, p. 176). See also Sabbath 66b, Rashi.

[166] Baumgarten (2005, pp.85-6, 156)

[167] Many books have been written describing the ritual. See Baumgarten (2005, pp. 97-98).

[168] During the 16th and 17th centuries, it became customary in some communities to name girls in the synagogue when the father was called to the reading of the Torah.

[169] Baumgarten (2013, p. 126).

[170] In Christian society, girls were probably weaned six months earlier than boys. See Matthiews-Grieco (1991, pp. 45-47). Sages' rulings may suggest either that it was important to keep to the 24-month period or that the Sages were trying to eliminate the practice of favoring boys. See Baumgarten (2007, p. 128).

[171] Rambam, Ishus 21:11.

[172] See Baumgarten (2007, pp. 139-142).

[173] Preuss (1993, p. 408).

rulings varied, probably depending on time and place, but majority emphasized the need to supervise Christian wet-nurses to ensure physical and emotional wellbeing of the baby and limit its exposure to non-kosher diet or gentile traditions.[174] Although "[…] detailed terms [of employment], as well as frequency with which wet nurses are mentioned in the sources, demonstrate that wet nursing was a widespread practice," [175] especially among wealthier women, it is impossible to assess to what extent medieval Jewish families hired non-Jewish wet nurses.

When discussing wet nursing, the sages expressed deep concern for baby's health and welfare and applied the Talmudic view that a change of a milk source might endanger a baby and thus parents should avoid changes of a wet nurse. Consequently, the prevailing practice was that if a wet nurse was hired, her contract was for a prolonged period during which she was to avoid pregnancy. An unmarried wet nurse had to swear that she would not marry and a married wet nurse had to swear that she would not get pregnant. Furthermore, wet nurses were allowed to breastfeed only one baby.[176]

The problem of new pregnancy and changes of a milk source was relevant also in sages' discussion of contraception. While they usually dismissed the possibility of abstention during the breastfeeding period and some of the sages "argued that nursing women must use some form of contraception to prevent an additional pregnancy in order to protect the life of the existing infant."[177] R. Tam stated that "a nursing woman must use some form of contraception, in order to ensure the life of her living child, who was dependent on her for his/her nourishment."[178] Consequently, contraception was allowed within the frame of an intact family but the popularity of the practice can't be established. When used, it helped to establish a birth interval, which in turn likely reduced the rate of infant mortality.[179]

In medieval Ashkenaz, many of Jewish early childcare practices were quite similar to that of the Christian surrounding. For example, breastfeeding was part of Christian norms and the period of nursing was similar in Jewish and Christian families.[180] Moreover, the church exempted nursing women from fasting on Lent probably to secure their lactation abilities and "to protect the infant at the breast from the considerable reduction of the quantity and quality of milk production usually experienced by poorly nourished women of the past in connection with protracted fasting."[181] Still, it seems that the sages discussed early childcare more frequently and minutely than early Christian law which mentioned breastfeeding mostly when

[174] Goldin (2004, p. 29-30).
[175] Baumgarten (2007, p. 133).
[176] For examples from medieval responsa, see Baumgarten (2007, pp. 129-130).
[177] Baumgarten (2007, p. 145).
[178] Baumgarten (2007, p. 147).
[179] See the discussion above on contraception in biblical and Talmudic sources.
[180] Salmon-Mack (2012, p. 191).
[181] Benedictow (1989, p. 246).

discussing its contraceptive effects leading to disapproval of non-procreative sexual intercourse with a nursing woman.[182]

As in Jewish early childcare, Christian norms described a new pregnancy as 'corrupting and poisonous' to breast milk and thus dangerous to the breastfeeding infant. [183] Yet, in contrast to the contraceptive measures allowed by the sages, Christian Church generally recommended sexual abstinence or placing the child with a wet nurse, so that the husband—for whom non-procreative sex, masturbation and adultery were forbidden—would not seek out another woman.[184] Of course in practice, beside common employment of wet-nurses, Christian women and men did use different contraceptive methods. [185]

In Church laws the care of the pregnant mother was mentioned differently than it was in the Jewish sources. For example, the idea of reducing a pregnant woman's workload was not codified. Today it is known that pregnant peasant women who continued with a heavy work load were at risk of giving birth to an underweight baby, which had a low chance of survival during its first month. A low birth weight resulting from the mother's malnutrition or heavy work during pregnancy (especially in the field during the summer) was an important factor in high infant mortality rates.[186]

In his fundamental book, *Centuries of Childhood*, Ariès argued that in the Middle Ages childhood was not recognized as a distinct phase in human life and the idea of the child was produced only with the development of a modern concept of a family emphasizing parental love.[187] In his opinion, "medieval civilization […] had no idea of education,"[188] and pre-modern parents, influenced with high infant and child mortality rates, tended to view their surviving offspring as little adults. Only with decrease in child's mortality, the affection and interest in children increased, and standardized schooling fostered the production of childhood culture. The manifold critics of Ariès has shown that there was a concept of childhood in the Middle Ages. While Wilson and Cunningham showed that it was different from the modern one,[189] Orme pointed at some similarities in medieval and modern parents' treatment of their children.[190] In comparison with Jewish sources, in medieval Christian Europe there was special treatment for children, especially in infant stage, but it was not as structured and child-oriented as in Jewish laws and

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[182] Brundage (1988, p. 182). The contraceptive powers of lactation were not fully understood. For example, it was not known that frequent breastfeeding is necessary to prolong the contraceptive effect of breastfeeding. See Lunn et al. (1980) and Konner and Worthman (1980).
[183] Brundage (1988, pp. 182, 18).
[184] Jacquart and Thomasset (1988, p. 72); Crawford (1981, p. 52). Lee (1995-1996, p. 47).
[185] Wiesner, (2000, p. 85). Women "sought to abstain from sexual relations during the time of their monthly cycle regarded as most fertile; [....] condoms made from animal intestines or bladders were available to those who could afford them by mid-sixteenth century (...)."

[186] See Lithell (1981, p. 184).
[187] Ariès (1962).
[188] Ariès (1962, p. 411).
[189] Wilson (1980), Cunningham (1995), Orme (2001).
[190] Orme (2001, p. 274).

practice. These promoted the well-being of a child, appreciated childhood for its own sake,[191] and consciously treated children as fragile and grasping the world in the particular 'way of children'.[192]

5.3 Practices of Jews and Christians in early modern period

Information on norms of childcare and breastfeeding in the early modern Jewish communities of central and eastern Europe were preserved in *halachic* books, such as the legal code *Shulchan Aruch* and Moses Isserles' gloss to it known as the *Mappah*,[193] as well as in responsa and *sifrei musar*. In their discussion regarding marriage patterns, breastfeeding, mother's privileges or divorce those sources generally continued the Biblical and Talmudic policies of childcare while accommodating them to early modern and East European reality.[194]

In its discussion of remarriage *Shulchan Aruch* followed the *halachic* law known as "*meyaneket chavero*" and ruled that a woman cannot remarry within 24 months from the birth of a child even if she gave the child to a wet nurse (and even if the wet nurse committed to a period of two years) or weaned it earlier. [195] However, while recognizing that a child brought up in a two-parent household has a better life outcome than one brought up by a widow,[196] it suggested, especially in Rema's glosses, some ways to help women to remarry.[197]

While encouraging remarriage, the *Shulchan Aruch* also continued to advocate breastfeeding as the best source of nutrition. It ruled that 24 months is the minimum period of breastfeeding,[198] while five years is the maximum.[199] Furthermore, it reaffirmed the Talmudic principle called "knowing her" according to which a child of nursing age who "knows its mother" is not to be given to another woman, since the trauma of separation might harm the child:

> […] she may [choose to] not breastfeed it until it [is old enough that it] recognizes her, but if it recognizes her (Rema: and does not want to breastfeed from another), even if it is blind, we do not separate it [from her], because of danger to the infant […] [200]

Additionally, the *Shulchan Aruch* adhered to the rulings of the Talmudic literature and Rambam, and advocated special care for nursing mothers as a source of breast milk:

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[191] Kanarfogel (1985); Ta-Shma (1991).
[192] Goldin (1989, 2004).
[193] Yosef Karo's *Shulchan Aruch* was first published in 1563 and printed in Venice in 1565. Majority of its editions include the *Mappah*, and the term *Shulchan Aruch* has come to denote the compilation of both texts, with Karo usually referred to as the *mechaber* ("author") and Isserles as the Rema.
[194] For example: Shulchan Aruch, Even HaEzer 1.
[195] A widow or a divorcee must wait 90 days before she remarries so that she makes sure she is not pregnant. Shulchan Aruch, Even Ha-Ezer, 13.
[196] Regarding a man, *Shulchan Aruch* advised that one should remarry in order to continue to procreate and ensure the survival of at least one son and one daughter. Shulchan Aruch, Hilkhot Pirya Urviya 1:5.
[197] Shulchan Aruch, Even HaEzer 13.
[198] Shulchan Aruch, Even HaEzer 143:8.
[199] Shulchan Aruch, Yore Deah 81:7. For a discussion of the duration of breastfeeding, see also: Steinberg (2003).
[200] Shulchan Aruch, Even HaEzer, 82:5.

> All the time she is breastfeeding his son, we deduct for her from her handiwork; and we add wine and things that are good for milk to her sustenance. [If] they didn't add for her, she must eat of her own is she has. (Tur)[201]

Also when discussing divorce, the *Shulchan Aruch* emphasized the child's best interest:

> A divorcee is not provided food, even if she is breastfeeding her child, but he gives her, in addition to her hire, things that the child will need, [such as] clothes and food and drinks and ointment and things like that, but a pregnant [divorcee] gets nothing.[202]

Based on these rules we compare Jews and Christians' childcare in pre-modern Western European and Polish society in light of the modern medical knowledge. We divide this comparison to five factors which we claim that these contributed to the relatively low infant mortality among Jews: (a) postnatal isolation and "in-home" wet nurse (b) remaining with one source of breast milk; (c) first feeding; (d) weaning; (e) family support (*kest*) and marriage.

(a) **Postnatal isolation and "in-home" wet nurse**

Modern medicine shows that non-exposure to unfamiliar environment preserves infant's immunity and contributes to its healthy development. For the first weeks after birth, the newborn is protected by antibodies it received through placenta (IgG). Those antibodies are conditioned by the environment the mother lives in and are responsive only to the microorganisms to which she has been exposed.[203] Thus, the trans-placental immunity protects the baby from familiar germs, especially some viral infections, but it is not sufficient to fight unknown germs to which the baby is exposed with a change of environment. Consequently (in addition to other side effects) moving the baby from its mother's environment, for example to wet nurse's home, endangers the baby with infections en route and by exposing it to a new surroundings.[204] Although it is impossible to estimate how many infants died due to the challenge to their immune system and how many died of negligence, we can assume that a community which observed postnatal isolation and preferred to employ "in-home" wet nurses had a lower rate of infant mortality than a society used to send their babies to new environment.

Jews. In Jewish society in Poland-Lithuania, the described-above *halachic* positive approach to breastfeeding was generally accepted, while giving birth and childcare remained the central elements of a woman's life and her primary religious purpose.[205] During the vulnerable postnatal period the new mother and the newborn were usually well taken care of, and when possible they stayed home for four weeks until

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[201] Shulchan Aruch, Even HaEzer 80:11.
[202] Shulchan Aruch, Even HaEzer, 80:12
[203] Matthews-Grieco (1991, p. 43). See also Chandra (1978)
[204] A study of 15th century Florence showed that the mortality of children sent out to nurse by their families hovered around 17.9%. Matthews-Grieco (1991, p. 42).
[205] For example the popular behavior manual *Brantspiegel* (Cracow 1596, chapter 35), promoted a positive image of a woman who prays to become a mother and to breastfeed, and stated that a woman who gives birth, nurses her babies and provides for all their needs follows the way of the Creator and deserves of eternal life. See also Chovav (2009, p.154, 164); Fisher (2005, pp. 199-212).

the ceremony of "*Shabbat Yeziat ha-Yoledet*."[206] However, when a mother died, when she could not or refused to breastfeed herself, or sometimes when the mother was a widow and wanted to remarry or had to plan in advance her next pregnancy, a wet nurse was hired.[207] Since finding a Jewish wet nurse was rather difficult, [208] *Shulchan Aruch* allowed the baby to be breastfed by a gentile woman, but simultaneously added a strict rule to bring a wet nurse to the mother's home for supervision. Consequently, the Jews preferred to employ "in-home" wet nurses and tried to avoid sending their babies to a wet nurse's home, as was more often practiced by the Christians.[209] Although we do not have a statistical data on gentile wet nurses employed in Jewish houses in Poland-Lithuania, the fact that the practice arose a harsh opposition of the Church and Polish authorities, suggests that it was quite common. [210] Moreover, the fact that this practice continued despite Church's repetitive attempts to impose fines on Jews hiring Christian wet nurses suggests that it was important for the Jewish parents, probably as securing the best nutrition for their infants.[211] Furthermore, also the recognition of the Jewish authorities for the practice in face of the laws and prohibitions issued by the Sejm (Polish Diet) and the king, [212] suggest that the practice was viewed as necessary to continue, despite "the confusion arising out of this,"[213] and the danger embodied in disobeying Polish authorities. Although the employment of the "in-home" wet nurse was viewed as important due to the supervision it enabled, in the light of modern medicine, it seems that the *halachic* rule and the consequent practice not only protected babies from negligence but incidentally also reduced the exposure of the infant to pathogens en route and to germs of a new environment.[214] Thus, it might have contributed along other factors to a lower infant mortality among Jews in Poland-Lithuania.

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[206] During this time, the mother was usually visited by other women from her family or neighborhood, who often brought her presents, , helped with household cores and ate with her. Even if a woman got up from bed earlier, she and the baby were usually waited upon by other women during the first few days after labor. Baumgarten (2005, p. 86. 156). The postnatal rituals and isolation period are known from the late medieval German communities, but they were attested in early modern Polish sources as well. See Baumgarten (2007, p. 105; 2008); Chovav (2009, p. 171). The mother was absent during the ceremony of circumcision (Chovav, 2009, pp. 176-177).

[207] In Christian society, the attitude towards remarriage was rather ambivalent, and hiring a wet nurse was not related to the subject. Moreover, according to Wiesner, the law in the early modern period "might also make it [remarriage of a widow] less attractive by stipulating that a widow could lose all rights over her children through remarriage, including the right to see them." (2000, p. 91).

[208] Jewish women were permitted to nurse only their own baby on Sabbath. See: Kalik (2010).

[209] According to Baumgarten, also in medieval times Jewish mothers did not send their babies to a wet nurse's home so as to be able to supervise the nursing (2005, p. 184).

[210]The Church fought against the Jewish employment of wet nurses precisely because they had to be brought to, and often lodge in Jewish homes.

[211] Lipski (1737, pp. 73-77). See also Müller (1978, pp. 111-115) who mentions that Jews hired wet nurses despite Church prohibitions.

[212] *Volumina legum* II, 51 (Sejm 1565); *Volumina legum* III 309, V, 585-6 (Sejm 1678); *Volumina legum* VIII 50 (Sejm 1775). For royal legislation, see Dubnow (1925, no. 512, p. 121).

[213] *Statut Krakowskiej Gminy Żydowskiej* par. 91:75. For the related resolutions of the Council of Lithuania see Dubnow (1925, no. 145, p. 35). For the related resolutions of the Council of Four Lands see Halperin (1945, pp. 483-87).

[214] Fildes (1986, p. 200), Salmon-Mack (2012, p. 189).

Christians. In early modern Christian Europe, a mother, who could produce her own milk, was expected to breastfeed.[215] However, while lactation was perceived as hindering new pregnancy and the church continued to condemn non-procreative intercourse and contraception, many middle and upper-class women sent their babies to wet nurses and thus could avoid abstinence.[216] In 15th century Konrad Bitschin, complained that in his time more and more mothers did not want to nurse their babies and gave them to wet nurses in order to satisfy their sexual drive.[217] Sending babies for nursing offered a solution not only to pious Christians or in obvious case of mother's death, [218] but also to those who wanted to guarantee the economic strength of the family with as many children as possible and to wives of merchants and artisans who wished to return to work for economic reasons. Hiring an "in-home" wet nurse was usually practiced by the rich families, who often abandoned maternal breastfeeding for the sake of shorten birth intervals and rise of fertility rates.

In general, in early modern Western Europe, "the pattern was not only for the rich to breed and the poor to lactate, it was also for the cities to send their children out to nurse and for the country to feed and care for them until they were two or three years old."[219] Wet nursing was most common in France, where its popularity continued until the late 19th century. There, most of the babies were sent to the wet nurse's home and their mortality rates reached 70-80% depending on the region.[220] High mortality rates occurred among infants also in early modern England, where it was common to send babies from the large cities to the nearby villages. In 18th-century north Germany (e.g. Hamburg), where infants were usually breastfed by their mothers, high mortality rates were common for foundlings who were sent away to wet nurses.[221]

In Poland, the sources before 1750, such as pedagogical treatises and herbalia, usually advised mothers to breastfeed their babies: "Ladies mothers, especially those of good families [aristocrats] would make good, if they nursed and bring up their kids by themselves."[222] They also recommended using a wet nurse in case of problems, but did not advised to bring her home.[223]

Although it is impossible to estimate the popularity of wet-nursing, the information preserved in contemporary sources shows that burghers in pre-modern Polish cities hired wet nurses much less than in

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[215] Other views of breastfeeding as physically debilitating or dangerous for the mother were rarely expressed. See for example Matthews-Grieco (1991, p. 17).

[216] Wiesner (2000, p. 87). Despite church rulings, different contraceptive methods were used. Still the extent of the practice during early modern period is unknown.

[217] Konrad Bitschin in Arnold (1980, pp. 151-52).

[218] Demographers have estimated that, on average, one out of ten births entailed maternal death. Flandrin (1976, ch. 10). For more information on maternal death rates among Christians, see Keeble (1994, p. 169).

[219] Matthews-Grieco (1991, p. 34). See also Wiesner (2000, p. 87).

[220] Only in the nursing houses for foundlings infant mortality was higher. For more information on wet nursing in France see Sussman (1982).

[221] In the south Germany, e.g. Bavaria region, the babies were weaned at birth and fed with pap. For more information on the peculiar breastfeeding practices in Germany see Knodel and Van de Walle (1967).

[222] Mikolaj Rej (1956, p. 32).

[223] Dembińska (1980, p. 485).

France.[224] Examples also suggest that those who could hire a wet nurse were usually from noble or rich burgher families and -in contrast to France, they usually brought her home to live with them and function as a nanny.[225]

The upper classes also observed the postnatal isolation and ended it with a celebrated visit to the church called 'churching'.[226] Hiring a wet nurse or isolating the mother and the newborn were not common among poor country families, who constituted the majority of Polish population. For them it was popular to nurse foundlings sent to the countryside by urban communities or leave their babies with other mothers in family or village to search employment as a wet nurse.[227]

Hiring an "in-home" wet-nurse as well as observing the postnatal period of isolation, whether done by Jews or wealthy Christians, limited newborn's exposure to dangerous germs and thus contributed to the protection of baby's immunity. However, while not codified in religious rulings, those standards were rarely applied in poor rural Christian country families in Poland-Lithuania. We claim that, in the light of modern medical knowledge the differences in the patterns of postnatal isolation and wet-nurse employment may have contributed to the lower infant mortality rates among Jews.

(b) **Remaining with one source of breast milk**

Modern research has found evidence linking an increase in infant mortality to the switching of wet nurses. Herlihy and Klapisch-Zuber examined the cases of infants from some wealthy Florentine families who were sent to wet nurses. They discovered that the number of deaths was directly related to the switching of wet nurses.[228] The frequent deaths of infants following the replacement of the wet nurse suggest that this practice posed a serious threat to infant welfare.[229] Thus, we assume that maintaining the same wet nurse would increase a child's chances of survival.

Jews. As indicated above, *Shulchan Aruch* reinforced the Talmudic opposition to switching the woman nursing a baby, "if [it] knew her". In order to avoid a change of milk source or abrupt weaning resulting from a new pregnancy, Jewish women in the early modern Poland-Lithuania, were allowed to use contraceptive measures. Furthermore, hiring of a wet nurse was allowed before the baby 'knows its mother' and was conditioned with commitment for prolonged period of employment in which the employee was not permitted to get pregnant.[230] Accordingly, rich families which employed wet nurse to guarantee mother's availability for next pregnancy, or women who attempted to get permission for remarriage, tended to hire single woman for a long period (and sometimes paid) even before the birth in order that the

[224] Kuklo (2009, p. 330).
[225] Żołądź-Strzelczyk (2002, p. 114); Kuklo (2009, p. 330).
[226] In the post-Tridentine period, baptism was usually carried out within a few days after birth. If not, it could be celebrated together with 'churching'. See Hemperek (1982).
[227] Hrdy (1992) shows the mortality rate among the biological infants of wet nurses to be quite high.
[228] Herlichy and Klapisch-Zuber (1985, pp. 136-48).
[229] See Baumgarten (2007, p. 127) and Klapisch-Zuber (1985, pp. 144-45).
[230] Salmon-Mack (2012, p. 95).

infant would "know" it's wet nurse from the beginning.[231] Although halachic rule did not specify the kind of danger posed to the child in the change of a nursing women, its application limited such practice and therefore might have contributed to the lower infant mortality among Jews in Poland-Lithuania.

Christians. In early modern Europe, though switching a wet nurse was known to affect a child's willingness to nurse, there was no religious law forbidding the change of nursing woman. On the contrary, in some cases a change of nursing woman was recommended, e.g. during the menstruation. Due to the belief that breast milk was a transformed menstrual blood and that any loss of blood alters or even 'poisons' a woman's breast milk, children were often taken from the breast if their wet nurse menstruated. Consequently, many Christian children had two, three, four and even more wet nurses in their early years. In Poland, even in the late 18th century Weichardt wrote that a wet nurse should not breastfeed during her menstrual period because "babies that nursed during that time often got sick."[232] He recommended that a replacement wet nurse should be found for that short period, or the baby should be given whey (which is the liquid remaining after milk has been curdled and strained; also known as milk serum or milk permeate) with eggs, which we know was often too heavy for the immature digestive system of the baby. [233]

A change of a wet nurse was recommended also in case of pregnancy. This was due to the belief that the needs of a developing fetus changed the quality of the breast milk,[234] or when the wet nurse got ill.[235] Also, when the infant became ill, a wet nurse was replaced because of the probable corruption of her breast milk. Given the modern medical knowledge we claim that an abrupt change of wet nurse, which sometimes led to a sudden weaning, was dangerous for the child and constituted a factor in higher infant mortality rates among Christians.

(c) First feeding

According to modern medical knowledge, an infant is born with a passive immunity resulting from the IgG antibodies which are small enough to cross the placenta barrier and thus help to protect the fetus (and later the newborn) from microorganisms and some viruses familiar to mother's body. In order to develop its own immune system, a newborn needs among others a boost of IgA antibodies, which can be found in the first milk produced by the breast already at the end of pregnancy and known as colostrum. Concentrated and easy to digest colostrum has as much as 20 to 40 mg/ml of IgA antibodies and contains a range of antimicrobial factors as well as factors that may impact the immune system, e.g. the iron-binding antimicrobial protein lactoferrin, antibacterial enzyme lactoperoxidase and lysozyme. Moreover, colostrum contains leukocytes and growth factors that may affect neonatal intestinal development, and

[231] Salmon-Mack (2012, p. 97).
[232] Weichardt (1782, pp.48-51).
[233] Weichardt (1782, pp. 48-51). See aslo Żołądź-Strzelczyk (2002, p. 118).
[234] Salomon-Mack (2010, p. 190).
[235] Weichardt (1782, pp. 48-51).

provides a source of energy which may impact IgG absorption in the newborn and stimulate effective immune response.[236]

Although very important, the benefits of yellowish, thick and sticky milk were unknown until the modern times, and for thousands of years in various cultures "a mistrust of colostrum" deprived many infants of important immunities and exposed many mothers to the risk of mastitis also known as milk fever.[237] In the light of modern medical knowledge we know that before the invention of advanced formula a newborn nursed with colostrum, which usually lasts for the first two to four days after birth, had a better chance of survival than an infant left hungry or fed in other ways. Consequently, breastfeeding with colostrum could be one of the important factors contributing to a lower infant mortality.

Jews. Postpartum period was recognized as a vulnerable time for both the infant and the mother and thus special attention was directed to their diet and hygiene. New mothers were generally advised to observe a proper diet and avoid physical movement,[238] as well as breastfeed their babies. Already in the Talmud we can find examples of putting a newborn on the mother's breast, sometimes even before the cord was cut.[239] Baumgarten doesn't specify when Jewish mothers in Ashkenaz started to breastfeed their offspring, but claims they did not follow the recommendation to abstain from nursing the infant for its first eight days which sporadically appeared in Sephardic sources. [240] According to Chovav, Jewish mothers in Poland-Lithuania were advised not to breastfeed only for the first ten hours,[241] during which the newborn was probably given a kind of purge to expel a meconium.[242] It is known that in Talmudic time the newborn was given the so-called children's herbs (*asube januka*) in order to cause it to vomit and clean its mouth in preparation for breastfeeding.[243] Nonetheless, since we know that colostrum lasts for two to four days after delivery, we may conclude that those among Jewish babies who were nursed by their mothers did beneficiated from the first milk.

Christians. In the medieval and early modern periods in Europe, the opinion of Soranus was commonly accepted.[244] He wrote that after birth the baby should be nursed by a wet nurse and not by its mother for at least 20 days, because: "mother's milk […] is heavy, cheesy, hard to digest, […] it comes from a sick and disturbed body." [245] Moreover, Soranus stated that the first food should be given to the baby only after two days from birth and in-between recommended warm honey since it is the best for cleaning the digestive

[236] Hurley and Theil (2011). For more information on immunological qualities of colostrum and breast milk see WHO (1990, pp. 31-32).
[237] Matthews-Grieco (1991, p. 52).
[238] Chovav (2009, p. 171).
[239] Zibadi, Watson and Preedy (2013, p. 135).
[240] Baumgarten (2005, p. 200).
[241] Chovav (2010).
[242] For types of purges common in use for the newborn between 1500 and 1800 see Koletzko, Fleischer Michaelsen, and Hernell (2002, p. 5 table 1).
[243] BT Sabbath123a
[244] The writings of the Greek physician Soranus of Ephesus (2nd century CE), determined European Christian medical opinion concerning women's diseases, pregnancy, and infant care for nearly 1,500 years. Wickes (1953, p. 154).
[245] Lachs (1902, p. 78-80).

system and doesn't cause gas nor constipation. Only afterwards the baby can be given milk.[246] According to the first important pediatric publication by Metlinger, the mother's milk wasn't good for the infant during the first two weeks after labour and after the baby received honey as a laxative it should be wet nursed.[247] As a result of such medical advice and the belief that the milk should be liquid,[248] "most infants in early modern Western Europe were taken away from their mothers for hours or even days to be washed, swaddled and fed by other women while their mothers rested. And even if the mother desired to nurse her own child, she would usually not be allowed to feed it until the colostrum had changed color (three to four days) or even until she had been ritually cleansed after the cessation of the post-partum flow (about 40 days after birth)."[249] This long delay in first nursing deprived the newborn of the benefits of colostrum and thus seriously hindered the development of baby's immune system. Furthermore, it put the mother at risk of milk fever, exposed the baby to unclean feeding instruments and often caused the loss of newborn's sucking instinct.[250] German physician Etmuller, was the first to object the prevailing practice and recommend, though unsuccessfully, to place babies on their mother's breast during the colostrum period.[251] The real change in the attitude towards colostrum occurred only in the modern period.

In Old Poland, it was also widely believed that colostrum was impure and harmful to the baby. Consequently, breastfeeding usually started a few days after birth.[252] For the first few days, the newborns were usually given honey instead of mother's milk.[253] In the 16th century, the authors of the popular Polish herbals, Hieronim Spiczyński and Marcin Siennik, taught that "on the day the baby was born, it shouldn't be given mother's milk, but rather only someone else's milk. The reason for it was, that at that time women, especially those doing nothing, have colostrum i.e. *siara* or other impure, thick stuff which is very unhealthy to the baby."[254] Only by the end of the 18th century a few lone voices advised nursing with colostrum, but not for its nutritional value but rather only as a way to cause the vomiting of meconium: "Mother's breast should be served right after some rest after the pain, i.e. two hours after the delivery. Mother's milk because it is still very liquid and whey-like, is the best medicine to expel the maeconium and cause bowel movements in the baby."[255]

(d) Weaning.

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[246] Żołądź-Strzelczyk (2002, pp. 119-20).
[247] Bartolomeo Metlinger (born after 1440) published a tract "Ein Regiman der jungen Kinder" (1473).
[248] There were many views as to the quality of breast milk, especially its texture and taste. It was held that more liquid breast milk was of higher quality. With regard to color: "From the 15th to the 18th century the color of breast milk was also important. White was considered the best, and any woman whose milk was streaked or tinged with grey. blue or yellow was never to be retained as these 'unnatural' colors were said to be the sign of some defect." Matthews-Grieco (1991, p. 29).
[249] Matthews-Grieco (1991, p. 24).
[250] Matthews-Grieco (1991, p.30).
[251] Wickes (1953, pp.332-40). "Etmuller Abridged" was published around 1703 and translated into English in 1712.
[252] Żołądź-Strzelczyk (2002, p. 119).
[253] Musiał-Morsztyn, et al. (2014, p. 62).
[254] Żołądź-Strzelczyk (2002, p. 120).
[255] Dykcjonarz (1788, p. 67); Żołądź-Strzelczyk (2002, p. 120).

Today World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding for 6 months followed by breastfeeding combined with complementary foods until the age of two. Introduction of complementary food in the first four months of life is unrecommended as it harms the infant. In light of the modern medical knowledge and research in developing countries, which pointed to the benefits of prolonged, regular and frequent breastfeeding, it was established that not only continued but also intense breastfeeding was the best source of nutrition for the infant in the past. It increased an infant's chances of survival and proper development, and lowered the risk of intestinal infections and gastric illness, which in the past often ended in infant death.[256] Furthermore, modern medicine shows that intense and exclusive (or almost exclusive) breastfeeding strengthens the contraceptive powers of lactation and thus may help to establish longer birth intervals.[257] Birth spacing, in turn, is known to have a positive impact on child mortality rates.

Jews. As we documented above, the Jewish religion rules and social norms recommended prolonged and intense breastfeeding. If a widow or divorcee stopped breastfeeding earlier than the prescribed 24 months, it was usually viewed as suspicious and possibly related to mother's desire to remarry. Hence, unmarried mothers with means usually preferred to hire a wet nurse in advance and avoid both sudden weaning and suspicions related to it. Despite the rule of nursing for 24 months, married women sometimes weaned a child earlier, usually around the age of 18 months. In such cases, special food was prepared for the weaned baby.

Christians. In early modern Europe, in general, breastfeeding was recommended until the age of two, but other foods were usually introduced much earlier. While in the 16th century solids were served to a baby around 7-9 months of age, later it was reduced to the age of 2-4 months. The earlier a baby was given solids the more it was exposed to contaminated food and risk of diseases, such as diarrhea, scurvy, rachitis and others. The first solids were usually a pap (flour or bread soaked in water or milk sometimes mixed with an egg) or panada (cereals cooked in broth). In Old Poland, babies were usually breastfed until the age of one.[258] Additionally, already before weaning they were served mixtures such as mush of bread cooked in milk with sugar and egg, or bread mashed in milk, goat milk with water, and various kinds of barley. Such food was usually given through a linen cloth babies could suck on or from a cow horn. In villages, babies were often given also some premasticated food.[259] In 1534, Falimirz advised that a baby be given pieces of bread with sugar so that it could get used to regular food.[260]According to Weichardt's complaints, babies in 18th-century Poland were pre-maturely exposed to other foods and weaned.[261]

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[256] Hanson and Winberg (1972).
[257] Berens and Labbok (2015).
[258] Musiał-Morsztyn, Bogdał and Królak-Olejnik (2014, p. 62).
[259] Żołądź-Strzelczyk (2002, p. 143).
[260] Falimirz, was a known Polish physician and author of the popular work "*On Herbs and Their Potency*"((1534, p. 37).
[261] Żołądź–Strzelczyk (2002, p. 119).

Polish mothers were advised to breastfeed less frequently. Falimirz, recommended to breastfeed babies only 2-3 times a day and not for too long, so that the baby would not get full.[262] Weichardt claimed that the child should be fed only when hungry and not every time it cries. In his opinion, a wet nurse should get the baby used to eating at specific times. Regarding weaning, Weichardt claimed that it should be gradual and its time "shouldn't be determined ahead, because one child is weaker than the other and hence needs permission to suck longer the wet-nurse's breast."[263]

(e) Family support and marriage patterns

"Historically, kin served as the most essential source for economic assistance and security."[264] Studies on the influence of grandparents on child mortality in historic population have shown that matrilineal grandparents were usually more ready to assist young couples and that the survival itself of the maternal grandmothers contributed to decreased infant mortality risks.[265] In general, despite its importance, historically familial support was voluntary.[266] Yet, in Jewish Eastern European culture the matrilineal parental support to young couples was institutionalized and this turned into one of the factors that might have contributed to lower infant mortality rates.

Jews. The Jewish pattern in Eastern Europe, dating from at least the seventeenth century, was for young couples to establish their first household in the home of the wife's family. *Kest* is a Yiddish term used for a period of family support to young couple after marriage, during which the groom – preferably "the scholar, the diligent, promising yeshivah student" - lived with the bride's family and pursued Torah study, while the bride usually received training in the family business, as preparation for becoming a worker or a partner in it, or learnt a craft or a trade, or helped with some agricultural work.[267] *Kest* often lasted up to three years and involved grandparents' help with new children. According to Goldberg, as many as 25% of Jews could afford this arrangement.[268] In some cases, the prenuptial agreements, which included the *nadn* (dowry), also included *kest*, which could be lengthened in order to attract the best suitor. The groom became a member of an extended family which usually included three generations under one roof.[269] Because of the *kest* system, maternal grandparents played a dominant role in the lives of their grandchildren. This Jewish model of marriage and family support was praised in the past as reflecting the

[262] Żołądź – Strzelczyk (2002, p. 119). At this frequency, the contraceptive effect of lactation is lessened and many breastfeeding women got pregnant.
[263] Weichardt (1782, p. 69); Żołądź–Strzelczyk (2002, p. 121).
[264] Kemkes-Grottenthaler (2005, p. 219).
[265] Voland and Beise (2002).
[266] Hareven (1994).
[267] Eliach (1998, chapter 5).
[268] Goldberg (1997).
[269] Eliach (1998, chapter 5).

best of what the institution of marriage had to offer.[270] In Hundert's opinion, the practice of *kest* was one of the reasons for the lower child mortality among the Jews.[271]

A notion that originated from *Hasidei Ashkenaz*, and was reinterpreted by Eastern European Jews according to their own frame of reference, was "that the acts of children affect the heavenly status of parents."[272] They believed that a child's good deeds are credited to the parents in this life or in the afterlife.[273] Furthermore, his misdeeds cause suffering to the parents: "that is all nothing comparing to the discomfort and suffering that one has in the next world because of unsuccessful children."[274] Jewish fathers invested in rising pious sons, since the *mitsvot* done by a son after his father's death were believed to constitute an atonement for the soul of the father.[275] Moreover, the parents were credited in the afterlife if their children were good parents to the next generation. Thus, Polish-Jewish parents invested in their children and tended to supported them after marriage and in their investment in the grandchildren as well.

Already in medieval Ashkenaz, marriage was viewed as a socioeconomic covenant between the parents of each side, who were also responsible for matchmaking,[276] and creation of "a material basis for the young couple."[277] Among Polish Jews, the religious ideal was early marriage, especially among the elite, "but it would be a mistake to suppose that such early marriages were the general rule."[278] It was difficult to meet the "necessary qualifications" for marriage, which meant the creation of a new economic unit,[279] which would slowly become independent. [280] The age of 16 was considered a proper age for a girl to marry and 18 for a boy.[281] In general, "the majority of Jews married at a relatively young age (late teens) for a variety of reasons: to allow young men to fulfill the commandment of procreation, to channel sexuality to legitimate outlets, and to offset low life expectancy and high infant mortality rates." [282]

Remarriage was a common phenomenon among the Jews. Marriage was an ideal state for a man and a legitimate framework for sexual activity. Thus, although for women a third marriage was forbidden, there was no prohibition of remarrying for a man. In term of infant mortality, it should be emphasized that remarriage not only contributed to higher birth rates but also reduced extramarital sexual activity and hence reduced the number of children born out of wedlock, who had a lower chance of survival than

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[270] Goldberg (1999, p. 173).
[271] Hundert (2004, p. 24).
[272] Fram (2006, p. 51).
[273] In the modern period, this attitude developed into the idea that: "Among Jews, a child's obligation to his parents is discharged by acting toward his own children, when he is grown, as his parents acted toward him." Benedict (1948, p. 348).
[274] Slonik (1577, no. 102), as quoted in Fram (2006, p. 52).
[275] Horowitz (1701, for. 3b), as quoted in Fram (2006, p. 53).
[276] Baumgarten (2005, p. 53).
[277] Goldberg (1999, p. 174).
[278] Katz (1959), p. 7). In Polish historiography, the common view is that Jews got married earlier than Poles: the average groom was 17 years old and the average bride was 16 years old. See Kuklo (2009, p. 283).
[279] Katz (1959, p. 7).
[280] In Kraków around 1595, one had to be at least 20 years old (married or not) before conducting business independently.
[281] Dubnow (1925, no 32, year 1623). Poor girls were considered ready for domestic service at the age of 12 and for marriage at the age of 15. See Dubnow (1925, no. 128, p. 32 year 1628).
[282] ChaeRan Freeze (2010). Some research show that in smaller communities in 18th century the average age of marriage was 20-24. Goldberg (1997, p. 23).

legitimate offspring. Furthermore, the life expectancy of children who lived with only one parent was lower than that of children who lived with two. Thus, it can be assumed that a society emphasizing the need to remarry like the Jewish community might have a lower infant mortality than a society with an ambivalent attitude towards remarriage, like the Polish Christian society, in which the average marriage in pre-industrial towns lasted 15 years.[283]

Polish Christians. According to Augustiniak, in the early modern period, most of the rural families in Poland were so-called "open families", which were characterized by early marriage (18 for a boy and 14-16 for a girl), and in which the couple lived with the parents after marriage. In urban areas, wealthy families were usually limited to just parents and unmarried children.[284] There was no defined institution of *kest* in Polish society.[285] According to Bogucka, among the middle and lower classes the average age of marriage was relatively high, probably over 20 for men. In the case of women, the age of marriage may have been significantly lower, probably between 15 and 20.[286] Social historians claim that noble women married before the age of 20,[287] and daughters of wealthy magnates got married earlier than gentry girls.[288] Often, there was a considerable age difference between the bride and groom. Families were patriarchal and marriage was a sacrament.

By the end of the 18th century, the average age of marriage in Poland was 25-29 for a man and 20-24 for a woman.[289] During the period 1740-1799, men in Warsaw were nearly 29 years old when they first got married, similar to the situation in Western Europe. However, women in Warsaw got married at the age of 22-23, which was much younger than in Western Europe. In central Poland, the average family was relatively small, comprised usually of parents with children and sometimes a member of the older generation or a cousin. According to Hundert, this practice was different among the Jews who tended "unlike their neighbors, to live in multifamily dwellings."[290]

5.4 Childcare in the modern period

In general, the positive attitude towards childcare remained one of the pillars of Jewish life in Eastern Europe. A survey of the responsa in the modern period reveals that the above-described Talmudic rule known as "*meyaneket chavro*" was still very much discussed and people found it difficult to obey. In many cases sent to rabbis, women asked for permission to marry the man they were already engaged to or a couple asked for permission to live together in violation of the ruling in the *Shulchan Aruch*.[291] It is worth

[283] Kuklo (1990). See also Kamecka and Kuklo (2003). In the 17th century, it was only 10 years. Waszak (1954, p. 285).
[284] Augustyniak (2008, p.319).
[285] Kuklo (2009, p. 283).
[286] Bogucka, 2004, p. 35).
[287] Koczerska (1975, p. 32).
[288] Wolski (2005, p. 304).
[289] Kuklo (2009, pp. 278-79).
[290] Hundert (1989, p. 85).
[291] Anzi (n.y. p. 4).

mentioning that the fact that many couples requested permission to stay together means that there were rabbis who allowed them to marry in the first place. [292]

One of the reasons for the tendency toward leniency on *meyaneket chavero* appears to be the shortening of the breastfeeding period in the surrounding society.[293] There were rabbis who recognized that the breastfeeding period had gotten shorter, but nonetheless insisted that people comply with the ruling of *meyaneket chavero*. For example, Hatam Sofer argued that the rule must be obeyed because there were still children who needed 24 months of breastfeeding and the rule protects them.[294] Furthermore, 19th century rabbis explained that the ruling should continue to be obeyed because its intention is to guarantee that the infant, and not a new husband, will enjoy its mother's full attention and thus goes beyond merely breastfeeding. The invention of the bottle was rejected as an argument for being lenient on this rule, since there was still the danger that the new husband might be reluctant to buy milk for the baby.

"By the end of the 18th century, there were clear differences between Jewish marital patterns in the German-speaking lands and in the Polish-Lithuanian Commonwealth."[295] Western groom and bride were older than young couples in Eastern Europe, where pre-mature marriage became more and more popular among the elite.[296] In most of the documented cases of early marriage among the elite, the young couple lived with the maternal parents who provided financial support while the groom continued Talmud study in beit midrash or yeshiva. In 19th century Eastern Europe, remarriage was a common phenomenon among Jews and constituted one of the characteristics of Jews as a population group: "Jews married younger, remarried more often and lived longer than members of other groups."[297] In the mid-19th century, almost all Jewish adults were married, but a high percentage of them were married not for the first time.[298] Between 1867 and 1910, in comparison to other population groups, "Jews had the highest percentage of marriages involving at least one remarrying partner, as well as marriages between widows and widowers."[299] Religious legislation encouraged widows to remarry. Although the rulings of the *Shulchan Aruch* prohibiting a widow to marry a third time were generally obeyed, the response reveal that modern rabbis tended to look for ways to permit it. One of their motivations for permitting such marriages was to ensure the care of orphans based on "rabbis' unquestioned assumption that fatherless children are endangered."[300] It can thus be assumed that in case of widows, the practice of remarriage contributed to the

[292] Anzi (n.y. p. 6).
[293] According to L. DeMause, while at the beginning of the 17th century it was 24 months, in the 18th and 19th centuries nursing period lasted usually only 15 months. L. DeMause (1976, p. 34).
[294] Chatam Sofer, Even HaEzer 1: 34 (Freshburg, 1857).
[295] Stampfer (2010, p. 9).
[296] Stampfer (2010, pp. 10-21).
[297] Stampfer (1988, p. 104).
[298] Stampfer (1988, p. 98).
[299] Stampfer (1988, p. 87).
[300] Stampfer (1988, p. 105).

welfare of otherwise fatherless children and to lower child mortality.[301] During the 19th century the practice of early marriage was abandoned. In the second part of the century there was a general rise in the age of marriage among Jews.[302] Jewish marital age and remarriage patterns became similar to those in Christian society. Jewish widowers became less inclined to choose a widow as a mate, although Jewish widows continued to marry widowers rather than bachelors. On the other hand, Christian widowers were inclined to choose previously unmarried women for a second marriage.

Christians.

In modern Western Europe, one of the most significant discoveries in childcare was that colostrum is actually beneficial to the baby. Although already in 1719 Pierre Dionis recommended colostrum as more nutritious than regular breast milk, the attitude of mothers to breastfeeding after labour changed only in the mid-18th century following the observation of Hunter (1750) - that feeding babies after labour reduces the risk of milk fever – and the publication of Cadogan's *Essay Upon Nursing and Management of Children*. The change and simultaneous return to maternal breastfeeding among the middle and upper classes were probably among the factors that contributed to the decrease in child mortality after 1750.[303] However, only by the end of the 19th century it was understood that colostrum could equip the infant with some immunity and prepare it for more substantial nourishment.[304]

In Poland, the question of whether the baby should be nursed by his mother during the first 24 hours appeared in the 18th century treatises, but the attitudes changed only gradually first among doctors, later among midwifes and finally among women themselves. By the end of 18th century, Weichardt still claimed that during the first 24 hours a newborn baby should not be given any food except for sugar with manna (semolina) or syrup with manna.[305] *Dykcjonarz* (1788) advised that if the baby had no problems during the delivery, he/she should be given a bit of mother's milk (after the mother has rested for about two hours) to cause vomiting of meconium. However, if the newborn seemed weak it should be given a few drops of sweetened and warm wine.[306] Furthermore, *Dykcjonarz* suggested that mothers should not breastfeed their babies during the milk fever and instead newborns should be fed with fresh goat milk mixed with water.[307] In 1867, Śniadecki was the first to recommend nursing with colostrum because it "has lactating advantages and helps to expel meconium."[308] Only at the end of the 19th and beginning of the 20th century new publications described the first milk as having more proteins, fat and leucocytes than regular human

[301] Stampfer (1988, p. 104).
[302] Stampfer (2010, pp. 21, 23).
[303] Grieco (1991, p. 47).
[304] Paul Ehrlich (1854 – 1915) was probably the first to discover that mother's milk passes immunity (1892).
[305] Weichardt (1782, p. 316).
[306] In 15th century, Konrad Bitschin advised that a baby be fed with human milk, preferably the mother's, rather than wine, which testifies to the persistence of this problematic practice. See Żołądź-Strzelczyk (2002, p. 110, 124).
[307] See Dembińska (1980, p. 487).
[308] Śniadecki (1867, p. 57)

milk,[309] and Polish doctors agreed that the newborn should be breastfed within 4-8 hours after delivery.[310] Together with the decrease in the number of still birth and progress in medical knowledge, the feeding with colostrum contributed to the population growth in PL. In Poznan, for example, between 1870 and 1910 average intelligentsia family had 3,8 children, craftsman's family had 4,1 children while simple workers had 4,7.[311] In the second half of the 19th century the number of women who died during the delivery decreased gradually. During the 19th century marriage and family became more institutionalized. For example, Prussian law of 1873 set the minimum marriage age for men at 21 and women at 16.[312] In Poznan the average groom was 25-29 years old, while his bride was 20-29 and usually three years younger than him. With industrialization and urbanization, Polish women gained chances of professional work and became more independent within the family.

There are no many comparative studies on Polish and Jewish childcare. One of the important studies to confirm the differences in general attitude towards childcare was carried by Benedict who examined the practice of swaddling in Poland and Ukraine in the early 20th century. Benedict claimed that the Jewish idea of swaddling is to provide the baby with warmth and comfort rather than to "harden it" (which was the attitude in Poland and Russia). His research show that Jewish babies were usually swaddled "on a soft pillow and in most areas the bindings are wrapped relatively loosely around the baby and his little featherbed; the mother sings to the baby as she swaddles it […] In strongest contrast to the experience of the Gentile child, swaddling is part of the child's induction into the closest kind of physical intimacy "[313] Benedict juxtaposes the Jewish approach towards swaddling with the general Polish, Ukrainian and Russian attitudes according to which (1) the baby is fragile and needs the support provided by the bindings, and (2) swaddling should be used to harden baby's legs. Furthermore, he emphasizes that the Poles also believed that swaddling prevents the baby from touching the dirty and shameful parts of its body, while Russian mothers swaddled the baby to prevent it from hurting itself.

Finally, unlike

5.5 Summary

Modern medical knowledge regarding the influence of childcare on infant mortality and child wellbeing has changed dramatically from the late 19th century till today. Only at the beginning of the 20th century medical knowledge become widely accepted and the practices of breastfeeding changed. Nursing with colostrum as well as intense and exclusive breastfeeding became most common.

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[309] Michałowicz (1920).
[310] Kramsztyk (1896).
[311] Żyromski (2000, p. 175).
[312] Żyromski (2000, p. 183).
[313] Benedict (1948, p. 347).

Our analysis shows that Jewish childcare norms based on religious rules from Talmudic period and developed throughout Middle Ages and early modern period, were much closer to modern medical knowledge than those of contemporary Christian society. It is the Jewish religion norm that the child wellbeing is at the center of the family and the amazing fact that certain ruling become the today norms in all societies following the existing medical knowledge.

The other aspect that is interesting is that the historians that study the attitude to children in Christian societies starting with the controversial and path breaking study of Ariès is that the change in the status of the child is related to time, families and societies that adopted education as the main goal of raising children. We claim that the fact that children education become the main religious norm among Jews in the Talmudic period is the main causal reason for the particular childcare development among Jews from that time and later. The Rabies role in Jewish life for many generations, starting in Talmudic era, where teacher, mentors, healers and social advisors to the community and the family. Putting the child as the center of the family and the ruling on family formation and functioning was the result that education of the child and learning was a central goal of each family. As such, they accumulated knowledge on child wellbeing and transformed it to religion rules and social norms of the Jewish family.

6. Conclusions

This paper documents the exceptionally high rate of growth (almost 1.4%) of the Jewish population in Poland-Lithuania continuously from 1500 to 1880. Then Jewish growth rate declined due to migration to Western Europe and the Americas. The total population of PL grew at much lower rates and reach that of the Jews only after 1880. We also provide evidence that the Jewish population in GA before 1800 grew at more than twice the rate of the total population, though at a much lower rate than the Jewish population in PL. The main evidence presented indicates that until the early 19th century the difference in the rates of growth between the Jewish populations in PL and GA was due to migration to the east. There is reason to assume that the natural growth rates of Jews in PL and GA were about the same due to similar religion social norms of raising children and general economic conditions and most of the difference is due to migration and conversion until 1880.

We document the much lower rates of infant and child mortality among the Jews than among the total population. The difference accounts for more than half of the difference in the rates of population growth between the two groups. Since socioeconomic and demographic characteristics cannot fully explain the differences in infant mortality between Jews and non-Jews, we examine religious and lifestyle differences. We summarize the arguments to show that, in light of modern medical knowledge, Jewish religious commandments along with breastfeeding and childcare practices have been lifesaving for the Jews. These rules were deeply rooted in Judaism throughout the ages and were standard practice for Ashkenazi Jews in PL and GA.

One of the puzzling questions that arise from the analysis is why the Jewish community grew so rapidly in PL but not in GA. Future research should focus on this puzzle. A possible explanation is related to differences in property rights between GA and PL and the role of the Jews in the Polish manorial economy. While GA abandoned feudalism prior to 1500, in PL there developed a unique feudal system ('secondary feudalism') during the 16th century in which nobles (*szlachta*) had full property rights and a monopoly on the means of production, as well as the legal and military authority to protect their property. The Jews in PL became part of the manorial system. They were successful as leaseholders and operators of noble properties and monopolies and their demographic growth in PL was not limited by the feudal system.[314] The evidence supporting this hypothesis will be presented in the sequel to this paper.

[314] See, for example, the articles in Goldberg (1999).

Appendix A: Sources and methodology for section 3

Available by request and will be available on the web soon.

Appendix B: Sources and methodology for section 4

Available by request and will be available on the web soon.

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Map 1: 1650 borders of Germany-Austria and Poland-Lithuania

Map 2: 1850 borders in Germany-Austria and Poland-Lithuania