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MPIDR WORKING PAPER WP 2014-007
JULY 2014

The Patriarchy Index: A Comparative Study of Power Relations across Historic Europe

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* Earlier version of this paper was presented at European Population Conference in Budapest, 25 – 28 June 2014, Session 1001: Household formation, marriage and social mobility in the past.

Abstract

This paper stands at the confluence of three streams of historical social science analysis: the sociological study of power relations within the family, the regional demography of historical Europe, and the study of spatial patterning of historical family forms in Europe. It is a preliminary exercise in the design and application of the new "master variable" for cross-cultural studies of family organization and relations. This indexed composite measure, which we call the Index of Patriarchy, incorporates a range of variables related to familial behavior, including nuptiality and age at marriage, living arrangements, postmarital residence, power relations within domestic groups, the position of the aged, and the sex of the offspring. The index combines all these items, with each being given equal weight in the calculation of the final score, which represents the varying degrees of sex- and age-related social inequality ("patriarchal bias") in different societal and familial settings. To explore the comparative advantages of the Index, we use information from census and census-like microdata for 91 regions of historic Europe covering more than 700,000 individuals living in 143,000 domestic groups from the Atlantic to the Urals. The index allows us to identify regions with different degrees of patriarchy within a single country, across the regions of a single country, or across and within many broader zones of historic Europe. The unprecedented patterning of the many elements of power relations and agency contained in the index generates new ways of accounting for both the geographies and the histories of family organization across the European landmass.

From "family systems" to an Index of Patriarchy

The search for a "master variable" capable of capturing the variation in family systems across past societies of Europe has been the central preoccupation of historical family demography. Over the course of 50 years of continuous investigation, various scholars have proposed a number of different approaches for pinning down various dimensions of family systems. In their wide-ranging attempts at explaining intra-European familial differentials, Laslett and others, following the Cambridge Group tradition (most notably Hajnal), tended to focus on the triad household structure- age at marriage – and service, and on the marriage-household formation nexus (Laslett 1983; Hajnal 1982). By contrast, Wall suggested that the key features to be accounted for are the size and the composition of the kin group within the household (Wall 1991). Both Todd (1985) and Das Gupta (1997) stressed the importance of postmarital residence, but while the former asserted that the crux of family system analysis should be the contours of parental authority, the latter emphasized the effects of inheritance patterns. The discussion was given a new impetus in the studies of Ruggles, who argued that family structure and living arrangements could be most profitably analyzed from the perspective of the elderly. Focusing on the coresidence of the elderly not only minimizes the effects of variation in demographic conditions on indicators of family structure (Ruggles 2009, 2010, 2012); it can also shed light on contrasting systems of social security and family welfare provision (Smith 1981; Laslett 1988; Cain 1991; Szołtysek 2012a). Thus, studying the living arrangements of the elderly brings us closer to understanding the very essence of the functioning of family systems.

Members of the EurAsian Project on Population and Family History recently went even further by stipulating that one of the most important characteristics that distinguishes various family systems is the sequence of individual life course transitions (Dribe et. al. 2007). Recently, Kok added yet another building block to these theoretical considerations by looking at family systems through the prism of illegitimacy patterns (Kok 2009).

Meanwhile, Wall pushed the discussion forward (Wall 1995; earlier Laslett 1983) by investigating "domestic coresidence" using a matrix of "statuses,"

"functions," and "relationships." According to Wall, this matrix provides a comprehensive account of the various "attributes" of family systems (Wall 1995), including the welfare capability of the family, the household as a work unit, the status of women within the family, the patterns of marriage and household formation, the household as a kin group, and inequalities between households. For each attribute of the family system, Wall proposed a range of measures, along with a description of the target population for each of these measures; i.e., the individuals who most obviously depended on whether a particular role was fulfilled by the coresident group (Wall 1995, 21-30).

While the approaches mentioned above suggest that there are a wide range of angles from which family systems may be analyzed, none appears to be fully adequate when the goal is to measure differences in familial organization on a global comparative scale. While many scholars have made valuable proposals for measuring family systems across time and space, each of these approaches tends to favor one aspect of the family system, while neglecting the others. For example, although Wall's "disaggregation" of the family system into its constitutive elements (29 variables in total) is conceptually very useful, this approach cannot be easily scaled to measure the family system characteristics of multiple societies. If, as has been suggested, variation in family organization in different societies implies the coexistence of a number of different elements in many different permutations and combinations, then Wall's approach cannot tell us how to classify various societal family constellations.

Technically speaking, most of the developments in the measurement of historical family systems reviewed so far stemmed from and were designed for studies of a single community or a small group of communities (Ruggles 2012). However, the ongoing revolution in the availability of census and census-like microdata across time and space (Ruggles 2012) opens up unprecedented opportunities for a revitalization of the family system debate in historical demography. This, however, requires us to develop new approaches and new tools[1].

We argue that the only solution to such challenges is to design a "master variable" which can be employed in cross-cultural studies of family systems by applying it to harmonized datasets covering multiple settings. This measure has to be:

A) **holistic** – it has to capture critical aspects of familial behavior without being overloaded;
B) **feasible** – it has to be easily derived from historical census-like microdata with often limited information;
C) **quantifiable** – it must be possible to calculate it from basic numerical variables derived from individual level sources; and
D) **comparable** – it must yield quantities that can be easily compared across time and space, and between societies.

To meet these requirements, we suggest an indexed composite measure that incorporates a selection of variables related to familial behavior. We call this measure the Index of Patriarchy. The index is based on a wide range of variables pertaining to the spheres of nuptiality and age at marriage, living arrangements, postmarital

[1] Recently, Ruggles applied two measures of coresidence among the aged to a huge assemblage of census microdata in order to assess the spatiotemporal distribution of stem- and joint-family arrangements. Although these measures represent a huge step forward in accounting for family forms worldwide, they also have some drawbacks (see Gruber and Szołtysek 2012).

residence, power relations within the domestic group, the position of the aged, and the sex of the offspring. The index is a measuring device that combines all of these items in order to facilitate analyses of the complex reality of family systems. The different items that constitute the index are given equal weight in the calculation of the final scores, which should reflect the varying degrees of patriarchal bias in various societal and familial settings.

To explore the comparative advantages of using this index, we drew upon census and census-like microdata for 91 regions of historic Europe covering more than 700,000 individuals living in 143,000 domestic groups from the Atlantic to the Urals. The data used in this study were collected within the Mosaic Project, which was started in 2011 at the Max Planck Institute for Demographic Research (MPIDR) in Rostock (www.censusmosaic.org), itself using the experiences of a global community of researchers involved in international data infrastructure projects like IPUMS and NAPP. The project gathers, harmonizes, and distributes (openly) surviving census and census-like materials from historic Europe. The microdata samples included in Mosaic database are very similar in terms of structure, organization, and available information. In each case, the listings describe the characteristics of the individuals grouped into households through which the interrelationships of individuals within households can be determined. All of the census samples define a household as a group of people sharing a place of residence. There is a core set of variables common to virtually all of the datasets, including the relationship of each individual to the household head, and each inhabitant's age, sex, and marital status. In addition, there are many important variables available for subsets of censuses, such as occupation, birth place, year of immigration, religion, and ethnicity (Szołtysek and Gruber 2014a). As the Mosaic datafiles have a common data format based on the standards established by IPUMS and NAPP, in the future they can easily be compared with information from these databases.

For all of the available datasets from the Mosaic Project, we have computed a list of well-specified variables. Our Index of Patriarchy is based on these variables. The index allows us to identify regions with different degrees of patriarchy within a single country, across the regions of a single country, and across and within broader zones of historic Europe.

In this paper, we will first discuss the elements of patriarchy, and present a list of variables for measuring these elements. These variables will then be compared to each other to determine whether they correlate to each other. Finally, we present our Index of Patriarchy, along the preliminary results of our application of the index across multiple spatial settings in historic Europe. We discuss the implications for comparative research on historical family systems at the end of the paper.

The analysis will be conducted on a regional level, which allows us to identify areas with different degrees of patriarchy within a single country, across the regions of a single country, and across and within broader zones of historic Europe.

Our notion of patriarchy (and why we wish to measure it)

Our notion of patriarchy departs from the often value-laden, monolithic, and ideologically determined discourse of Western feminism (see Walby 1990; cf. Kandiyoti 1988, 274-275). Instead, we treat the concept simply as a useful descriptive tool for discussing social patterns in a comparative perspective. In line with a number

of recent theorists, we see patriarchy not as having a single form or site, but as encompassing a much wider realm (cf. Kandiyoti 1988; Joseph 1996)[2].

According to Therborn, patriarchy has two basic intrinsic dimensions: "the rule of the father and the rule of the husband, in that order" (Therborn 2004, 13). As such, it refers to generational and to conjugal family relations, or, more clearly, to generational and gender relations. Thus, the term also encompasses the domination of men over each other based on the seniority principle followed in many patrilineal and patrilocal societies. Similarly, Joseph (1996) defined patriarchy (albeit in the Arab context) as the prioritization of the rights of males and elders, and the justification of those rights within kinship values which are usually supported by religion. In the Balkan context, the multifaceted nature of patriarchy was best captured by Kaser and others, who argued that "it is insufficient to understand patriarchy simply as the rule of the father, the eldest, or the husband," but that it is instead necessary to look as well at the formalized rules based on patriarchal concepts: i.e., inheritance rules, child obedience, marriage arrangements, residence at marriage, the presence or absence of institutionalized sexual asymmetries, and the obedience of women (Kaser 2008, 33; also Therborn 2004, 13). By applying such a holistic perspective, they were able to tackle the patriarchy problem from various angles, looking not only at the complex set of hierarchal values embedded in a social structural system defined by gender and age, but also at broader social units and social behavior through which patriarchy in the Balkans attained its historical form; i.e., a form characterized by interlocking relationships of patrilinearity, patrilocality, and a patriarchally oriented common law (Halpern, Kaser, and Wagner 1996: 427)[3].

However, an approach used to gain a better understanding of local meanings of patriarchy may be less helpful when the task is to measure comparatively the "intensity" of patriarchy across time and space, especially among historical societies. While many conceptualizations of patriarchy have provided rich, detailed descriptions of gender and generational relations (e.g., Miller 1998; Kaser 2001, 2002, 2008; Halpern, Kaser, and Wagner 1996; Mitterauer 1999; for Russia, see Worobec 1995, 175-216)[4], they are of little help in comparing and mapping across space historical forms of power relations between the generations and the sexes[5].

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[2] Thus, our notion of patriarchy corresponds to "systems of sex- and age-related social inequality" (in which individuals have differing levels of access to power, capabilities, prestige, and autonomy) (Niraula and Morgan 1996; but these authors focus exclusively on female autonomy).

[3] Compared to this definition, the conceptualization of patriarchy in most demographic studies has been more simplistic. M. Cain, for example, used the median age difference between once-married spouses as an indicator of patriarchal structure in a cross-national analysis of fertility in the developing world (Cain 1988; also Cain, Khanam and Nahar 1979). Cain has rightly assumed the age difference between spouses has several attractive features as an indicator of patriarchal structure that can be used in a comparative demographic analysis (Cain 1988, 25-27). However, he seemed to fail to take into account some other demographic and domestic group characteristics which are no less inherent in the demographic and familial contexts of peasant societies governed by patriarchal rules as those defined above.

[4] Cf. the definition of the Balkan patriarchy: "a complex of hierarchal values embedded in a social structural system defined by both gender and age. This structuring is further linked to a system of values orienting both family life and broader social units. Balkan patriarchy achieves its historical form through the classically complex and interlocking systems of patrilinearity, patrilocality, and a patriarchally-oriented common law. Such supports not only divide and ascribe position by gender, but also allocate to males the predominant role in society. An obvious corollary to this defined structure is the formal subordination of women within the context of an overtly 'protective' family and household environment" (Halpern, Kaser, and Wagner 1996: 427).

[5] To our knowledge, Niraula and Morgan's paper (1996) is pioneering in that it explicitly deploys the concept of "different intensities of patriarchy" in the study of female autonomy in two Nepali settings

As the term patriarchy suggests the existence of a complex social system, approaching patriarchy comparatively and globally (if only at the European level) will inevitably imply a reduction of its internal intricacies to a set of characteristics or aspects which can be studied across space and time. Such a reductionist approach would also appear to be necessary due to another set of constraints. Since it is very unlikely that a large number of comparative holistic reconstructions of gender and age relations across the multitude of historical societies (or even their subpopulations) will ever become available (cf. Miller 1998), scholars may be forced to use routine records from census microdata to generate spatially sensitive descriptions of historical gender and generational indicators at the local level. This can now be done more effectively, as the ongoing revolution in census microdata (Ruggles 2012) has made it feasible to assemble for the first time a very large amount of comparable individual-level data for continental Europe in pre-industrial times (see www.censusmosaic.org). These localized indicators of gender and age relations not only can greatly enhance the historical reconstruction of different family systems, household and regional economies, and power dynamics.The availability of such indicators may also become critical to the analysis of historic cross-country differentials in fertility, social mobility, human capital formation, and parental control.

To show how our own approach addresses these challenges, we will first provide an overview of our "patriarchal" variables. The variables are grouped into four "clusters," or the four "domains" we believe capture the four major dimensions of "patriarchy": domination of men over women, domination of the older generation over the younger generation, the extent of patrilocality, and the numerical balance of the sexes. Combinations of the many different elements of power relations and agency contained in the composite Index of Patriarchy will substitute for rather vague notions of "family systems" and "patriarchy,". By revealing important features of both female and male autonomy in a given context, this approach may point to new ways to account for the geographies of family organization across historic Europe[6].

Measures used

Cluster 1: Domination of men over women

1.1 Proportion of female household heads (*female hhh*)

Patriarchal hypothesis: Only men can be household heads.

Description: This is the proportion of all female household heads among all adult (20+ years) household heads of family households. We use an age-standardized measure to account for different age structures in different societies at different points in time.

This measure should be negatively correlated with patriarchy, as in truly patriarchal societies women would not be allowed to become household heads under most circumstances. Female headship is widely regarded as a key element of social structure, and as a positive indictor of the extent to which women are able (and willing) to manage an independent livelihood; thus, the existence of female headship tells us a lot about the options available to women more generally (Wall 1981; Ogilvie

(less explicitly, also Dyson and Moore 1983). However, in neither case were these differences in "intensity" formalized and quantified.

[6] Most of the genuine research on the effects of sex- and age-related systems on individual capabilities focused on women, while neglecting the effects of these systems on different generations and on the autonomy of men (see Dyson and Moore 1983; Niraula and Morgan 1996).

and Edwards 2000; Szołtysek 2009). In traditional agrarian societies, the position of head of household had a quasi-public character (Wetherell and Plakans 1998). Meanwhile, the reproduction of classic patriarchy is dependent on the operations of patrilocally extended households headed by men. Whereas in the patriarchal context most men can expect to be "patriarchs" at some point in their life cycle, most women are denied the opportunity to hold a formal public position of economic power (Moghadam 2004, 141).

1.2 Proportion of young brides (*young brides*)

Patriarchal hypothesis: A lower female age at marriage facilitates male domination.
Description: This is the proportion of ever-married women in the age group 15-19 years. We use this measure instead of the Singulate Mean Age at Marriage (SMAM) because:

- it is less affected by missing information about the marital status of women in the age range of 40 to 50 years;
- it does not reflect the developments over several decades, but instead presents data for the most recent years (Smith 1978; Schürer 1989);
- it is less affected when there are only a small number of cases; and
- it is used by the Social Institutions and Gender Index (SIGI, http://genderindex.org/data).

This measure should be positively correlated with patriarchy because we assume that in truly patriarchal areas women would be married as soon as possible. In societies in which property and other rights are transmitted through men, the production of male children is critical. Early arranged marriages of daughters reduced the household economic burdens that came with supporting females who were destined to marry and leave the home in any case, and whose children would contribute neither income nor offspring to their father's natal group. "Since unmarried women are social liabilities," Dyson and Moore argued, "their marriage costs (dowry requirements) increase with age, providing another reason to ensure early marriage" (Dyson and Moore 1983, 48). Finally, as early marriage increases the period during which females can produce male heirs for the groups into which they marry, a prospective spouse is most in demand by other families when she is young (Davis and Blake 1956).

1.3 Proportion of wives who are older than their husbands (*older wives*)

Patriarchal hypothesis: The husband is always older than his wife.
Description: This is the proportion of all of the wives who are older than their husbands among all of the couples for whom the ages of both partners are known. If a husband is married to more than one wife, only the first wife is considered here. We use an age-standardized measure to account for different age structures in different societies at different points in time.

This measure should be negatively correlated with patriarchy, because we assume that in truly patriarchal areas men would not marry women older than themselves. We further assume that in intensely patriarchal societies, male remarriages involving much younger partners will enjoy broad societal acceptance, and will therefore be prevalent. There is a widespread consensus among sociologists, anthropologists, and historians that the magnitude of the age difference between spouses is an indicator of the level of equality in the relationship between a man and a woman (Van de Putte et al. 2009). Laslett, for example, argued that a relatively small age gap between spouses

in historic northwestern Europe indicated a societal preference for companionate marriage (Laslett 1977, 90, 99-101; similarly in Hajnal 1965, 129). Meanwhile, Cain asserted that large age differences in favor of men can be seen as an indication of a patriarchal family system (Cain 1988; also Cain, Khanam and Nahar 1979).

1.4 Proportion of young women living as non-kin (*female non-kin*)

Patriarchal hypothesis: A woman cannot live outside the home of her or her husband's relatives.

Description: This is the proportion of women aged 20-34 years who live as non-kin, usually as lodgers or servants. These women are not controlled by their relatives or by their husband's relatives. We use an age-standardized measure to account for different age structures in different societies at different points in time.

This measure should be negatively correlated with patriarchy because we assume that in intensely patriarchal societies, young, unmarried women tend to be controlled by relatives, and are prevented from living with or working for non-relatives, especially before marriage. This prohibition may stem from cultural concerns about female virginity, and is thus related to the fear—based upon either religious prescriptions or the structural difficulties of dealing with illegitimate children—that a girl could become pregnant before marriage (see MacDonald 1985; Schlegel 1991). Equally, it could result from larger societal constraints that preclude the emergence of any role in the social structure for single, post-pubescent women other than that of wife or daughter (Klep 2005; de Moor and van Zanden 2010; Szołtysek 2014).

Cluster 2: Domination of the older generation over the younger generation

2.1 Proportion of elderly men coresiding with a younger household head (*younger hhh*)

Patriarchal hypothesis: The oldest man is always the household head.

Description: This is the proportion of elderly men (aged 65+ years) living in a household headed by a male household head of a younger generation. Only family households are considered here, and the elderly men must be relatives of the household head. We have chosen to analyze generations and not ages because we consider the generational difference to be more important than the age difference between men.

This measure should be negatively correlated with patriarchy because we assume that in intensely patriarchal areas no younger man is permitted to become household head as long as an older male household member is alive. Research on patriarchal family arrangements in historic Europe has shown the pervasiveness of cultural traditions in which power relations within domestic groups were structured according to strict seniority. Thus, younger couples were not permitted to assume the headship when older couples were present in the household. This tradition has been found in both "archetypical" joint-family societies and in societies with various "stem-family" arrangements; i.e., families in which one adult son remains at home while his father continues to act as the head of the household, even after the son's marriage (Engelen and Wolf 2005; Szołtysek 2014; also Halpern, Kaser, and Wagner 1996; Szołtysek and Gruber 2014b).

2.2 Proportion of neolocal residence among young men (*neolocal*)

Patriarchal hypothesis: Sons cannot establish their own household upon marriage.

Description: This is the proportion of ever-married household heads among ever-married men in the age group 20-29 years. This measure only applies to family households, and is an age-standardized measure that accounts for different age structures in different societies at different points in time.

This measure should be negatively correlated with patriarchy, because it is assumed that in strictly patriarchal societies sons with living fathers are permitted to establish their own independent households only under exceptional circumstances. As Wolf has argued (2005, 225), in a very practical sense, "(…) how young people marry, when they marry, and where they reside after marriage will reflect the extent to which their society empowers parents." In domestic groups in which the "vigorous authority of the senior patriarch" (cf. Seccombe 1992, 42) is enforced, the authority structure prevents offspring (and sons in particular) from early independence because male children (and grandchildren as well) are capital resources, and, like all capital resources, are wanted in greater rather than smaller quantities. Given the benefits of keeping sons on the patrimony for longer periods of time to assist with the low-technology and extensive forms of agriculture typical of the many areas of preindustrial Europe, parents were highly unlikely to have encouraged their sons to leave home and live independently. The result is not only early marriage, but also the widespread practice of postmarital subordination of sons to the older generation, in which the older male deploys the younger male for his own benefit (Niraula and Morgan 1996; Verdon 1998; Wolf 2005; Szołtysek 2014). In patriarchal societies in which property is controlled by the elders, an underlying structure of opportunities is created in which many young people had to wait a long time "for dead men's shoes" before they could take over a parental (or fraternal) holding.

2.3 Proportion of elderly people living with lateral relatives (*lateral*)

Patriarchal hypothesis: Some sons tend to stay in the household even after the death of their father.

Description: This is the proportion of elderly people (aged 65+ years) living with at least one lateral relative in the household. Lateral relatives are defined as siblings, aunts/uncles, nephews/nieces, grand nephew/nieces, cousins, and other distant relatives (including in-laws). In addition, two married relatives of the same generation form a lateral extension (this applies to lineal relatives: children, parents, grandchildren, and grandparents; always including their in-laws). This measure only applies to family households.

This measure should be positively correlated with patriarchy because we assume that in intensely patriarchal areas some men will not establish their own households at all, or will have to wait until late in life. Given that patriarchy has often been assumed to have strong associations with patrilineality and patrilocality, the centrality of brother-brother relationships to the reproduction of the patriarchal system seems obvious. Although the idea of a simple correlation between any descent system and actual social relations is not universally accepted (Schubert 2005), it is nevertheless often assumed that agnatic, patrilineal, and patriarchal environments helped develop the specific psychosocial dynamics of brother-brother relationships. This relationship—which Joseph called a "patriarchal connective mirroring" (2001)—tends to be characterized by the staged sequencing of brotherly competition, giving way to strong brotherly solidarity which can surpass other supposedly intimate relationships in the family, or domestic group (like those between husband and wife) (see Joseph 2001). Finally, in the patrilocal

multiple-family households, which provided the best environment for patriarchal complex values to emerge, the prolonged coresidence of married brothers in the domestic group often fostered a complex web of kin relationships, domestic hierarchies, and economic dependencies between various types of lateral kin (Collver 1963; Halpern 1977; Czap 1982).

2.4 Proportion of elderly people living in joint residence (*joint family*)
Patriarchal hypothesis: All sons have to stay in the household of their father.
Description: This is the proportion of elderly people (aged 65+ years) living with at least two married children (sons) in the same household. This measure only applies to family households.
This measure should be positively correlated with patriarchy because we assume that in truly patriarchal areas no sons would leave their parental household. Joint-family types of living arrangements—i.e., co-residence with at least two married offspring (preferably sons)—have commonly been seen as being the locus of archetypical patriarchal relationships (Caldwell 1982). Joint families could be found in many different societies of Eurasia, from the nomadic tribes of the Middle East to the Slavic serf agriculturalists and the ancient civilizations of the Far East. The common features of joint families around the globe include the coresidence of two or more nuclear families, the patrilineal succession of family titles and property, a tendency to keep the sons on the patrimony and virilocal household formation, a tendency to unify the joint domestic group around some common economic project, a tendency toward fission at some point in the developmental cycle, a marginal position for female siblings, and a tendency to recruit workers from among kin rather than from among wage laborers (Szołtysek and Gruber 2014b). It is in this context that the concept of patriarchy has often been evoked, becoming a convenient shorthand for the presumed distinguishing trait of joint-family relations (Erlich 1966; Halpern, Kasr and Wagner 1996; Kaser 1992; Mitterauer 1999).

Cluster 3: Patrilocality
3.1 Proportion of elderly people living with married daughters (*married daughter*)
Patriarchal hypothesis: All daughters move into their husband's father's house.
Description: This is the proportion of elderly people (aged 65+ years) living with at least one married daughter in the same household among those elderly people who live with at least one married child in the same household. This measure only applies to family households.
This measure should be negatively correlated with patriarchy because in intensely patriarchal areas it is expected that all daughters will leave their parental household upon marriage. According to the prevailing principle of patrilocality, upon marriage a woman will move into the household of her husband or her husband's father. Although in some patriarchal societies the uxirolocal residence of sons-in-law was used as a substitute for a missing male biological heir, in intensely patriarchal societies there was a strict preference for patrilocal marriages of the male offspring, and for the exclusion of daughters from reproduction within the natal group (Szołtysek and Gruber 2014b).

Cluster 4: Son preference

4.1 Proportion of boys among the last child (*boy as last child*)

Patriarchal hypothesis: After the birth of a daughter parents will try to have another child.

Description: This is the proportion of boys among the last children (if the last child is one of a set of siblings of both sexes, he or she will be excluded from the analysis). Until now, this measure has been restricted to the children of household heads, because the analysis is much more complicated for other relatives. The analysis is restricted to the age group 10 to 14 years, because in the younger age groups we cannot know whether the last child really is the last child, and in the later age groups we cannot know whether one of the children has already left the parental household because of marriage or service. This measure only applies to family households.

This variable is also used in the Social Institutions and Gender Index (http://genderindex.org/data), but this index takes advantage of contemporary household surveys which make it easier to identify the last child. This proportion has already been used in an analysis of the fertility decline in a Serbian village, which yielded a male surplus for almost all birth decades between 1850 and1939. After 1879 the proportion was always 60 percent or more (Wagner 1984, 232).

We would expect to find that this measure is positively correlated with patriarchy. Son preference is considered to be an inherent feature of patriarchal family settings, as it generates strong disincentives to raise daughters, while valuing adult women's contributions to the household (e.g., Das Gupta et. al. 2003). In patriarchal environments, sons are critical to families in a variety of ways, including for continuity of the lineage, for performing ancestor worship rites, and for providing support in old age. As daughters normally cannot perform these functions, and are therefore of far less consequence to families than sons, in truly patriarchal areas parents should be more inclined to stop reproduction after the birth of a son than after the birth of a daughter (Larsen, Chung and Das Gupta 1998).

4.2 Sex ratio of youngest age group (sex ratio)

Patriarchal hypothesis: Girls are treated worse or are considered to be of lesser importance.

Description: This is the sex ratio (boys to 100 girls) in the youngest age group (0-4 years old). We investigate the youngest age group because the effects should be most marked in this age group. This measure only applies to family households.

This variable is also used in the Social Institutions and Gender Index (http://genderindex.org/data), but this index uses all of the age groups. As the score of the index is particularly influenced by the sex ratio at young ages, we use only the youngest age group.

This measure should be positively correlated with patriarchy because we assume that increasing patriarchy should lead to higher female mortality or the under-registration of females. Since the path-breaking research of A. Sen on the "missing women" (Sen 1989, 1990), the explicit or implicit notion of patriarchy has been fundamental to research on the distorted sex ratio in Asia and elsewhere (Das Gupta 2005; Guilmoto 2009; Lynch 2011). As women tend to be treated worse in patriarchal societies, we can assume that female mortality will be higher than male mortality; i.e., that females are neglected, given less or worse food, or even killed as infants. In societies in which less importance is placed on women there may also be higher rates of under-reporting of females in the censuses. We cannot distinguish between these two possible reasons

for the under-representation of women in the census. However, both reasons would be associated with a patriarchal regime as understood here.

3.5 Age standardization

Theoretically, the index we are proposing should be applicable to any kind of human society, as long as some basic requirements are met (sufficient population size, and the availability of microdata which cover the whole population and report each person's sex, age, marital status, and relationship to household head). Among the challenges we face in creating such an index is that the age structures of societies may differ, and these differences could heavily affect the results of the index for the given society under investigation. There are several ways we can control for the age distribution:

- restricting the analysis to one age group,
- age standardization, and
- regression (see Ruggles 2012, 431).

Some of our measures are restricted to a single age group, and some use age standardization. The standard population should not be based on only one historical population, but should cover the whole of Europe, because our data now cover the whole of Europe. As real populations are always affected by fertility or mortality crises and the migration flows of the preceding decades, a constructed population is better suited for our purposes. We have therefore chosen the age structure of a stable population: Model West, mortality level 6, rate of population growth five per 1,000 (Coale and Demeny 1983, 60, 110).

We have chosen the Model West because this model is based on the largest number of life tables, including tables that cover populations in western, northern, and northeastern Europe, as well as some populations outside of Europe. It can be seen as being the most general of the four models. The mortality level 6 translates into a life expectancy at birth of 32.5 years for females and 30.1 years for males. This can be seen as representative of European populations in 18th- and 19th- century Europe. The rate of population growth of five per 1,000 is closest to the growth rate of the population in Europe for the period 1750-1950: 0.68 percent (Livi-Bacci 2012: 25).

Data

Table 1 presents the detailed list of regions included in the sample used here as a basis for calculating the index. Table 2 shows the distribution of those regions across time and urban-rural contexts, and Map 1 reveals the spatial patterning in the distribution of data across Europe.

The data cover 91 regions/locations in Europe from the Atlantic Ocean to the Ural Mountains. A slight majority of the locations included come from the 19th century (56 percent), with more or less equal fractions covering earlier and later periods. The collection contains both rural and urban sites, although rural societies clearly predominate (82 percent).

Table 1: data used

census	Region	N unweighted
Albania 1918 census		**140,611**
	Kruja	4,276
	Puka	5,008
	Shkodra	12,340

	Tirana North	14,529
	Zhuri	15,565
	Gora	11,298
	Tirana South	12,206
	Berati	7,424
	Kruja (city)	3,893
	Shkodra (city)	23,590
	Durrësi (city)	4,307
	Elbasani (city)	10,237
	Kavaja (city)	5,522
	Tirana (city)	10,416
Austria-Hungary 1869 census		**31,406**
	Northeastern Hungary	2,072
	Great Plain	3,781
	Northern Transdanubia	4,067
	Southern Transdanubia	3,804
	Romania/Partium	3,471
	Romania/Transylvania	5,801
	Western Slovakia	3,030
	Central Slovakia	1,779
	Eastern Slovakia	3,601
Austria-Hungary 1910 census		**20,036**
	Waidhofen/Ybbs (city)	5,154
	Styria	6,693
	Upper Austria	1,675
	Tyrol	6,514
Bulgaria 1877-1947 household registers	Rhodope region	**8,373**
Denmark 1803 census (German territories)		**107,861**
	Schleswig, District of Flensburg	16,097
	Schleswig, District of Gottorf	14,734
	Schleswig, District of Husum	6,863
	Schleswig, District of Hütten	8,025
	Schleswig, Eckernförde	7,225
	Schleswig, Fehmarn	5,280
	Holstein East	7,859
	Holstein West	8,416
	Holstein other rural	4,947
	Holstein urban	5,304
	Germany/Altona (city)	23,111
France 1846 census		**16,967**
	Northwestern France	5,914

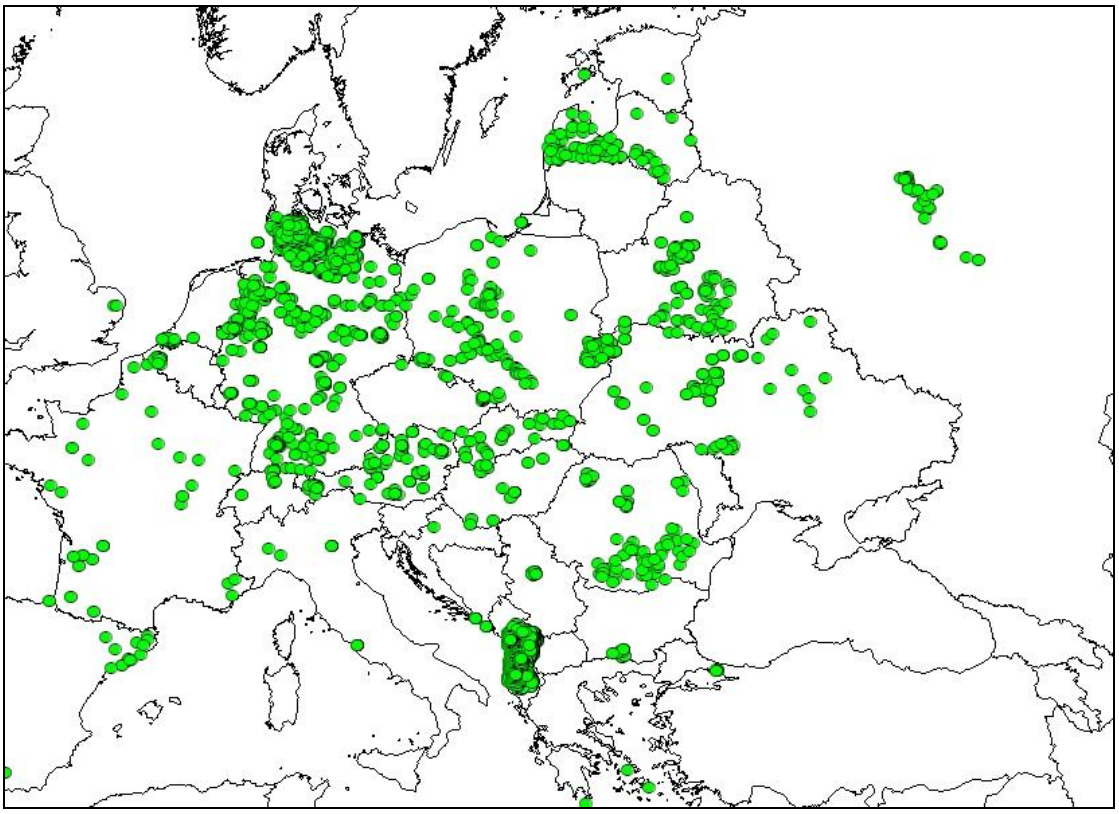
	Northeastern France	4,444
	Southern France	6,609
France 1831-1901 census	Southwestern France	**5,109**
German Customs Union 1846 census		**36,760**
	urban West	4,193
	urban Center	3,051
	urban East	2,892
	Höhscheid (urban)	6,306
	Government District of Trier	1,712
	Government District of Coblenz	2,092
	Government District of Düsseldorf	2,185
	Government District of Münster	1,278
	Government District of Arnsberg	2,111
	Duchy of Brunswick	2,014
	Government District of Merseburg	1,939
	Duchy of Saxe-Coburg	2,096
	Duchy of Saxe-Gotha	2,284
	Government District of Liegnitz	2,607
German Customs Union 1858 census	Government Districts of Danzig and Posen	**3,468**
German Customs Union 1861 census	Government District of Sigmaringen	**6,541**
Germany 1900 census	Rostock (city)	**55,705**
Prince-Bishopric of Münster around 1700 status animarum		**23,010**
	Niederstift, Districts of Meppen and Cloppenburg	8,607
	Niederstift, District of Vechta	10,897
	Oberstift, District of Rheine-Bevergern	3,506
Prince-Bishopric of Münster 1749/50 status animarum		**34,169**
	Niederstift, District of Meppen	12,360
	Oberstift, District of Stromberg	16,251
	Oberstift, District of Rheine-Bevergern	5,558

Bishopric of Constance 1749-1811 status animarum		**2,480**
Italy 1430 enumeration	Legnago	**2,101**
Poland-Lithuania 1768-1804 listings		**155,818**
	Polesia 1795	25,332
	Central Belarus 1768-1804	19,176
	Wielunskie County 1790-1792	9,945
	Krakowskie (Lesser Poland) 1789-1792	14,371
	Silesia 1747-1805	12,265
	Chelmska Land 1791-1792	25,193
	Greater Poland 1666-1809	5,763
	Ostrzeszow County 1790-1791	8,358
	Kujavia 1766-1792	13,320
	Warmia 1695-1772	2,543
	Zhytomyr County 1791	14,026
	Podolia 1785-1819	5,526
Wallachia 1838 census		**21,546**
	Eastern Wallachia	5,089
	Northern Wallachia	5,806
	Southern Wallachia	5,411
	Southwestern Wallachia	5,240
Russia 1795 revision lists	Braclav Governorate	**8,050**
Russia 1814 private enumeration	Estates of the Gagarin family	**2,955**
Russia 1897 census	Moscow Governorate	**11,559**
Serbia 1863 census	District of Jasenica	**7,128**
Serbia 1884 census	District of Jasenica	**9,434**
Istanbul 1885 census		**3,408**
Istanbul 1907 census		**4,946**
overall		**719,441**

Table 2: Period of data used for analysis

period	rural regions	urban regions	rural persons	urban persons
until 1800	19	1	215,531	1,898
1801-1850	29	5	158,130	39,553
1851-1900	15	2	73,174	59,521
1901-1947	12	8	102,194	69,440
overall	75	16	549,029	170,412

Map 1: Spatial distribution of data used.



Source: www.censusmosaic.org (design: S. Gruber)

Certain limitations of the analysis merit attention. Despite the significant expansion and scope of the Mosaic Database from which these data were derived (www.censusmosaic.com), the present collection is still a rather miscellaneous amalgamation of locations (see a detailed description of the datasets in Appendix 1 at the end of the paper). The data are largely concentrated in the central continental belt, providing quite good coverage of the French, German, Austro-Hungarian, Polish, and Balkan areas. However, some areas which are important for the investigation of the European geography of family systems are not yet included, or the coverage of these areas in the database is very limited. These areas include the Low Countries (which are often assumed to have encompassed the essential features of "northwest European" family systems; de Moor and van Zanden 2010); the Italian territories (which according to some scholars exemplify the "Mediterranean" zone; Smith 1981); and, of course, Russia. As the Mosaic database expands, some of these deficits will be addressed in the future.

However, in addition to covering both urban and rural communities, the current database runs across many important fault lines in the European geography of family systems, including places located:

(A) eastward of the Hajnal-Mitterauer line (parts of Poland; Russia, Ukraine, Belarus, Hungary, Latvia);
(B) in the Balkans (or even Asian Minor) zone (Albania, Serbia, Turkey, Romania [Wallachia], Bulgaria);
(C) in the "intermediary central European zone" of Laslett (1983), or Austro-Hungary and German areas, as well as parts of historical Poland; and
(D) in western Europe (France).

The collection encompasses societies which varied significantly in terms of the basic principles of family and household organization: i.e., strictly nuclear and neolocal populations (like urban Rostock, but also southern Ukraine, the Braclav area, and Podolia); stem-family societies (like those in the area of Münster in Germany, in southwestern France, and in parts of western Poland); complex societies exhibiting a "classic" eastern European joint-family pattern (like those in Mishino near Moscow, studied by Czap; or in Polesia in eastern Poland-Lithuania), or Balkan versions of this pattern (Albania and Serbia); as well as a range of intermediate patterns with varying degrees of intermingling of nuclear- and stem-family organization (Poland proper; Germany in 1846; Austria around 1910), or stem- and joint-family patterns (Red Ruthenia in Poland; 15th-century Italy). Furthermore, even in its present scope, the database covers much of European variability in terms of geographical features, populations, cultures, and socioeconomic geography (Jordan-Bychkov and Bychkova-Jordan 2002): i.e., plains, mountains, and coastal areas; free and unfree peasantries; a range of ethnicities and religions; and a range of regional patterns of economic growth in the early modern and modern eras. Thus, the internal diversity of the present sample should allow us to investigate the varying degrees to which family power relationships in different contexts were influenced by patriarchal features.

Descriptive results of used variables

Table 3 presents a summary of the descriptive statistics for all of the variables considered for the computation of the index, with basic measures of dispersion at the bottom.

Table 3: Descriptive statistics of variables used (91 regions)

	mean	std. deviation	minimum	maximum
female hhh	0.10	0.05	0.01	0.24
young brides	0.14	0.16	0.00	0.66
older wives	0.15	0.08	0.01	0.37
female non-kin	0.15	0.12	0.00	0.41
younger hhh	0.15	0.13	0.00	0.68
Neolocal	0.63	0.24	0.03	1.00
Lateral	0.20	0.18	0.00	0.71
joint family	0.06	0.09	0.00	0.34
married daughter	0.24	0.17	0.00	0.80
boy as last child	0.50	0.07	0.34	0.81
sex ratio	103.43	12.55	81.82	137.33

Overall, in 91 regions of historic Europe, only 10 percent of all adult household heads were female. Very low percentages (under five percent) seem to be clustered in the eastern and southeastern part of Europe: in rural Albanian prefectures and two Albanian cities (Kruja and Kavaja), in the Serbian district, in several regions of historic Poland-Lithuania (both western and eastern), and in two Wallachian regions in Romania. However, low shares of female headship were also found in one German region (District of Rheine-Bevergern in the Münster area for both time periods), and in the Italian region ofLegnago during the medieval period. Higher proportions of female heads (over 10 percent) were found in scattered locations in Germany, Hungary, and Poland-Lithuania, but also in some areas in Russia. However, most of the locations with the highest proportions (15 percent and more) of female

headship were found in Germany, with only a few exceptions (e.g., Central Slovakia in 1869).

Overall, about 14 percent of all of the women in all 91 regions were married between the ages of 15 and 19. The strong spatial differences in female marriage patterns generally reflect the well-known differences between western and eastern patterns of nuptiality, with women in eastern Poland-Lithuania (Belarus and Ukraine), Albania, Bulgaria, Slovakia, Hungary, Serbia, and Italy marrying earlier than women in the German areas and France.

About one in seven wives was older than her husband. The lowest proportions (under five percent) of these couples were found mainly in the Balkans: in Romania, in much of Albania, and in some parts of Ukraine in 1795. The highest proportions of these couples (more than one-quarter) were reported in Russia in 1814, especially in Germany (Constance diocese 1749-1811, government districts of Danzig and Posten in 1858, district of Stromberg in the Münster area in 1749, Höhscheid 1846, government district of Trier 1846) and one region in the north of Poland (Warmia).

About one in seven young women lived as a lodger or a servant in the household of people to whom she was not related by blood or by marriage. An east-west divide can be observed in the overall pattern, but with some important ambiguities. All of the 14 regions in which no such women were reported in the census were located the eastern or southeastern parts of Europe: four Wallachian regions, five Albanian rural prefectures, the Albanian city of Kruja, the Russian villages of 1814, the Serbian villages in both census years, and the Bulgarian Rhodope region. However, the regions with generally low proportions of women living outside of the parental home or the family of procreation (under 15 percent) were found in a wide variety of sociocultural and demographic contexts, including in several eastern European regions, but also in locations in Germany and France. Finally, regions in which 25 percent or more of the young women were living in non-family and non-kin arrangements were found in Germany and Austria (Styria and Waidhofen/Ybbs in 1910), but also in several locations in western Poland-Lithuania.

About one in seven elderly men lived in a household headed by a man of a younger generation. In five regions no such cases were reported in the census (in the Albanian city of Kruja 1918, in the Russian villages of 1814, in Central Slovakia 1869, and in German Höhscheid and Brunswick 1846). In a further 14 locations (primarily in Albania, Romania, and eastern parts of Poland-Lithuania) the shares of such cases were negligible. By contrast, in eight German regions (especially in the Münster area and in Schleswig 1803), as well in several regions of Poland proper, one-quarter or more of elderly men lived in households headed by younger men.

Slightly more than half of young married men lived neolocally. This is an effect of the variable with the largest range and standard deviation. The lowest proportion by far was reported for the Russian villages in 1814 (three percent). Other regions with low shares (under 20 percent) included the German government district of Arnsberg in 1846, and Polesia and Zhytomyr county in eastern Poland-Lithuania. All of the young married men lived neolocally in the German regions of Brunswick and Coblenz in 1846. At least 90 percent of these men lived neolocally in another 12 regions; most were in Germany or Austria, but this group also included three Wallachian regions in Romania and Warmia in historical Poland.

About one-fifth of elderly people lived in households with lateral relatives. This variable also shows quite a large range and standard deviation, and its spatial distribution does not fully comply with expectations. Lateral relatives were entirely absent in two sites located on opposite sides of the seminal “Hajnal-Mitterauer line”:

in western Slovakia in 1869, and in German Höhscheid in 1846. Of the nine other regions in which less than five percent of elderly people were living with lateral relatives, five were in eastern Europe (two Wallachian regions in 1838 and Transylvania in 1869, all of which are now part of Romania; two western Polish-Lithuanian regions; and four German regions in 1846). By contrast, the real hot spots of coresidence with lateral kin (35 percent or more) were found almost exclusively in eastern and southeastern Europe, especially in Albania, Serbia, and eastern Poland-Lithuania.

Overall, six percent of elderly people shared a household with at least two married children. In 40 out of 91 European regions, no such cases were reported, including in all of the Austrian regions, in almost all of the German regions, but also in the majority of the Romanian regions. By contrast, more than 20 percent of elderly people lived in such joint residences in 10 regions: in the Ukrainian and Belarusian parts of Poland-Lithuania around 1800, in the Russian villages in 1814, in the Serbian villages in both censuses, in four Albanian rural prefectures, and in the city of Kruja in 1918.

Across all of the datasets, about one-quarter of elderly people who were living with a married child were also coresiding with a married daughter. There is also a considerable degree of variation in this variable: it has the second-largest range and standard deviation. The locations in which no such cases were reported come from three disparate regions in Albania, Serbia, and in the German region of Brunswick. Six further regions in which less than three percent of elderly people lived with married daughters were already more skewed to the east of Europe (five rural prefectures in Albania of 1918; the district of Meppen in the Münster area in 1749). In contrast, the regions with highest proportions of the variable (35 percent and more) were again more varied: they were found in the majority of the German regions, in Austria, in northern France, but also in Hungary and western Poland proper.

Half of the last children in the age group 10 to 14 were boys. In five regions less than 40 percent of these children were boys: in the German regions of Rheine-Bevergern in 1749, in the eastern cities, and in the region of Düsseldorf in 1846, in Central Slovakia in 1869, and in Podolia in Poland/Lithuania. The highest proportion by far, of 81 percent, was reported for the Albanian rural prefecture of Puka in 1918. Shares of more than 57 percent were also reported for another eight regions: the Albanian city of Kruja in 1918, the German regions of Saxe-Gotha and Arnsberg in 1846, the Bulgarian Rhodope region around 1900, the city of Istanbul in 1885, the villages of western Slovakia and the Hungarian Great Plain in 1869, and the Russian villages in 1814.

The sex ratio of the youngest age group was on average 103, and was therefore quite balanced. Sex ratios below 90 were reported for 11 regions: the German regions of Rheine-Bevergern in 1749, Constance in 1749-1811, and Liegnitz, Saxe-Coburg, and Merseburg in 1846; the cities in central Germany in 1846; central Slovakia in 1869; three Wallachian regions; and Silesia in Poland-Lithuania. Sex ratios of more than 120 were reported for eight regions: the German region of Brunswick in 1846, three Albanian rural prefectures (Tirana North and South, Berati), Upper Austria in 1910, northeastern Hungary in 1869, southern France in 1846, and Italian Legnago in 1430.

Correlation of measures

In the next step all of these measures were checked to determine whether they were correlated with each other; and, if so, whether they were correlated positively or negatively, as we assumed. Generally, most of the correlations were in line with the assumptions above; only the correlation between the variables "proportion of female household heads" and "proportion of elderly men co-residing with a younger household head" was contrary to our assumptions (Table 4).

The four patriarchal variables pertaining to the domain of "domination of men over women" were all correlated (especially the variables "proportion of young brides" and "proportion of young women living as non-kin"). The areas with higher levels of female autonomy in headship also generally had a higher female age at marriage, a higher proportion of wives older than husbands, and a higher share of young women who were living independently of their immediate kin (i.e., outside of their usual functions/positions as wives and daughters). Similarly, the four variables associated with "domination of the older generation over the younger generation" were also correlated. In particular, the variables "proportion of elderly people living with lateral relatives" and "proportion of elderly people living in joint residence" were highly correlated. We therefore used only one of them for the patriarchy index (the variable "proportion of elderly people living with lateral relatives"). The two variables of the patriarchal feature "son preference" were not correlated.

Some variables of different patriarchal domains were also significantly correlated with each other. For example, the variable "proportion of elderly people living in joint residence" was strongly correlated with both variables with the highest correlation coefficient in the domain "domination of men over women;" this suggests that—in line with previous research and theory—the more a given environment is prone toward joint-family residence, the more likely it is that women in this area will marry early and marry men older than themselves (Berkner and Mendels 1978). Similarly, the cross-cutting of domains 2 and 4—i.e., the positive relationship between the "jointness" of living arrangements and the skewed sex ratios in favor of boys—also complies with previous research findings.

Calculation of the Index of Patriarchy

In a final step, we created our Index of Patriarchy. It was made up of four components representing different domains of patriarchy:

- domination of men over women,
- domination of the older generation over the younger generation,
- patrilocality, and
- son preference.

These components or sub-indices consist of the variables described above within these domains of patriarchy. Each variable can have zero to 10 patriarchy points, and all of the respective variables are summed up to obtain the patriarchy points of one feature of patriarchy. All of the variables except for the last two are turned into patriarchy points in the same way. A result of zero points means a proportion of 0.00 of the respective variable. All of these variables can have a minimum of 0.00, and most of them actually have such a minimum. As the other variables have minima only slightly above 0.00, a minimum of 0.00 for calculating patriarchy points can be justified. A result of 10 points represents the maximum that can be achieved for each variable. The theoretical maximum would be 1.00 for each variable, but this is reached for one variable only. All of the other variables have

Table 4: Correlations between measures of patriarchy (91 regions, Spearman's rho)

	female hhh	young brides	older wives	female nonkin	younger hhh	neolocal	lateral	joint family	married daughter	boy as last child	sex ratio
female hhh	1										
young brides	-0.40**	1									
older wives	+0.52**	-0.73**	1								
female non-kin	+0.35**	-0.76**	+0.69**	1							
younger hhh	-0.15	-0.45**	+0.32**	+0.50**	1						
neolocal	+0.26*	-0.52**	+0.47**	+0.43**	+0.21*	1					
lateral	-0.32**	+0.39**	-0.36**	-0.36**	-0.14	-0.62**	1				
joint family	-0.47**	+0.70**	-0.60**	-0.58**	-0.25*	-0.66**	+0.68**	1			
married daughter	+0.51**	-0.54**	+0.61**	+0.61**	+0.18	+0.44**	-0.44**	-0.55**	1		
boy as last child	-0.08	+0.22*	-0.19	-0.24*	-0.07	-0.41**	+020	+0.26*	-0.18	1	
sex ratio	+0.04	+0.19	-0.15	-0.16	-0.29**	-0.22*	+0.37**	+0.26*	-0.23*	+0.17	1

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

maxima below 1.00. Therefore, at least one region will have 10 points in each variable.

The patriarchy points for these variables are calculated according to the following formula:

- patriarchy points = RND(10 * proportion / maximum proportion) for variables positively correlated with patriarchy; and
- patriarchy points = 10 - RND(10 * proportion / maximum proportion) for variables negatively correlated with patriarchy.

The last two variables are calculated differently because they have a different range. As the minimum we assume that the proportion which is seen is neutral. This is 0.51 for the proportion of boys among the group of last children, and 105 for the sex ratio of the youngest age group. All of the proportions below these values are set to these defined minimum values. The maximum value is again the maximum achieved for the respective variable. The patriarchy points are calculated for these two variables according to the following formula:

- patriarchy points = RND((proportion – defined minimum value) / (maximum proportion – defined minimum value)).

The patriarchy points are rounded, which make the results easier to grasp for each variable. In this way we obtain 11 categories for each variable ranging from zero to 10 patriarchy points. A score of zero indicates the lowest degree of patriarchy, while a score of 10 indicates the highest degree of patriarchy.
Using a different number of variables for the four features of patriarchy leads to a different maximum number of patriarchy points for the various features. As Table 4 shows below, these four sub-indices are positively correlated, and only the sub-index of son preference has lower correlation coefficients.

Finally, the Index of Patriarchy is calculated by summing up the four sub-indices, but each sub-index is reduced to a maximum of 10 patriarchy points. The Index of Patriarchy can therefore have a minimum of zero and a maximum of 40 patriarchy points. The index is calculated according to the following formula:

- patriarchy index = (male domination index / 4) + (generational domination index / 3) + (patrilocality index) + (son preference index / 2).

Table 5: Correlation matrix of the four sub-indices of patriarchy (91 regions, Spearman's rho)

	male domination	generational domination	patrilocality	son preference
male domination	1			
generational domination	0.57**	1		
patrilocality	0.76**	0.49**	1	
son preference	0.31**	0.54**	0.24*	1

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

Spatial distribution of the index: discussion

The results of the exploration of the distribution of the index across space are presented in three ways. Figure 1 shows the continuing scale of the extent of patriarchy, as defined here, for 91 European regions (see Appendix 2 for a complete list of index points for all locations and regions). In Table 6, we group all of regions included in the analysis into four clusters of different levels of intensity of patriarchy:

- very low patriarchy,
- low patriarchy,
- high patriarchy, and
- very high patriarchy.

These groupings are based on the following considerations:

- The mean of the patriarchy index divides high and low levels of patriarchy.
- High and low patriarchy have a range of one standard deviation, while all of the other values represent either very low or very high degrees of patriarchy.

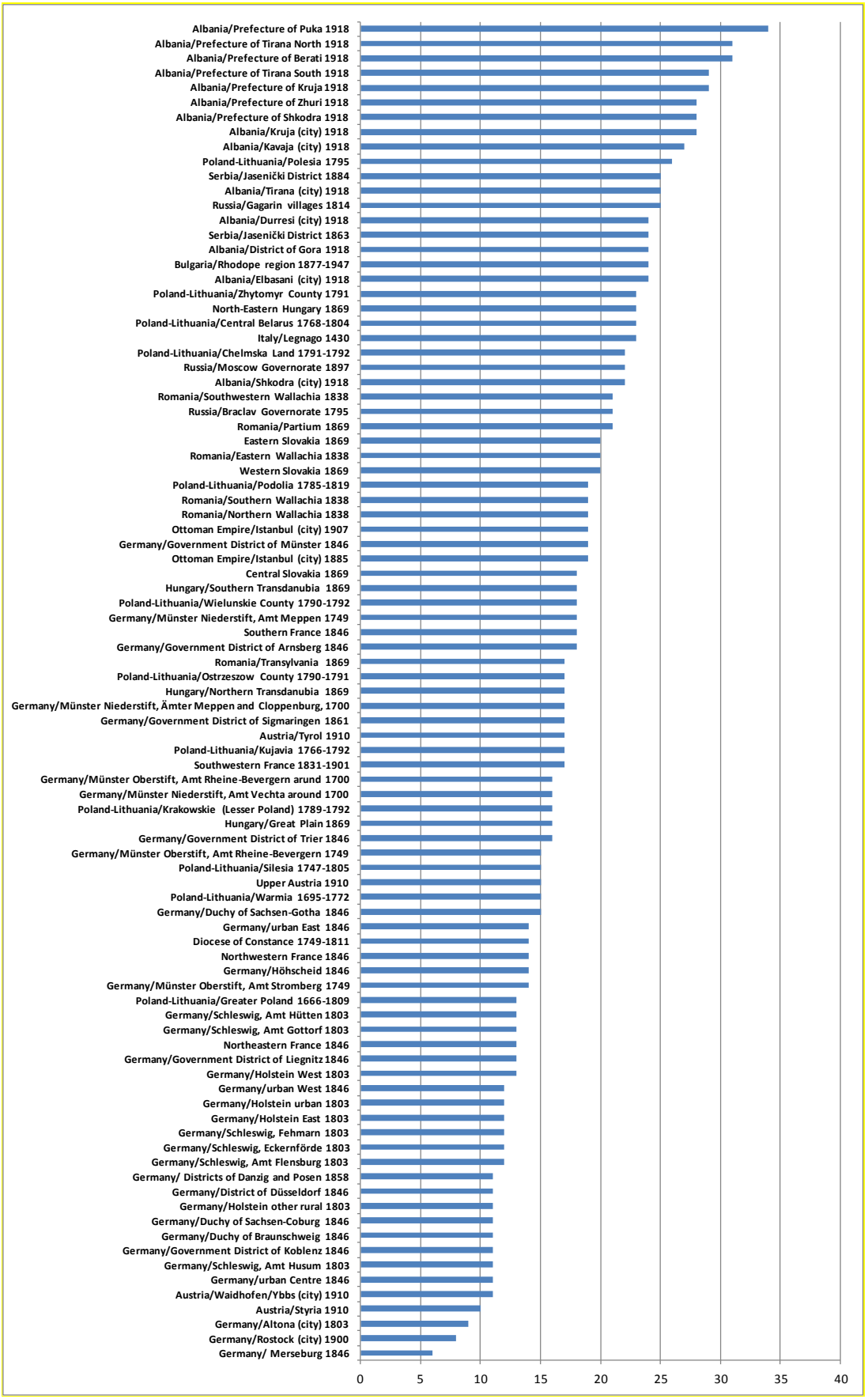
Finally, Map 2 organizes the results included in Table 6 spatially.

In our discussion of the search for a pattern of regional variation in patriarchy across historic Europe, we will begin by looking at Figure 1. The observed values of the Index of Patriarchy range from six points to 33 points. Within the present collection, there were no societies or locations with absolutely no patriarchal features as defined above, and there were no societies or locations to which absolute patriarchal characteristics could be assigned.

In Figure 1, the Index of Patriarchy displays a rather smooth continuum from very low to very high levels of patriarchy. Although it would be exaggeration to speak of clear-cut groupings of regions with high or low patriarchy intensities across historic Europe, certain patterns do emerge even at this early stage. At the most general level, the ranking of the different regions is broadly consistent with perceptions and insights from the historical demographic science literature on family forms, and seem to confirm the long-term consistency of the dichotomous regional pattern of demographic performance posited in the works of Hajnal and Mitterauer (Hajnal 1965; Mitterauer 1999). Indeed, western Europe tended to be much less patriarchal than eastern Europe. Patriarchal features were much more pronounced than elsewhere on the continent as we move east and south of the Danube after it passes Vienna; and especially east of the Bug River, where Polish and Ukrainian ethnicities converge; and then farther into the territories of eastern Europe.

This observation is, however, subject to certain qualifications which should lead us to avoid relying on an overly simplistic understanding of the east-west divide in European patriarchy (cf. also Szołtysek 2012b). To date, the lowest patriarchy intensities have been found not in the westernmost country of France, but in Germany and Austria. This is contrary to theories that posit that patterns of family organization in the German-speaking areas lie between the western and the eastern patterns. As long as we do not have Dutch, Belgian, Scandinavian, or British data, the German-speaking areas will have the lowest levels of patriarchy in the index. These results also seem to run counter to the stereotypical image that the German family has been based on strictly authoritarian principles and strong parental authority (e.g., Todd 1985). Except in the cities, the levels of patriarchy in northern Germany, which is adjacent to Scandinavia, appear to have been very low. But the degree of patriarchy in Germany was not as low at the Dutch border as it was at the borders to Scandinavia.

Figure 1: Index across the analyzed regions



Generally, levels of patriarchy were higher east of Germany and Austria, but there were some regions with low degrees of patriarchy in Romania and Hungary. We can say little about levels of patriarchy in the south because we currently have only one medieval city from northern Italy in the index. In southeastern Europe, however, we found the largest concentration of regions with very high patriarchy intensities. The Albanian, Bulgarian, and Serbian data showed the highest levels of patriarchy. In eastern Europe, only Polesia in southern Belarus and the Russian villages of 1814 scored equally high on the Index of Patriarchy. Most of the other regions in eastern and southeastern Europe were found to have high, but not very high levels of patriarchy.

Furthermore, we observed considerable variation within countries and across the macro-regions of Europe. The territory between the Baltic, the Adriatic, and the Black Seas (east-central Europe) seems to have been particularly diverse. Depending on how broadly this territory is defined, it might include places with very low levels of patriarchy, like the western and northern parts of historical Poland under Prussian rule in the 19th century; or places with moderate to high levels of patriarchy, such as several locations across Hungary, Slovakia, and Romania. In fact, historical Poland-Lithuania is the only historical region for which we found a combination of very high and very low patriarchy intensities: we observed very low to low levels of patriarchy on the western and northern outskirts of this region, but much higher levels in the eastern areas of the Polish Republic inhabited by Belarusian and Ukrainian ethnic groups. These features of the country's "patriarchal profile" strengthen assertions made elsewhere that, relative to the family organization patterns across Europe, the patterns found in Poland-Lithuania were of a transitory, intermediate nature (Szołtysek 2014; also Gruber and Szołtysek 2012).

Table 6: Levels of patriarchy

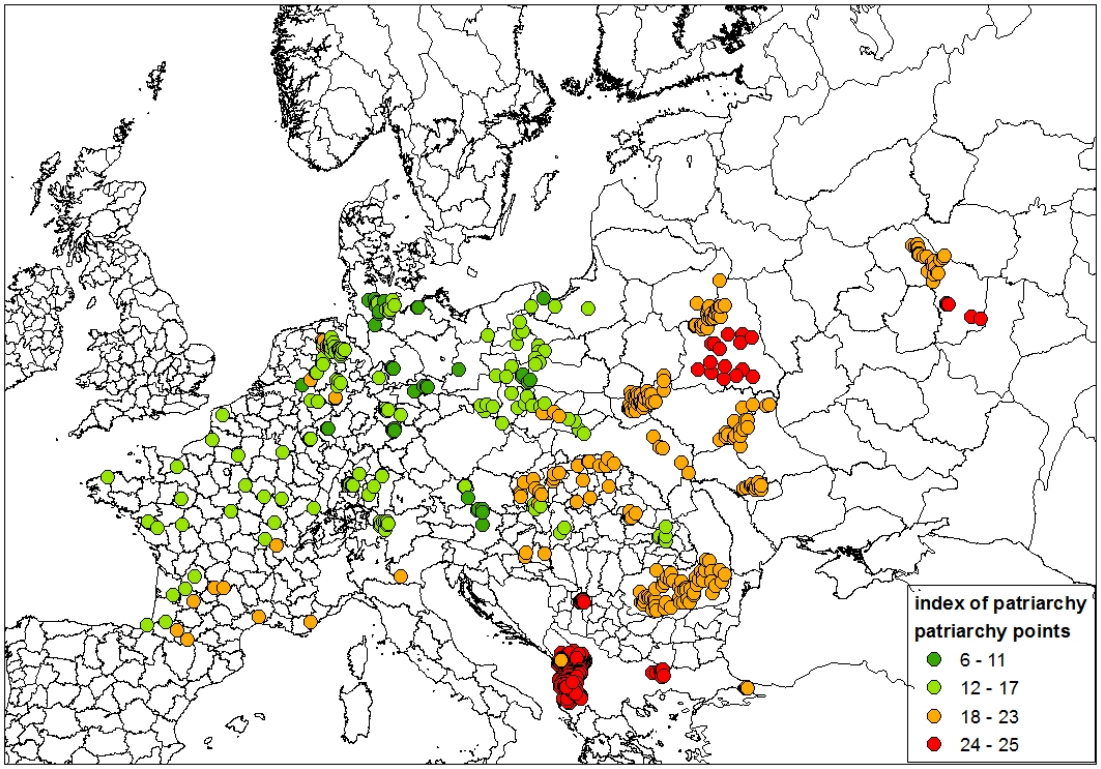
level of patriarchy	patriarchy index	no. of regions
very low	0-11	13
Low	12-17	35
High	18-23	25
very high	24-40	18

Germany was also found to have been very diverse. However, the combination of very low, low, and high degrees of patriarchy observed in Germany can be attributed in part to two factors: first, Germany had the most regions in the analysis by far; and, second, as some of the regions had a rather small population, they may have been exposed to stochastic variation, which could have resulted in artificially high patriarchy scores in the index. But more importantly, the locations which were found to have had high levels of patriarchy were in Westphalia, a region in which a considerable minority of the population followed principles of stem-family organization (Fertig 1999; Szołtysek and Gruber 2013).

Moreover, the eastern "zone" of high levels of patriarchy displays some interesting similarities with what appears to have been a quite extensive belt of intensely patriarchal features across northern Italy and southern France. Southern France in 1846 had levels of patriarchy that resembled those of some Westphalian locations, as well as those of parts of Poland proper, Slovakia, and Hungary. Thus far, the clarity of the east-west division between low-patriarchy and high-patriarchy levels in Europe remains blurred.

Finally, the application of the Index of Patriarchy to historical census microdata has revealed spatial constellations which are not entirely congruent with older models of family patterns. For example, some late-marrying, neolocal populations of northern France have scores that are comparable to those of societies of western Poland in which nuclear households also prevailed, but in which marriage occurred at younger ages, and was universal. While Ukrainians from Podolia and Romanians had twice as many nuclear households as Belarusians or Russians, all of these populations were found to have had roughly the same levels of patriarchy, as defined here. In the same vein, the Ukrainians in Podolia and the societies of southern France scored equally high on the index, despite following strikingly different household formation rules (extreme neolocalism in the former case, and stem-family rules in the latter case). In short, due to the composite character of our measure, many complex intricacies that were latent in the earlier modeling of historical family systems across space are now fully brought to the fore.

Map 2: Spatial distribution of patriarchy



The results confirm much of our existing knowledge about patriarchy trends: e.g., that patriarchy intensities were lower in cities than in rural areas, and that northern Albania had a very high level of patriarchy. It is nevertheless interesting that central Albania also scored higher on the index than the most patriarchal regions in eastern Europe and in other southeastern European countries.

This provisional picture of patriarchal scores across European geography is, by necessity, subject to change. The Dutch, Belgian, Scandinavian, and British data which will soon be added to the index will provide extensions or modifications of the western pattern of generally low levels of patriarchy. The same is true of the inclusion of data from Lithuania proper and Kurland (Latvia), which are currently being

prepared. These datasets are expected to add further complexity to the mosaic of patriarchal levels within east-central and eastern Europe.

Conclusions

What difference will our efforts to create a patriarchy index make? First, we have shown that it is possible to construct variables for measuring patriarchy. This exercise in quantitative measurement obviously reduces *thick descriptions* of gender and generational relations to quantifiable, comparable quantities. At the same time, it yields a handy tool that can be used for comparative studies of power relations in historical families, and for studies of historical family systems in general.

Applying the composite indexed measure of power relations to historical census microdata has revealed the existence of spatial constellations in family patterns which are not entirely congruent with older models. A further expansion of the database (especially by including materials from NAPP) may lead to the discovery of a much more nuanced geography of European family forms, and may thus help to clarify some pending issues related to the typologization of family systems across Europe. Due to its composite nature, the Index of Patriarchy invites researchers to delve into a domain which is much broader than the usual concerns addressed in historical demography or family history.

The present paper deals with the major variations in power relations within domestic groups, and provides the first comprehensive account of their regional prevalence across historic Europe. So far, we have explored these differences through a finely graded analysis of the spatially diverse dataset on 91 regions of Europe. The identification of systematic forms of gender or generational bias can help us better understand different societies, past and present. Based on numerical variables easily derived from census microdata with only limited information, our Index of Patriarchy generated spatially sensitive descriptions of historical localized gender and generational indicators. Thus, the Index allowed us to identify regions with different degrees of patriarchy (as defined here) within a single country, across the regions of a single country, or across and within many broader zones of historic Europe.

The spatial contours of that variation across the landmass of Europe touches upon several key aspects of the continent's social, demographic, and economic histories. This is because the major variations in the "intensity" of gender and generational biases ("PATRIARCHAL BIAS") can be seen as critical to explaining a wide range of trends, including: cross-country differentials in fertility, social mobility, and human capital formation; regional variation in labor relations, agricultural development, and gendered well-being; historical patterns of child care and sex- and age-specific mortality; the persistence of specific cultural norms and ethical frameworks; and the development of corporative institutions (Dyson and Moore 1983; Greif 2006; Duranton et.al. 2009; De Moor and Van Zanden 2010). Overall, a comparative study of power relations across historic Europe along the lines we have suggested here may have direct relevance for our understanding of regional disparities in well-being, wealth, and inequality.

Explaining the causes of the observed variation in patriarchal intensities is a task for future research. When seeking to identify the factors (economic or cultural) that may have contributed to these patterns, it is important to bear in mind that these regional differences in gender and generational biases lie at the intersection of many complex factors, processes, and historical path dependencies; and that disentangling these variables will only be possible through the use of sensitive, multilayered, and cross-disciplinary approaches.

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Appendix

Data files

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Detailed description of data files

Albania 1918:

The Albanian data consist of the population census conducted by the Austro-Hungarian army in 1918 in Albania (Kaser, Gruber, Kera, Pandelejmoni 2011; for an evaluation see Nicholson 1999). The Austro-Hungarian army occupied the majority of the territory of the newly created independent Albanian state, and established a new administration in 1916. Officers of the Austro-Hungarian army collected the data with the assistance of Albanian officers (Seiner 1922: 3). This Albanian census is the first for which the original data are still available on the level of the persons recorded, and it is of high quality given the circumstances under which it was taken (Gruber 2007: 257). The census of 1918 is still widely unknown. For example, in a demographic atlas of Albania, data from 1926 are cited as the earliest population data

available for the country (Bërxholi 2003). Gjonça mentioned only the preliminary census of 1916, and asserted that the first general census in Albania was conducted in 1923 (Gjonça 2001: 38f.).

The research project, "The 1918 Albanian Population Census: Data Entry and Basic Analyses," based at the University of Graz and funded by the Austrian Science Fund (2000-2003), sought to convert the data from the 1918 census into machine-readable form.[7] Up to now, the data of 309 villages and cities with a total of 140,611 persons have been entered into a database. The database contains a 10-percent sample of villages which covers the whole of the area of surviving census data, and a 100-percent sample of settlements of special interest (including all of the cities). The data of the 10-percent-sample are weighted to account for the population size of administrative units according to the published results (Seiner 1922). These data have already been used for analyses of household structures, ages at marriage, fertility, and migration (Gruber 2005, 2008, 2009, 2010, 2011; Gruber and Szołtysek 2012; Kera and Pandelejmoni 2008).

More than two-thirds of Albania is mountainous, especially the northern parts. Most of the western border is formed by the Adriatic Sea, and there are plains along the coast. Durrës is a port city, Shkodra is situated next to a large lake, and Kavaja is not far from the coast. The other three cities included in this study are located in the interior of the country. Shkodra is the only city in northern Albania, while the other five cities are located in central Albania. The cities of southern Albania were not included in this census. The majority of the population surveyed were Muslim (78.2 percent); only the prefecture Puka was predominantly Catholic. The only city with a considerable Catholic population was Shkodra (about one-third). The Orthodox population captured in the census were living mainly in urban areas, because the main areas where Orthodox Christians lived at that time were either outside of the area covered by this census, or were areas for which the census originals have not been preserved.

The analysis will be done by comparing the different regions in the area covered by the Albanian census of 1918. This area was divided into seven prefectures at that time, and the six cities of this area are separated out based on the assumption that the behavioral patterns of the urban and the rural populations differed. The subprefecture of Gora has been separated from the prefecture of Zhuri because this region was known for having a large number of male migrant workers, which makes it distinct from the neighboring regions. The analysis is therefore based on eight rural regions and six cities.

Austria 1910:

This is a sample of the 1910 Census of Austria which was prepared by Peter Teibenbacher for the Max Planck Institute for Demographic Research. As the surviving materials from the 1910 census are very unevenly distributed within the borders of present-day Austria, no representative sample could be made. The data cover villages and market towns with different ecotypes in three Austrian provinces (Upper Austria, Styria, and Tyrol) and the city of Waidhofen an der Ybbs in Lower Austria. As the data refer to the administrative boundaries in 1910, some places have fewer inhabitants than the present-day configurations of these locations (e.g., Pregarten or Grins).

Bulgaria 1877-1947:

This is a sample of household registers of villages of the Rhodope region in Bulgaria. The sources are civil and church registers, and cover Orthodox Bulgarians and Pomaks (Bulgarian-speaking Muslims) in a mountainous region bordering to Greece. The data were transcribed by Ulf Brunnbauer.

France 1846 :

This sample of the French census of 1846 was created by Rolf Gehrmann for the Max Planck Institute for Demographic Research, and covers 14 villages in 14 d pa rtements. The data for 10 of the villages were drawn from the collection of villages selected by Louis Henry for the

[7] http://www-gewi.uni-graz.at/suedost/seiner/index.html

reconstruction of the population of France from 1670 to 1829 based on family reconstitution. Four of the villages were an extension of regions either not covered by this collection, or were a replacement for villages for which no census data was preserved for 1846, or for which the census data were of poor or were not available. In the end, we chose to use 13 villages in the northern half of France for this paper.

France 1846 and 1856 :
The files for the small city of St. Emilion were created at the University of Bordeaux. The data were drawn from the French censuses of 1846 and 1856.

France 1831-1901:
The files for these villages from southwestern France (the d p artements of Dordogne, Gironde, and Pyr n es-Atlantique) were created at the University of Bordeaux. They were part of the French census of the respective year.

Germany 1690-1713:
In the year 1690, a status animarum were compiled for the parishes of the Oldenburger Münsterland. The data for the parishes Goldenstedt and Lutten were published (Sieve 2010).
In 1703 in the Prince-Bishopric of Münster, a deputy of the bishop visited the parishes of the deaneries Vechta and Cloppenburg. A status animarum was prepared for this visit, and it has been preserved and published (Kock and Sieve 2006).
In 1713 a deputy of the bishop visited the parishes of the deanery Cloppenburg. Another status animarum was compiled for this visit, and it has been preserved and published (Sieve 2010).
In addition, a number of status animarum books for several parishes of the Prince-Bishopric of Münster for the years 1709 and 1715 have survived and have been published (Tandecki and Cloppenburg 1995).
The data used in the study were drawn from all of these published lists
Germany 1749-1751:
The status animarum of 1749/50 for the Prince-Bishopric of Münster was the first enumeration of the population of this territory with clear instructions. The data were collected by the Roman-Catholic priests at the end of the year 1749 or at the beginning of the year 1750. It has been almost completely preserved. The data will be published according to administrative units of that time. The data for the region of Stromberg, in the southeast of this Prince-Bishopric (Henkelmann and Wunschhofer 2006), and for some other parishes (Tandecki and Cloppenburg 1995a; 1995b), has already been published, and has been used in this paper.

Germany 1749-1811:
The data were drawn from soul listings (status animarum) for three Catholic villages in Baden-Württemberg (which at that time were part of the Bishopric of Constance). Oggelshausen belongs to the district of Tübingen, Landkreis Biberach; Dischingen belongs to the district of Stuttgart, in the county of Heidenheim; Gögglingen is now a part of the city of Ulm. The archival material can be found in the dioscean archive of Rottenburg, call numbers Mf Nr. 9 382 – 9 384 (Oggelshausen), MF Nr. 19 662 – 19 663 (Dischingen), MF 16344 – 16345 (Gögglingen).

Germany 1803 :
The 1803 census of Schleswig and Holstein was conducted two years after the census of Denmark and Norway, and according to the same rules. The datafile was prepared by genealogists from Schleswig-Holstein for the Danish Data Archive. We have used only a portion of the data for this paper: i.e., data for villages in Holstein and for the city of Altona. Altona was at that time the largest city in Holstein and the second largest city in the countries ruled by the Danish king. It is now part of Hamburg.

Germany 1846:
The census of the German Customs Union (GCU) in 1846 was taken over the course of three days, but each member of the GCU was free to determine the procedure used. The datafile was created by Rolf Gehrmann for the Max Planck Institute for Demographic Research, and covers 59 villages in 11 regions and samples of 10 cities.
This is not a representative sample of Germany in 1846 in the strict sense: it does not include data for the north because these regions were not part of the German Customs Union at that time, and some of the data for the south and the east data are missing because the information was not preserved or the census did not report all of the members of the household individually. For the east, data from the 1858 census can be used as a supplement.
The datafile for Höhscheid was created by Ralf Rogge for the Max Planck Institute for Demographic Research, and covers Höhscheid, which is now part of the city of Solingen. This city has long been known for manufacturing fine swords, knives, scissors, and razors. The census material can be found in the city archive of Solingen, call no. StAS Bürgerrolle H 168.

Germany 1858:
The census of the German Customs Union (GCU) in 1858 was conducted in a manner similar to the census of 1846. The datafile was created by Rolf Gehrmann for the Max Planck Institute for Demographic Research, and covers six villages in two regions (government districts of Danzig and Posen). It is intended as an extension of the sample of 1846 to eastern regions, for which no data from 1846 were preserved.

Germany 1861:
This is the census of the German Customs Union (GCU) in 1861 for several villages in the government district of Sigmaringen in southwestern Germany. The datafile was produced at the Max Planck Institute for Demoraphic Research. The population were mainly Catholic.

Germany 1867:
This census of December 3, 1867 was processed as part of a collaboration of the Max Planck Institute for Demographic Research, the University of Rostock's Department for Multimedia and Data Processing, and the Landeshauptarchiv in Schwerin (Bestand 5.12-3/20 Statistisches Landesamt (1851-1945)), with funding from the Ministry for Education, Science, and Culture of Mecklenburg-Western Pomerania. The data used in this paper cover a sample of rural regions.

Germany 1900:
This census of Dec. 1, 1900 was processed as part of a collaboration of the Max Planck Institute for Demographic Research and the University of Rostock's Department for Multimedia and Data Processing, and the Landeshauptarchiv in Schwerin (Bestand 5.12-3/20 Statistisches Landesamt (1851-1945)), with funding from the Ministry for Education, Science, and Culture of Mecklenburg-Western Pomerania. The data file covers the whole city of Rostock.

Hungary 1869:
This is a sample of the 1869 census of Austria-Hungary (conducted on December 31, 1869) which was compiledby P t er Őri and Levente Pakot for the Max Planck Institute for Demographic Research. The surviving marterials of the 1869 census are very unevenly distributed within the borders of the Kingdom of Hungary in 1869, while a large portion of the materials for present-day Slovakia have been preserved. The data cover the territories of present-day Hungary, Slovakia, and northwestern Romania. The sampling is based on nine regions: four in Hungary, three in Slovakia, and two in Romania.
The data cover the villages of all religious confessions within the Kingdom of Hungary (Roman and Greek Catholics, Lutheran, Reformed, and Unitarian Protestants, Orthodox

Christians, and Jews) and one city (Mohács). Information on mother tongue or ethnicity was not recorded in the census, and could therefore not be used for sampling.

Italy 1430:
The 1430-32 catasto of Legnago (which at that time belonged to the Republic of Venice) contains information about the population and their property. The datafile was created by Gianpiero Dalla-Zuanna. Further information about these data can be found in: Dalla-Zuanna, Di Tullio, Leverotti and Rossi 2012.

Ottoman Empire/Istanbul 1885 and 1907:
The 1885 (1300 h.) and 1907 (1322 h.) censuses were the first Empire-wide censuses undertaken for purposes other than either taxation or military conscription. They were the first censuses to include information about women. The 1907 census is generally the more reliable of the two. The samples cover only five percent only of the permanent Muslim population of five central districts of Istanbul. As occupations were recorded for only a small percentage of the respondents were recorded, those with non-manual occupations were over-represented. The data have already been used for analyzing household structures in Istanbul (Duben and Behar 1999). This publication provides additional information about these sources.

Poland-Lithuania 1666-1804 (the *CEURFAMFORM Database*)**:**
The database includes data primarily from late-18th-century Poland–Lithuania on 26,655 peasant households belonging to 236 parishes and 900 settlements, and with an overall population of nearly 156,000 persons. The data were derived from various types of population enumerations that listed individuals by residential units, and which the kinship relationships were made transparent within each domestic group. These data include census microdata that were collected between 1790 and 1792 by the Civil-Military Order Commissions on the territories of the Crown of the Kingdom of Poland (including the Ukraine) (49 percent). The data for the Lithuanian regions came from the materials of the 5th Russian revision list of 1795 (37 percent). The remaining 14 percent came from listings drawn from a variety of sources, though they are mainly status animarum or *Seelenregister*. The census-like microdata applied in this article currently represent the largest collection of population listings for households in this part of the continent. A further description can be found in Szołtysek 2014 (database should be cited as Mikołaj Szołtysek, CEURFAMFORM database, Version 23 [SPSS file]. Rostock, 2012).

Russia 1795:
This is part of the 5th revision of souls in the Russian Empire, which was conducted in this region shortly after it became a part of the Russian Empire following the second partition of Poland-Lithuania in 1793. The data cover 11 villages and have been published (Legun and Petrenko 2003).

Russia 1814:
These data were drawn from a private enumeration of the population of the estates owned by the Gagarin family in 1814. The data cover seven villages in two Russian regions, and were used for Peter Czap's publications on the Russian family (e.g., Czap 1982). The data were based on Peter Czap's transcriptions stored at the Cambridge Group for the History of Population and Social Structure. These transcriptions form part of the collection "Gagarin archive materials collected by Peter Czap" at Indiana University Libraries.

Russia 1897:
This is a sample of the Russian census in 1897 consisting of 43 villages to the east and southeast of Moscow. The datafile was created by Irina Troitskaia (Moscow State University) for the Max Planck Institute for Demographic Research. The archival material is from the Moscow State Archive, collection "1897 census," Fond 199 (Moskovskii stolichnyi i gubernskii statisticheskii komitet), Opis 2, Delo 462-480, 483, 485, 487-506.

About 20 percent of the population were absent at the time of the census. Some of these villages are now part of the city of Moscow.

Serbia 1863 and 1884:
The 1863 and 1884 population censuses of Serbia were drawn from the Serbian State Archives (Arhiv Srbije) in Belgrade. These data were provided after an official request was made by Prof. Joel M. Halpern to the archive; the data were delivered to him directly by archive personnel. No restrictions were imposed. In the 1960s digitization was carried out under grants to Joel M. Halpern at the University of Massachusetts, Department of Anthropology, with funding from the National Science Foundation, the National Institutes of Health (National Institute of Mental Health), and research grants from the University of Massachusetts. Subsequent work was done during the 1990s and 2000s at the University of Graz, Austria, beginning in 1993 with funding from the Austrian Science Fund (FWF). Detailed information is available in the Joel Martin Halpern collection at the University of Massachusetts at Amherst/Special collections & University archives.
The data cover the same nine villages in Central Serbia (Jasenički srez) at two points in time. These data have already been used for research about household structures and historical demography (e.g., Halpern 1958; Halpern 1974; Gruber 2004).

Wallachia 1838:
This is a sample of the Wallachian census of 1838, and covers the southern part of present-day Romania. It is a representative sample of the rural population created by Bogdan Mateescu for the Max Planck Institute for Demographic Research. The sampling is based on four regional strata (east, north, south, southwest).

Table 7: Index of patriarchy for 91 regions in historical Europe

Region	female hhh	young brides	older wives	f_nonkin	male domination	younger hhh	neolocal	lateral	generational	married daughter	patrilocality	proportion boys	sex ratio	son preference	patriarchy index
Germany/Government District of Merseburg 1846	4	0	3	5	12	8	1	0	9	0	0	0	0	0	6
Germany/Rostock (city) 1900	2	0	5	5	12	9	0	1	10	2	2	0	0	0	8
Germany/Altona (city) 1803	5	0	3	0	8	9	2	1	12	3	3	0	0	0	9
Austria/Styria 1910	4	0	4	2	10	7	2	2	11	4	4	0	0	0	10
Austria/Waidhofen/Ybbs (city) 1910	3	0	4	3	10	8	3	2	13	3	3	2	0	2	11
Germany/urban Centre 1846	1	0	3	2	6	9	1	1	11	6	6	0	0	0	11
Germany/Schleswig, Amt Husum 1803	4	0	4	4	12	8	1	2	11	4	4	0	0	0	11
Germany/Government District of Koblenz 1846	6	0	5	6	17	6	0	1	7	4	4	0	0	0	11
Germany/Duchy of Braunschweig 1846	0	0	7	4	11	10	0	0	10	0	0	0	10	10	11
Germany/Duchy of Saxe-Coburg 1846	2	0	4	6	12	7	2	1	10	5	5	0	0	0	11
Germany/Holstein other rural 1803	6	0	5	3	14	8	1	1	10	4	4	0	0	0	11
Germany/Government District of Düsseldorf 1846	7	0	4	0	11	7	3	4	14	4	4	0	0	0	11
Germany/Government Districts of Danzig and Posen 1858	3	1	3	4	11	8	0	1	9	5	5	0	0	0	11
Germany/Schleswig, District of Flensburg 1803	7	0	4	3	14	3	2	2	7	6	6	0	0	0	12
Germany/Schleswig, Eckernförde 1803	7	0	4	2	13	5	2	1	8	5	5	1	1	2	12
Germany/Schleswig, Fehmarn 1803	6	0	4	5	15	3	3	2	8	5	5	1	0	1	12
Germany/Holstein East 1803	6	0	4	4	14	6	2	1	9	5	5	0	0	0	12
Germany/Holstein urban 1803	5	0	3	3	11	7	1	1	9	6	6	0	0	0	12
Germany/urban West 1846	1	0	4	4	9	10	2	1	13	4	4	0	3	3	12
Germany/Holstein West 1803	6	0	4	3	13	6	2	1	9	6	6	1	0	1	13

Germany/Government District of Liegnitz 1846	5	0	4	6	15	8	4	0	12	5	5	1	0	1	13
Northeastern France 1846	5	1	4	8	18	8	1	1	10	5	5	0	0	0	13
Germany/Schleswig, District of Gottorf 1803	7	0	5	3	15	5	3	1	9	6	6	0	1	1	13
Germany/Schleswig, District of Hütten 1803	6	0	4	5	15	5	2	2	9	6	6	0	0	0	13
Poland-Lithuania/Greater Poland 1666-1809	7	1	6	1	15	6	5	2	13	4	4	0	2	2	13
Germany/Münster Oberstift, District of Stromberg 1749	8	0	3	0	11	5	2	3	10	8	8	0	0	0	14
Germany/Höhscheid 1846	6	0	3	5	14	10	0	0	10	7	7	0	0	0	14
Northwestern France 1846	4	1	4	6	15	9	4	2	15	5	5	0	0	0	14
Diocese of Constance 1749-1811	8	0	2	5	15	6	2	3	11	7	7	0	0	0	14
Germany/urban East 1846	2	0	4	5	11	9	1	1	11	6	6	0	3	3	14
Germany/Duchy of Saxe-Gotha 1846	5	0	5	5	15	8	2	0	10	6	6	3	0	3	15
Poland-Lithuania/Warmia 1695-1772	6	0	3	6	15	10	0	0	10	8	8	0	0	0	15
Upper Austria 1910	2	0	4	4	10	9	0	2	11	4	4	0	9	9	15
Poland-Lithuania/Silesia 1747-1805	8	1	5	8	22	3	2	1	6	7	7	0	0	0	15
Germany/Münster Oberstift, District of Rheine-Bevergern 1749	9	0	5	3	17	2	1	3	6	9	9	0	0	0	15
Germany/Government District of Trier 1846	4	0	3	9	16	9	1	1	11	6	6	2	3	5	16
Hungary/Great Plain 1869	6	3	7	9	25	9	3	1	13	4	4	3	0	3	16
Poland-Lithuania/Krakowskie (Lesser Poland) 1789-1792	9	1	6	3	19	7	4	1	12	7	7	1	0	1	16
Germany/Münster Niederstift, District of Vechta around 1700	5	0	5	5	15	6	3	2	11	9	9	0	0	0	16
Germany/Münster Oberstift, District of Rheine-Bevergern arund 1700	9	0	6	4	19	0	1	5	6	9	9	0	0	0	16
Southwestern France 1831-1901	7	1	6	8	22	8	5	1	14	6	6	1	0	1	17
Poland-Lithuania/Kujavia 1766-1792	8	2	6	1	17	7	5	1	13	8	8	1	0	1	17
Austria/Tyrol 1910	4	0	4	6	14	8	4	6	18	6	6	0	2	2	17
Germany/Government District of Sigmaringen 1861	5	0	6	6	17	6	5	2	13	8	8	0	0	0	17
Germany/Münster Niederstift, Ämter Meppen and Cloppenburg around 1700	5	0	4	7	16	6	3	3	12	9	9	0	0	0	17
Hungary/Northern Transdanubia 1869	4	3	6	7	20	8	5	1	14	7	7	0	0	0	17
Poland-Lithuania/Ostrzeszow County 1790-1791	9	1	6	3	19	6	4	1	11	9	9	0	0	0	17

Romania/Transylvania 1869	6	2	6	10	24	9	4	0	13	7	7	0	0	0	17
Germany/Government District of Arnsberg 1846	5	0	6	3	14	7	9	4	20	6	6	3	0	3	18
Southern France 1846	2	1	6	7	16	9	4	2	15	6	6	1	5	6	18
Germany/Münster Niederstift, District of Meppen 1749	5	0	5	7	17	5	3	2	10	10	10	0	0	0	18
Poland-Lithuania/Wielunskie County 1790-1792	9	2	6	6	23	6	3	0	9	9	9	1	0	1	18
Hungary/Southern Transdanubia 1869	6	2	6	8	22	8	6	2	16	7	7	0	0	0	18
Central Slovakia 1869	1	3	6	9	19	10	6	2	18	7	7	0	0	0	18
Ottoman Empire/Istanbul (city) 1885	2	5	6	6	19	10	4	6	20	6	6	3	0	3	19
Germany/Government District of Münster 1846	7	0	4	3	14	9	8	4	21	7	7	1	1	2	19
Ottoman Empire/Istanbul (city) 1907	5	5	6	8	24	9	5	4	18	6	6	1	0	1	19
Romania/Northern Wallachia 1838	7	5	9	10	31	9	1	0	10	8	8	0	0	0	19
Romania/Southern Wallachia 1838	9	5	9	10	33	9	0	0	9	8	8	0	0	0	19
Poland-Lithuania/Podolia 1785-1819	6	3	7	8	24	7	4	2	13	9	9	0	0	0	19
Western Slovakia 1869	4	2	5	7	18	7	7	0	14	9	9	3	0	3	20
Romania/Eastern Wallachia 1838	9	4	9	10	32	9	1	1	11	8	8	0	0	0	20
Eastern Slovakia 1869	6	2	6	9	23	9	6	2	17	7	7	0	3	3	20
Romania/Partium 1869	5	3	7	9	24	9	5	1	15	9	9	1	0	1	21
Russia/Braclav Governorate 1795	7	7	9	7	30	8	6	3	17	7	7	1	1	2	21
Romania/Southwestern Wallachia 1838	8	5	10	10	33	8	2	1	11	9	9	0	0	0	21
Albania/Shkodra (city) 1918	5	2	9	9	25	9	3	5	17	9	9	2	1	3	22
Russia/Moscow Governorate 1897	7	2	7	8	24	8	7	5	20	9	9	0	0	0	22
Poland-Lithuania/Chelmska Land 1791-1792	8	6	8	9	31	8	7	3	18	8	8	0	0	0	22
Italy/Legnago 1430	8	2	5	10	25	9	4	3	16	8	8	2	5	7	23
Poland-Lithuania/Central Belarus 1768-1804	7	3	8	9	27	10	7	5	22	8	8	1	0	1	23
North-Eastern Hungary 1869	5	5	7	9	26	9	2	1	12	8	8	1	7	8	23
Poland-Lithuania/Zhytomyr County 1791	7	4	8	8	27	9	8	6	23	8	8	1	0	1	23
Albania/Elbasani (city) 1918	5	5	9	9	28	10	5	5	20	9	9	2	1	3	24
Bulgaria/Rhodope region 1877-1947	7	3	8	10	28	9	6	1	16	10	10	3	0	3	24
Albania/District of Gora 1918	9	2	9	10	30	9	6	7	22	9	9	1	0	1	24

Serbia/Jasenički District 1863	9	3	8	10	30	8	6	5	19	10	10	0	0	0	24
Albania/Durresi (city) 1918	6	4	7	9	26	10	3	6	19	9	9	0	4	4	24
Russia/Gagarin villages 1814	3	4	0	10	17	10	10	6	26	9	9	3	3	6	25
Albania/Tirana (city) 1918	6	6	7	10	29	9	5	5	19	9	9	0	4	4	25
Serbia/Jasenički District 1884	9	2	7	10	28	9	6	7	22	10	10	0	1	1	25
Poland-Lithuania/Polesia 1795	8	10	8	10	36	10	8	7	25	8	8	1	0	1	26
Albania/Kavaja (city) 1918	9	6	9	10	34	10	5	5	20	9	9	1	4	5	27
Albania/Kruja (city) 1918	9	3	10	10	32	10	5	6	21	10	10	6	0	6	28
Albania/Prefecture of Shkodra 1918	8	6	9	10	33	8	7	9	24	10	10	2	2	4	28
Albania/Prefecture of Zhuri 1918	9	6	8	10	33	7	6	9	22	10	10	1	4	5	28
Albania/Prefecture of Kruja 1918	9	8	9	10	36	8	6	9	23	10	10	2	3	5	29
Albania/Prefecture of Tirana South 1918	9	2	9	10	30	10	3	5	18	10	10	0	10	10	29
Albania/Prefecture of Berati 1918	8	8	9	10	35	9	7	8	24	10	10	0	9	9	31
Albania/Prefecture of Tirana North 1918	8	6	8	10	32	10	6	8	24	10	10	0	10	10	31
Albania/Prefecture of Puka 1918	8	8	8	10	34	8	6	10	24	10	10	10	4	14	34