

Beyond the Niche Hypothesis. Property, Marriage, and the Onset of Familial Reproduction in Rural Northwest Germany, 1820–1866

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Beyond the Niche Hypothesis

Property, Marriage, and the Onset of Familial Reproduction in Rural Northwest Germany, 1820–1866

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ABSTRACT

The study applies event history analysis to nominative data of three contrasting localities to explore the relationship between property transmission and family formation. This allows testing several hypotheses concerning demographic regulation and family dynamics in preindustrial Europe, including but not limited to the niche hypothesis. The analysis finds evidence for four mechanisms of family formation. Firstly, the death of one or both parents promoted marriage of their children. For farmholders, niche inheritance was an important contribution; but parental death also leads to an increase of nuptiality among those who did not own landed property. Beyond ownership, the importance of familial labour roles, particularly of older and younger women, can explain this observation. Second, marriages resulted from the accumulation of an appropriate marriage fund, as indicated by the results that purchases of land and favorable relative prices contributed to the conclusion of marriages. Third, there was an independent role for family dynamics in the sense that property transmission to one child promoted marriage of siblings. The fourth mechanism relates to autonomous family formation through marriages resulting from sexual encounters (indicated by premarital pregnancy). The relative weight of these four mechanisms is remarkably stable across social class and ecotype.

Keywords: Niche mechanism, Protoindustrialization, Nuptiality, Fertility, Property transmission, Intergenerational resource flows, Malthusian preventive check

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1 INTRODUCTION

The determinants of household formation have been widely discussed in historical demography. In the context of the northwest European marriage pattern, elements of household formation include marriage, the onset of reproduction, and succession to or creation of an economic source of family income, three elements which are more or less interlinked. Household formation can be furthered or hindered by biographical, social, and economic processes, ranging from age, sexuality, parental presence, competition and cooperation among siblings and other kin to fluctuations of prices, wages and harvests (see contributions to [Duhamelle & Schlumbohm, 2003](#)). Earlier theorizing and research has strongly focused on what has been labelled the ‘niche mechanism’ or ‘chain between reproduction and inheritance’, i.e. the assumption that an economic position must be transferred from the older to the younger generation in order for the young couple to get married ([Tilly & Tilly, 1971](#), p. 189). In recent research however, a more pluralistic and gradualistic approach to the economic, demographic and social determinants of household formation has been pursued ([Lundh & Kurosu, 2014a](#)).

A widespread tenet in historical demography is that in preindustrial societies, the ‘chain of reproduction and inheritance’ was particularly strong—‘iron’ as some authors ([Schlumbohm, 1994](#), p. 97–98) have called it—, and that it became much slacker when processes of industrialization, proletarianization, or proto-industrialization set in. The assumption that marriage, or the onset of legitimate reproduction, was dependent on the acquisition of some sort of reliable source of income, such as a farm, and typically through inheritance, is commonly known as the niche model. Wrigley and Schofield ([1981](#), p. 461) have operationalized this as a connection between (parental) mortality and nuptiality.

In the recent demographic and biological literature ([Bras & Kok, 2016](#); [Matuzak, 2019](#), p. 96; [Voland & Willführ, 2017](#)), quite a variety of theoretical approaches have been proposed when it comes to explaining the effect of parental death on marriage. While in one strand of thinking, the focus is on the psychosocial effects of stress when the father died early in the child’s life, other models focus on internal familial resource flows. One of those is the niche thesis proper, or parent-offspring conflict thesis ([Voland & Willführ, 2017](#)) where it is assumed that resources flow discontinuously to the young generation upon the death of the father. Another one is the breadwinner loss thesis: it may become necessary for the children to found their own households and to be or to find a breadwinner when the older generation breadwinners are no longer alive. In this view, parental resources flow from the breadwinner to the adult cohabiting children continuously. A third mechanism is addressed by the end of care thesis: it may be necessary for caregiving children to postpone marriage until the death of an old father or mother, the death of whom may finally enable them to marry ([Bouman, Zuijderduijn & De Moor, 2012](#), p. 21). Conversely, the death of a parent may bind a child of the same sex to the house ([Bras & Kok, 2016](#)). In this view, familial resources flow continuously from adult children to elderly parents in the form of domestic labour and the cost of foregone opportunity. It is important to see that in most historical life course studies, including this paper, we can empirically observe or at least proxy the kind of resources involved with the niche thesis but not the intrafamilial resource flows connected to the alternative theses, or the psychosocial effects of parental death.

Marriage decisions do not depend on parental death, only. Firstly, an alternative view, also operationalized by Wrigley and Schofield ([1981](#); see also [Ehmer, 1991](#)) is that the current income, or expectations about future income based on current knowledge, will be the decisive variable entering a couple’s rational calculations. This implies that the fluctuations of real wages, or of prices, harvest outcome, and weather, will drive the fluctuations of the marriage rate. Second, it is an implication of the niche model that siblings are competitors. The opposite is the starting point of alliance theory, an important strand in social anthropology ([Lévi-Strauss, 1969](#); [Sabeau & Johnson, 2011](#)). Siblings and siblings-in-law are assumed to cooperate and to support each other, creating networks of reciprocal allegiance that span generations. Hence, if there were elements of either reciprocity or altruism in sibling relations, it can be expected that resources available to one sibling could strengthen the opportunities of the other sibling.

Third, it is an important question what other influence—beyond being dead or not—parents could exert on their children’s marriage. It has plausibly been suggested that there were ups and downs in the ability of the older generation to control the sexuality of the young ([Shorter, 1971, 1978](#); cf. [Lee, 1977](#)). Popular images of the pre-modern past often include the view that young couples did not decide for themselves but rather were married off by their parents. Conversely, canon law emphasized that *consensus facit nuptias*, i.e. that marriage is based on the decision of the couple and not of their family, kin, and community ([Goody,](#)

1983; Mitterauer, 1991). German couples in the 18th and 19th centuries were required to marry in church, in some regions and periods with a parental and in some with a communal consensus, and the English and American concept of a legitimate 'common law marriage' was unknown. Still, a consensus of the couple that predated the wedding ceremony was still a valid consensus, and that included those cases where the wedding was frustrated. This implies that according to church law, a marriage that was publicly celebrated while the bride was pregnant was undesirable but of sacramental value. Indeed, it seems probable that the majority of couples in 18th and 19th century Germany had consummated their marriage before going to church (Fertig, 1998). This limits but does not eliminate the influence parents could exert.

Taken together, five hypotheses shall be tested. First, the niche thesis in a narrow sense, which in rural areas can be taken as the effect of farm transfer on the chances of marriage. Second, we may observe effects of parental death beyond or without farm transfer. If we see that parental death has an effect but no actual farm transfer is involved, a plausible explanation is that some of the types of logic discussed above, such as the loss of a breadwinner or the end of care necessities, encouraged marriage (an alternative would be that while there were no farms involved, other permanent sources of income were transferred, even if not visible in the sources). Third, it is testable if short term fluctuations of income will have an effect on the marriage rate. This would support the assumption that couples either aimed at saving for some minimal marriage fund (which would be filled faster in good years), or that their expectations of future income and hence the feasibility of leading their own household would fluctuate with their current income. Fourth, it is a cornerstone of the niche thesis that the relation between siblings is competitive, while alliance theory and new kinship history suggest a cooperative relation. The effect of the presence of siblings and of resource flows towards them should therefore be investigated. Finally, it is quite possible that marriage was an autonomous and endogenous or spontaneous process, visible in the prevalence and effect of premarital pregnancies.

What follows is organized into three parts. Section 2 will first discuss the literature on marriage and its social determinants, starting with the often-misleading concept of the 'niche mechanism'. Section 3 will present the three places where the relative weight of determinants for household formation will be investigated. Section 4 will present the actual statistical analysis, aiming at an assessment of the relative importance of the niche mechanism and of other social mechanisms that determine the timing of marriage and household formation. This includes both descriptive statistics of marriage ages and biographical sequences as well as Cox regressions (event history analyses) of succession, marriage, and first pregnancies.

2 HOUSEHOLD FORMATION IN THE LIFE COURSE: THEORIES AND RECENT RESEARCH

2.1 HISTORY OF THE NICHE MODEL

Recent debates about the demography of marriage can be better understood if we look into the history of the niche concept. It is occasionally ascribed to Hajnal (1965), but indeed, it is much older. Early statements can be found in the 18th century, such as with Montesquieu ('Partout où se trouve une place où deux personnes peuvent vivre commodément, il se fait un mariage', Montesquieu, 1748, p. 688–689). Discussion during the 18th century made it clear that there are two possible ways Montesquieu's correlation between 'places' on one side, and the number of marriages or households on the other side can be achieved. These two ways are connected to the names of Süssmilch and Malthus. Süssmilch, one of the founders of demography as a science, put it this way: 'Every village has its well-measured amount of land and a specific number of peasant holdings, as well as a proportional number of day labourers and artisans. When every village has as many people and families as it needs, marriages will stop. Unmarried and adult people then cannot marry whenever they like but only when death makes room' (Süssmilch, 1765, part I, p. 142). In this view, the lack of a niche makes marriage socially impossible. Generally, a niche means land in this view; exceptionally, and only in a fixed proportion, labour. It is remarkable though that day labourers are included in Süssmilch's understanding of niches since later approaches would accept only farmholders and artisans. Administrative practices of measuring land, counting and allowing certain numbers of farms, and setting proportions for the secondary sector are crucial for this social mechanism—practices as they were in fact pursued by early modern administrators in central European regions.

In contrast, Malthus addressed the issue in a way that put much more weight on moral advice and individual deliberations: ‘The sons of tradesmen and farmers are exhorted not to marry, and generally find it necessary to pursue this advice till they are settled in some business or farm that may enable them to support a family’ (Malthus, 1798, p. 21). In this view, there is some sort of sensible social practice encouraged by the older generation which younger couples will tend to follow given their position on land or labour markets. The tension between the two interpretations, the more administrative by Süssmilch and the more moral, individualistic and market oriented by Malthus, has survived into present discussions in historical demography. As Ehmer (1991) has made clear, it is the first, Süssmilchian, not the second, Malthusian interpretation that is generally addressed as ‘niche mechanism’, ‘iron chain’, or ‘agrarian reproduction pattern’ in the literature. Wrigley and Schofield (1981), for instance, operationalized the idea that ‘death makes room’ as an impact of the mortality rate on nuptiality, and the Malthusian concept as an impact of real wages.

The Süssmilchian view has, through sociologists such as Gunther Ipsen (1933a, 1933b, 1940) and Gerhard Mackenroth (1953), informed the mainstream of German population science, and thus the debate on protoindustrialization where German authors took the lead in claiming there was a ‘chain’ that was ‘broken’. Particularly Mackenroth has interpreted the ‘niche’ concept in a very rigid, ‘iron’ way, claiming that it leads to a ‘generative sterilization’ (Mackenroth, 1953, p. 234) of those who did not hold any ‘niche’, which in his view was a peasant or artisan holding. This is much more radical than to claim that young people will mostly follow the advice of their elders and wait. Being ‘sterilized’ is not like being ‘exhorted’. It actually means that there is no chance at all of having children for those that society does not see as worthy—a fate not quite unthinkable when Mackenroth and Ipsen did their work in Germany. Mackenroth’s work was scarcely read outside Germany, with the notable exception of the Dutch sociologist E. W. Hofstee (1954, p. 78–80) who adopted Mackenroth’s concept of an ‘agricultural-artisanal mode of population’. Hofstee’s observations on rural marriage of heirs (and celibacy of non-heirs) in turn have often been cited by leading authors of the Nijmegen based Radboud Group for Historical Demography and Family History, such as Engelen (Engelen & Wolf, 2005, *passim*). In contrast, when John Hajnal (1965) discussed possible explanations of the pattern he found it was rather unsurprising he would also address the niche model as a hypothesis. This hypothesis was however not of Hajnal’s own making, and he actually tended to reject it since to him, the actual connection between a rule that required a man to wait and the empirical patterns of (female) age at marriage was ‘not at all clear’ (Hajnal, 1965, p. 134). Contrarily to what he actually wrote, Hajnal is still frequently read as subscribing to the niche thesis (e.g. Matthys, Kok & Paping, 2018, p. 3).

2.2 RECENT RESEARCH

Work since the late 1990s has touched upon the issue in various contexts. In an important study based on southwest German family reconstitution and land register data, Ernest Benz (1999) has argued against the ‘Oedipal model’ where sons need their fathers to die. Research on sibling relations has casted doubt on the view that competition—who will get the farm, and who will be forced out?—tended to trump cooperation (Derouet, 2001; Fertig, 2005b; Sabeau & Johnson, 2011). Within Germany, the niche model is still widely accepted among historians (Müller, 2018; Schlögl, 2008, p. 212). Internationally, the debates at a Stanford conference revolving around a Dutch-Taiwanese comparison addressed the topic most explicitly (Engelen & Wolf, 2005). Over the years, we have also seen an increase of analyses on rural social stratification, including the paths to family formation that were available to the landless and rural poor—those who did not command a ‘niche’ (Head-König & Poszgai, 2012; Paping & Karel, 2011; Zeitlhofer, 2014). This is particularly important since the niche model assumes a sharp societal division between those who have a ‘niche’ and those who have none. Landless households and their family strategies are as important to the subject as are those who had some land, but no fully viable farm.

A vivid debate has developed on the role of Hajnal’s European Marriage Pattern for European development, and on its use for interpreting family relations and generational autonomy, agency and power in European societies. Guinnane and Ogilvie (2014, p. 91), having studied Württemberg in depth, argue that the norms that required newlyweds to provide for themselves actually had ‘legal teeth’ at least in that one region, forcing a sharp separation between those who were allowed, by their elders, to establish themselves, and those whose only chance was out-migration. Consequently, they interpret the social institutions enforcing the European Marriage Pattern as an obstacle to emancipation and growth. Carmichael and De Moor, studying multiple European regions, argue in contrast that the European Marriage Pattern is based on neolocality and consensus between the newlyweds, and hence implies female agency (Carmichael, De Pleijt, Van Zanden & De Moor, 2016).

The aforementioned Dutch-Taiwanese project was part of a larger controversy where the contrasts of European and Asian, particularly Chinese, societies were at issue. In a comparative volume on Lugang and Nijmegen that derived from that project (Engelen & Hsieh, 2007), the niche mechanism was explicitly taken for granted as a rule in the town of Nijmegen. However, the authors worked with occupational data, not possession data, and thus could not test, just assume, the effect of niche possession. In contrast, the Eurasia Population and Family History project coordinated by Lee, Bengtsson, and Alter has approached the topic of marriage (after mortality and fertility) based on individual level longitudinal data, starting from the assumption that ‘land or earnings’ (Lundh & Kurosu, 2014b, p. 5) were required. This implies that alternatives to the possession of a land niche were viable. The empirical statistical analyses again do not focus strongly on testing the niche hypothesis which is assumed to be relevant only for ‘some European contexts’ (Kurosu & Lundh, 2014, p. 69). Still, the argument that ‘the loss of a parent could mean an opportunity to take over a farm’ (ibid.) motivates the inclusion of parental presence as a household level variable. Adult mortality in general is also included ‘as a proxy for housing and job availability’ (Kurosu & Lundh, 2014, p. 73), but results on adult mortality are weak (Bengtsson, 2014, p. 150). Again, possession as such remained unmeasured. But including a variable to be tested implies a more gradualistic approach to what appeared as a rigid ‘chain’ in the older literature. The statistical results (Bengtsson, 2014, p. 151) show that for most of the investigated groups across Eurasia, there were only small or insignificant results for most locations. The death of a father enhanced marriage chances significantly among the higher classes in Italy and Belgium as well as among the lower classes in Japan, while the death of a mother increased marriage opportunities more consistently among the better-off in European locations. In the interpretive chapters (e.g. for Italy, Derosas, Breschi, Fornasin, Manfredini & Munno, 2014, p. 324–326) it is observed that varying levels of status are linked to varying intensities and strategies of coercion and parental authority; the topic of niche transfer is thus translated into questions about contributions to and responsibilities for the households of parents and their newly-wed children.

Taken together, there are three wider contexts within the literature that an investigation on household formation timing can contribute to. The first is that parts of the literature still take the niche model as a given, and thus seem stuck with an interpretation which may have its merits for understanding some familial situations but also may give a false model of social stratification. The second context is that the character and effects of social institutions that regulated marriage may have been beneficial or harmful to economic and social development. The third larger issue is what might be labelled a turn to gradualistic and multicausal methods due to recent methodological progress in historical life course studies, particularly in the application of event history analysis to multiple contexts. This suggests that the hypotheses outlined above should be tested in multicausal models without the expectation that one general pattern of timing will be found to be valid across all ecotypes, social strata, or for both genders.

3 FIELD OF RESEARCH AND METHODS

3.1 THREE CONTRASTING COMMUNITIES IN WESTPHALIA

The following analyses deal with villages in the former Prussian Province of Westphalia which have been studied in a series of research projects between about 1998 and 2013, resulting in books by Georg Fertig, Christine Fertig, and Johannes Bracht (Bracht, 2013; Fertig, 2007; Fertig, 2012). The core material are family reconstitutions, interlinked with land transaction registers, for three diverging municipalities: the cotton spinner parish of Löhne near Herford, Oberkirchen in the South-Westphalian Central Uplands (itinerant salesmen played a major role there), and a wealthy farming village: Borgeln in the *Soester Börde*. The family reconstitutions cover all vital events registered in these parishes from the beginning of the 18th century up to 1874 or later, for populations that ranged between 1,200 to 2,000 inhabitants. For the period from 1830 to 1866, all land transactions—sales, gifts and inheritances both of individual parcels and of full holdings—were identified and linked to the persons who gave and received the land in question. Earlier transactions are covered if property holders of the entire farm changed, so that including the 1820s in the analysis can be justified. Typically, husbands and wives held joint property rights in Borgeln and Löhne, while in Oberkirchen, separate property was held following (Roman) dotal law. The database hence makes it possible to observe the three basic dimensions of the niche model: possession, marriage, and reproductive activity for a period in the mid-19th century. The family reconstitution and other sources make it also possible to look back into the

18th century, however without the land transaction data which are crucial to the questions discussed in this paper (for a documentation of the database, see Appendix 1 in Fertig, 2007).

At first glance, Westphalia seems to be a prime example of reluctant marriage behaviour. Farms were transferred undivided, and the closed transfer was made a defining aspect of Westphalian identity after the agrarian reforms of the early 19th century. Yet parts of Westphalia were characterised by rural and export-oriented cottage industry. These regions, among them Tecklenburg in the north and Minden-Ravensberg (with Löhne) in the north-east, were apparent candidates for a demographic development in the sense of the proto-industrialisation thesis.

In all three villages, land was an important resource, but it was used in very different ways which is typical for the multitude of ecosystems in central Europe (cf. Fertig & Pfister, 2011). In all three parishes, farmholders were only a part of the population, ranging somewhere between 20 and 50 percent. Relative to the local consumption needs, households in Borgeln produced over 100 percent more grain than was needed, while in Löhne, about 40 percent had to be imported, and in mountainous Oberkirchen, even 70 percent. In other words, there was no self-sufficient rural subsistence economy in any of these places, they were either on the seller or on the buyer sides of regional markets. Löhne exported textiles produced by hirelings, i.e. landless family households who lived in smaller houses they rented from peasants, as well as by a large number of households (about 50 percent) who had an agrarian holding as a side-employment. In Oberkirchen, most money the landowners made was from woodland and meadows; exporting dairy products, meat, and wood as well as some iron products were obviously main sources of income. Moreover, many inhabitants were absent peddling. Grain production proper was very limited in Oberkirchen, with a frequency of cropping (Kopsidis & Hockmann, 2010) of only 36 percent (compared to about 80 percent in the other two places).

Table 1 *Human capital and social stratification*

	Years	Area	Löhne	Oberkirchen	Borgeln
Daily wages (male, annual average)	1844–1847	R	60 Pf.	75 Pf.	97 Pf.
Inhabitants	1830	P	1.219	1.743	1.255
Inhabitants	1866	P	1.466	1.992	1.496
Illiterate (per cent)	1871	P	12	5	2
Marriage seasonality type	1830	P	H	X	X
Marriage seasonality type	1866	P	A	A	A
Immigrants at marriage	1820–1870	P	33%	20%	28%
Immigrants at census	1871	P	22%	15%	32%
Not present at census	1871	P	0%	10%	0%
Farm holding couples (%)	1830	P	52%	17%	27%
Farm holding couples (%)	1866	P	40%	33%	34%
Landless couples (%)	1830	P	37%	62%	42%
Landless couples (%)	1866	P	28%	28%	31%
Servants (% of population)	1822–1855	W/P	3%	10%	34%
Day labourers (% of families, in Oberkirchen: % of population)	1822–1855	W/P	53%	11%	39%
Sideline farmers (% of families, in Oberkirchen: % of population)	1822–1855	W/P	48%	22%	3%

Sources and methods: See Fertig (2007, p. 61–62). Codes for Area: R=Region, P=Parish, W=Agricultural estimation district (Wertschätzungsdistrikt) for Löhne and Borgeln. Pf=Pfennig. Farms are defined as having a tax value above 10 Reichstaler. Marriage seasonality types see Kussmaul (1985); H=high agricultural and pastoral seasonality, A=agricultural seasonality, X=low seasonality.

The period primarily analysed in this paper, 1820 to 1870, has been chosen because the density of relevant sources on property and family is much better than in earlier and later years. While family reconstitutions start in the early 18th century and run until 1874, books of hypothecs were created successively since

the 1810s. For instance, 1830- and 1866-mark years when statistical overviews of land use were made in Westphalia. In a more long-term perspective, these were clearly pre-transitional societies in a demographic sense. They were also poor, except Borgeln, but not stuck in poverty but rather participating in a long-term process of economic growth and development that would at the end of the 19th century lead towards quite different patterns of rural prosperity. Based on Germany-wide data, this period has been characterized as post-Malthusian (Fertig, Schlöder, Gehrmann, Langfeldt & Pfister, 2018; Pfister & Fertig, *in press*) in the sense that population growth was possible without forcing living standards down and provoking massive mortality crises. Borgeln should be understood as a hot spot of agricultural revolution, attractive to influxes of labour and capital. Löhne started out in the late 18th century as a protoindustrial region, when textile producers profited from positive terms of trade in relation to agricultural prices. Here, the lower classes suffered in the period studied from declining prices (most strongly after 1840) while profiting from the distribution of communal lands which made the foundation of smaller, potato producing agricultural holdings possible. Other strategies included emigration to America (since the new harbour in Bremerhaven was opened in 1834), work on railway construction and operation since the 1840s, and tobacco and furniture industries later in the 19th century. Economic development in Oberkirchen is somewhat harder to document, and probably came later. Some trend towards the acquisition of land by a broader share of the population can be seen (but then this land was not very valuable). The Kussmaul indicator of marriage seasonality shows a certain trend toward re-agricarisation (which is visible in the two other places also). Only around 1890, qualitative sources mention increasing luxury, linked to the emerging tourism industry. Then, anthropometric sources also point to greater prosperity, following the belated arrival of the railway (Baten & Fertig, 2009). In an economic perspective, the 1820s to 1860s were thus a period of change, intermittent crisis, and agricultural growth (cf. Tilly & Kopsidis, *in press*).

3.2 INSTITUTIONAL REGULATIONS OF MARRIAGE

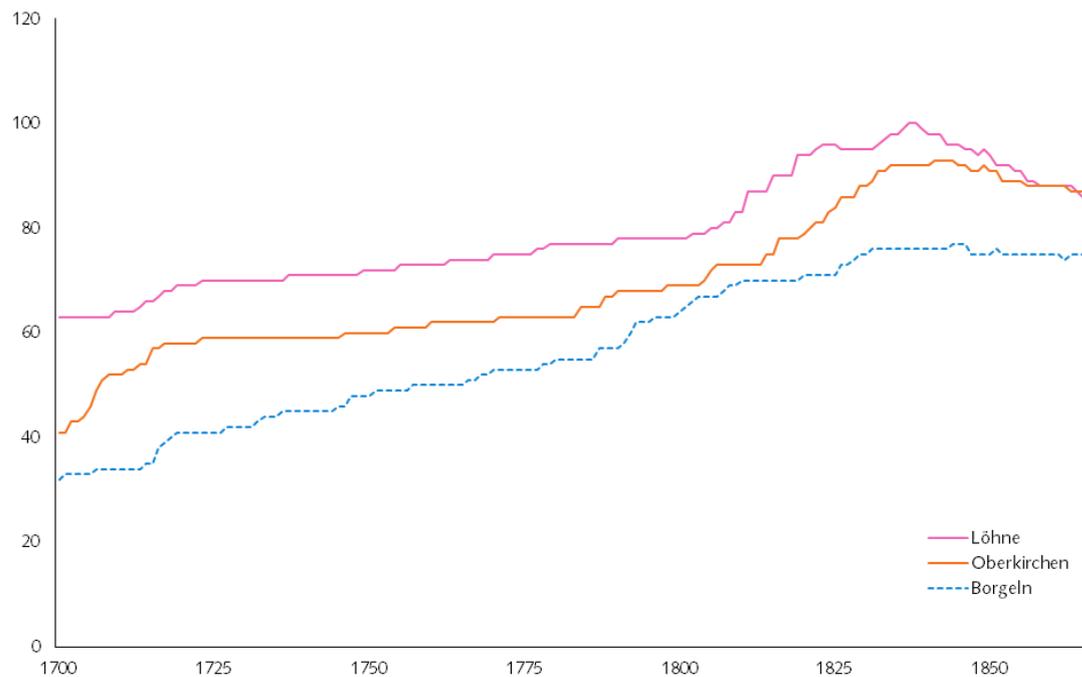
In institutional terms, it is a relevant question if marriage was regulated in the sense implied by the niche thesis. Such administrative regulations could in principle address either the marriage ceremony (forbidding pastors to wed a couple if certain conditions were not met), or the possibility of setting up or taking over a house or flat in the newlywed's own property, or, third, the legality of living as a couple on some other couple's property (be them the parents or someone else). The received knowledge (Matz, 1980; Ogilvie, 1995) is that in the 19th century, such regulations of marriage did not exist in Prussia, in contrast to other German, Swiss, and Austrian territories where a 'communal consent' was required. There was however some political debate about their introduction—as the head of the Westphalian provincial administration argued in 1824, 'a country can well be overpopulated so that people behave like other vermin and pests who breed quickly and then eat up each other' (Vincke, 1824). But in Prussia, his quest for socially sterilizing regulations failed, and when Germany was united under Prussian leadership in 1871, marriage restrictions disappeared all over the country.

If we look more closely at the local institutional framework of getting married, administrative controls might have operated not on what happened in church but rather on the possibility to set up a household. This was true not as a general rule of having one couple per household, or one household per house—indeed, multiple family households did exist, there were more households than houses, and the very existence of broad stratum of hirelings rested on the possibility to set up households on the property of farmers. But being a married husband and wife implied also social roles in relation to seigniors and parents since marriage was connected to household formation. Seigniorial domination implied legal ownership of the farms that were used and inhabited by peasants; it ended in the early 19th century. As long as it lasted, peasant successors who wanted to marry and take over a farm had to make a contract both with their parents (or in-laws) and their lords. In the case of Löhne, these contracts have been analysed in depth by Christine Fertig (2003). In case the lord did not agree with the choice of spouse, the couple was formally free to get married nevertheless—but would not get the farm. Lords would also control the number of farms, as well as possible subdivisions and the making of new farms. Graph 1 presents the number of farms in the three communities over time; we see that it was mostly stable over long periods, while in other periods such as the first decennium of the 19th century many new farms were created, and some would cease to exist in the 1840s and 1850s.

The other main institution whose interests were affected by marriage was the municipal community. They were involved less by the decision of some farm successor to marry—that would be just another farmer, holder of one of the almost fixed number of farms that held certain rights and obligations, taking over from his predecessor. The more difficult issue was whether the municipality was in charge of supervising the marriage and living arrangements of those who had no full local citizenship rights. In Löhne, this does not seem to have been the case; peasants were free to rent a building to a hireling couple. In Borgeln, non-

peasant couples occasionally applied for an administrative consensus to build a house on land they had bought (or rented). Decisions were based on whether the future household seemed to be economically viable. In Oberkirchen, a paper trail was left by non-citizens who were accepted, or rejected, as *Beisitzer* (denizens, inhabitants with minor entitlements). In the community of Westfeld, a village within Oberkirchen, such decisions were explicitly worded in terms of marriage consensus: 'since Caspar Arens has his own dwelling here, this community has no objection to his marriage with M. T. Albers' (1832); Henrikus Riesmann was 'allowed to marry' (1830); however, Anton Didam who had rented out some space to a family that had come from nearby Eslohe without municipal agreement was to receive a warning (1840).¹ Numbers affected by negative decisions were small (like half a dozen over a few decades) in both places.

Graph 1 Number of farms in the three communities, 1700-1866



Note: Annual count of farms that continued to exist until the 19th century and had a standardized tax value (*Reinertrag*) of at least 10 Reichstaler since 1830.

Source: Calculated from current (2019) database. Start years are years of earliest marriage of a holder of this farm. End year is the latest year when the farm is in the books of hypothecs with a tax value at least 10 Reichsthaler.

3.3 FAMILY CONTRACTS

In all three communities, family contracts regulating the transfer of property have been preserved; they were analysed by Christine Fertig and others (Fertig, 2003; Fertig, 2017; Fertig & Fertig, 2006; Fertig, Lünemann & Fertig, 2005). An overall finding is that there was a common expectation that the elder and younger generation would cooperate to their common benefit (or the best of the farm), and hence the rights to which parents were entitled were only specified to a limited extent in many contracts. In contrast to other European regions, the claims of Westphalian old farmers remained moderate. It was assumed that conflicts could certainly not be ruled out but could be resolved. Retirement to an old person's cottage (the *Altenteil*) was optional.

This pattern was less true when the contract was between a widow and her successors. Older women did express considerable concern for their welfare; they had special arrangements assured for the event of a conflict. This, however, was only possible where the matrimonial property law also provided for joint property rights and widowed women were in a position to negotiate the transfer of property and compensation, i.e. not in Roman Law Oberkirchen. Wherever widows became farm owners through the death of their husband, they maintained this status for as long as possible. Widows handed over their farms to successors at a more advanced age than did married couples or widowed farmers. They often worked together for a long time with a son and gave him full ownership later in life. Some women left the option open of leaving

1 All references from Stadtarchiv Schmallenberg B 74.

the farm in the event of conflict, and of claiming a regular monetary payment. Widowers, on the other hand, pursued other strategies: many of them remarried, even if they were already older. Others handed over the farm to a succeeding couple quite soon after the wife's death. Widowers were also more inclined than widows to hand the farm over to one of their daughters. This can be explained by what Mitterauer (1986) has labelled the 'obligatory supplementing of roles' (*Rollenergänzungszwang*): Fathers kept a daughter on the farm to close the gap left by their wife, and offered her the prospect of succession as an incentive.

Up to one third of the former owners retained the usufruct, the unrestricted management of the farm, for an indefinite period. Obviously, the main aim here was to clarify the financial circumstances of the entire family ahead of the advent of physical aging, and to oblige one of the children to assume the role of successor, while the parents retained command over the operation of the farm, with the option of later withdrawing to an old person's cottage if they so wished. For the young farm owners, this regulation meant a severe curtailment of their rights and options. They were obliged to live with their parents and work for them—in contrast to their siblings, who could go their own way. The usufruct was particularly often reserved when the farm went to a daughter and her son-in-law.

3.4 DEMOGRAPHIC PATTERNS

Table 2 offers some overview in a demographic perspective. We could suspect that proto-industrial Löhne was where the 'chain' that bound reproduction was broken, with a low age of marriage, high reproduction rates, and low life expectancy. But some observations do not quite fit this interpretation. For one, in Löhne (as well as in Borgeln) the average age when men married was quite close to their average age of losing their father, as predicted by Ohlin (1960) as a consequence of the niche mechanism. Moreover, we might expect a crisis ridden, 'hot' Malthusian demographic climate in Löhne. This was not the case, as the relatively weak positive check (as measured through the impact of price fluctuations) demonstrates. All three regions fit the view that the demographic system in mid-19th century Germany, while pre-transitional, was post-Malthusian.

Table 2 *Fertility and mortality*

	Years	Area	Löhne	Oberkirchen	Borgeln
Male age at first marriage	1830–1866	P	25.9	30.4	29.6
Male age at father's death	1830–1866	P	26.3	23.5	30.1
Female age at first marriage	1830–1866	P	23.7	25.6	25.8
Illegitimacy rate	19th c.	R	3%	2%	9%
Gross reproduction rate (McCaa method)	1820–1870	P	3.1	2.4	2.4
Duration of breastfeeding (months, Medick method)	1831–1870	P	13.9	14.6	13.7
Marital fertility rate of women 20 to 14 years old	1800–1870	P	490	431	408
Life expectancy e0 (McCaa method)	1820–1870	P	33.0	45.9	42.0
Infant mortality rate	1820–1870	P	17%	10%	15%
Annual population growth rate (%)	1820–1870	P	0.51	0.37	0.58
Years of elevated mortality after harvest failure	1820–1870	P	1855	1831, 1856	1847, 1855, 1862
Weighted impact of rye price fluctuations on non-infant mortality in additional deaths per 1,000 inhabitants for 10 year period (Weir method)	1820–1870	R	14	29	34

Sources and methods: See Fertig (2007, p. 64). Ages recalculated. Codes for Area: R=Region, P=Parish.

Table 3 *Marriage ages and frequencies among farmholders and non-farmholders by marriage cohort, 17th to 20th century*

		1650-1699	1700-1749	1750-1799	1800-1849	1850-1899	1900-1949
Percentage of (current or later) farmholders among marrying couples	L	41	42	39	36	28	
	O		38	31	41	42	50
	B		34	38	43	29	27
Male marriage age (farmholders)	L	25.4	24.9	23.9	25.3	25.7	
	O		27.2	28.4	29.9	30.3	32.3
	B		25.7	28.6	29.4	29.6	30.5
Male marriage age (non-farmholders)	L	25.7	24.9	24.5	25.0	26.5	
	O		27.2	29.1	30.1	30.8	32.3
	B		26.2	28.8	29.0	29.0	29.2
Class difference in male marriage ages (farmholders – non-farmholders)	L	-0.3	-0.1	-0.6	0.3	-0.8	
	O		0.1	-0.6	-0.2	-0.5	0.0
	B		-0.5	-0.2	0.4	0.7	1.3
Female marriage age (farmholders)	L	25.0	24.6	23.3	23.2	23.1	
	O		23.6	22.7	24.8	25.6	25.8
	B		25.4	25.1	25.5	24.2	24.9
Female marriage age (non-farmholders)	L	25.6	24.3	24.2	23.9	24.2	
	O		25.0	24.5	25.8	26.1	25.8
	B		25.1	25.6	26.4	23.8	24.7
Class difference in female marriage ages (farmholders – non-farmholders)	L	-0.6	0.2	-1.0	-0.7	-1.0	
	O		-1.5	-1.8	-1.0	-0.5	0.0
	B		0.3	-0.5	-0.9	0.3	0.2
N Cases	L	34	158	190	455	243	
	O		58	242	538	355	26
	B		80	216	355	548	324

Source: Own calculation based on family reconstitution, current (2019) database version.

Table 3 offers a longer-term view of marriage behaviour by class. A first observation to make is that farmholders were a minority in all places and periods. We see some decline in their share in Löhne over the 18th and 19th century, and conversely a rise in Oberkirchen. But the view that basically farms and only exceptionally artisanal positions were required for marriage would certainly not be appropriate. A second observation is that marriage ages were quite consistently lower in Löhne than elsewhere. This low age at marriage is comparable to what was found by Mendels for a Flemish region (Mendels, 1981, p. 148; cf. Devos 1999, p. 104). Many other—including proto-industrial—regions in Europe had a higher marital age in the 18th and 19th century (Devos, 1999, p. 120–123). By comparison, English (Levine, 1977, p. 61–63; Wrigley, Davies, Oeppen & Schofield, 1997, p. 134–135) and Scottish values (Anderson, 1999) are similarly low as in Löhne. But were Löhne's landless hiring households the reason for the low marriage age? Mostly, their ages at marriage were about the same level as those of the farmholding couples, if not higher. The same holds for the other regions as well for the nearby parish of Belm (Schlumbohm, 1992); in the literature, lower marital ages of textile workers have also been found (Hendrickx, 1999, p. 192–193, Kriedte, Medick & Schlumbohm, 1992, p. 78–79). The range of marital ages at first marriage is thus in line with the finding that proto-industrial Löhne had a less restrictive fertility pattern than the other two parishes. But it does not confirm the assumption that strata lower than peasants were the reason.

Besides marital age, the share of those who remained celibate for life is a central element of nuptiality (Hajnal, 1965). This value cannot be reliably calculated without census data, which we have only for Borgeln in 1817, when celibacy for females at age 45 stood at 19 percent and for males at 6 per cent (*Pfarrarchiv Borgeln* 1,9 Fasc 1). Alternatively, we can try to determine the share of unmarried in the total number of people who died with at least 45 years (Gehrmann, 2000, p. 155). Although this estimation is strongly subject to migration bias (Ruggles, 1992), it may be taken as being roughly informative (table 4). Obviously, being celibate while holding a farm was not a viable option. Overall celibacy rates were low in Löhne, and more elevated in Borgeln and Oberkirchen. Therefore, we deal with a relatively restrictive marriage behaviour in regard to both marital ages and the celibacy rates in a rich peasant and a poor mountain village, while the proto-industrial region had the lowest celibacy rate and the lowest marriage age. Some of these results would indeed be compatible with the 'niches'-model and the idea that proto-industrialisation did away with a restrictive agrarian, socio-demographic system. Other results such as the high proportion of non-farmholders and the rather elevated marital ages of the lower classes cast doubt on it.

Table 4 *Celibacy rates among farmholders and non-farmholders by adult cohort, 1700 to 1849*

		1700-1749	1750-1799	1800-1849
Percentage of (current or later) farmholders among adult men	L	21,0	14,6	18,5
	O	11,2	14,1	24,8
	B	20,4	22,1	20,3
Male celibacy rate (farmholders)	L	0,0	0,0	0,0
	O	0,0	0,0	1,4
	B	1,5	0,6	1,7
Male celibacy rate (non-farmholders)	L	6,5	7,1	7,2
	O	2,9	9,3	30,1
	B	7,0	18,4	21,4
Male celibacy rate (all)	L	2,0	2,4	2,6
	O	1,9	6,2	11,4
	B	4,0	7,2	9,2
Class difference in male celibacy rate (farmholders – non-farmholders)	L	-6,5	-7,1	-7,2
	O	-2,9	-9,3	-28,7
	B	-5,5	-17,8	-19,7
Female celibacy rate (all)	L	12,5	8,0	6,6
	O	7,1	5,3	11,6
	B	8,1	6,4	7,0
N Cases	L	172	303	524
	O	189	583	782
	B	248	515	754

Source: Own calculation based on family reconstitution, current (2019) database version. Adult cohorts refer to the year when an age of 25 was reached. Celibacy rates refer to all persons for whom both birth and death are documented in the database and who reached an age of more than 45 years. Persons for whom no marriage ever is documented are counted as celibate. Method: see Gehrmann (2000, p. 155). No data are given for cohorts after 1850 since these suffer from massive truncation bias. Data for the cohort 1800–49 may partially suffer from truncation bias; all data may suffer from migration and mortality bias (see Ruggles, 1992). Data on female farmholders are not given since these are not adequately linked in the database. Data for Löhne are limited to persons who are registered as being born and buried in Löhne.

4 ANALYSIS

4.1 THE TIMING OF TRANSITIONS

Did young couples in the textile region not have to wait for death making room because the incomes from cottage industry were sufficient to fulfil the demands of a married couple? Other sources of income apart from farming were available in Oberkirchen and Borgeln, too. But itinerant trade—the most important side-occupation in the mountain village—separated married men from their families and could thus lead to a postponement of the marriage. People could also earn a lot without their own farm in the region around Soest, as well. In the 18th century, the parish of Ostinghausen, which later became part of the district of Soest, had a big share of servants in its population: more than 28 percent in 1775, which is the highest servant rate of all places in our Westphalian-wide sample (Fertig, 1999, table 10.5, p. 259). In the land register of Borgeln, there were 159 households (962 people) in 1828, among them 67 farming families (42 percent of all households) and 4 households with farming as a second occupation.² Based on information from the 1828 property evaluations of 71 farming enterprises, there were about 141 male servants, 71 junior male servants and 111 maids—a servant rate at 36 percent of the population. Prussian officials complained during the same tax property evaluation in 1828 that the wage of servants and maids in the *Soester Börde* was much too high and ‘that due to a shortage of maids, farmers even are forced to support their bastard children’. But service in husbandry also impedes running their own household, no matter how high incomes are. Even if non-peasant income sources did exist, the degree to which it was feasible to harness them for one’s own household formation was variable, and could imply an institutional determinant of the easiness and speed with which couples could marry. In other words: there were important sources of income beyond holding a farm in all three places, but only in one of these places this source of income went together well with leading a married life.

There are two arguments against this seemingly plausible explanation. Firstly, in non-*proto-industrial* regions unmarried servants had alternatives to service that also did go together well with being married. As we have already seen in table 3, this is even true of the big-farming *Soester Börde* with its high servant rates. According to property evaluation protocols, 62 day labour households (39 percent of all households) lived in Borgeln besides 67 farming households (42 percent) and 21 artisan households (13 percent). They were slightly fewer than in the region of Löhne, where day labourers and spinners made up 53 percent.³ As early as the 16th century, there were around 27 farming estates and 6 to 11 houses of day labourers and carpenters in Borgeln, and even some married servants (Rudack, 1984, p. 136). Around 1762 there were 41 farms and cottages and 16 non-peasant houses. The profession ‘day-labourer’ appears more and more in the church registers since around 1760. The existence of a broad stratum of day labourer families in the *prima facie* big-farming *Soester Börde* points to one central problem of the niche concept: it tells us about a society which precludes livelihoods based on day labour, whilst in fact these societies were full of day-labourers.

There is a possible alternative explanation for the lower marriage age in Löhne. While the oldest son usually succeeded to the farm in Oberkirchen and Borgeln, the farm was handed over to the youngest son in Minden-Ravensberg (see also Ebeling & Klein, 1988). This explanation points to long term cultural differences rather than to economic changes such as *proto-industrialisation*, following the Berkeley Prussia Project which claimed that the levels of fertility are determined culturally, and only their changes have economic causes (Galloway, Hammel & Lee, 1998). Table 5 structures 256 inheritances and transfers of farms between 1820 and 1866 according to whether the farm successor had older or younger brothers who were still alive and documented in the family reconstitution.

In Löhne, people with older brothers often succeeded to a farm; in contrast, handing over to people with younger brothers was relatively rare. This pattern was reversed in Oberkirchen and Borgeln; especially in Oberkirchen people with older brothers rarely took over a farm. Succession by the oldest or the youngest heir should not be thought as strict rules, but as tendencies that allowed for many exceptions (Schlumbohm, 1994). In Löhne, cases deviating from the strict succession of the youngest male heir make up 36 percent (there were indeed female heirs with brothers and male heirs with younger brothers). Cases contradicting the strict succession of male heirs in Oberkirchen are largely confined to women with younger brothers and rarer than in Löhne (about 22 percent). In Borgeln, successions that deviated from the dominant pattern (e.g. female heirs who had younger brothers) are again more frequent (38 percent).

2 Landesarchiv Nordrhein-Westfalen, Staatsarchiv Münster, Katasterbücher Arnsberg, no. 92: Wertschätzungsverhandlungen Soest 1828

3 Landesarchiv Nordrhein-Westfalen, Staatsarchiv Detmold, M5C 54 Wertschätzungsverhandlungen fol. 31

Table 5 *Farm successors, by gender and relative age of non-succeeding brothers, 1820–1866*

		Older		Older and younger		Younger		No brothers		Sum	
		%	N	%	N	%	N	%	N	%	N
Löhne	m	37.5	(30)	6.3	(5)	15.0	(12)	18.8	(15)	77.5	(62)
	f	10.0	(8)	2.5	(2)	2.5	(2)	7.5	(6)	22.5	(18)
Oberkirchen	m	1.1	(1)	3.4	(3)	43.7	(38)	24.1	(21)	72.4	(63)
	f	2.3	(2)	1.1	(1)	13.8	(12)	10.3	(9)	27.6	(24)
Borgeln	m	7.9	(7)	10.1	(9)	29.2	(26)	19.1	(17)	66.3	(59)
	f	7.9	(7)	1.1	(1)	11.2	(10)	13.5	(12)	33.7	(30)

Note: Data on brothers refer to brothers whose date of death is later than the year of succession, or is unknown (due to being after 1874 or after having out-migrated). Successions and inheritances between 1820 and 1866 were only analysed in case the new owners were children of the former ones. Cells that deviate from the dominating succession pattern are marked.

Source: Translated and recalculated from Table 2 in G. Fertig (2003, p. 106).

Table 6 *Age at transfer and takeover of farms, 1820–66*

	Transfer			Takeover		
	mean	median	N	mean	median	N
Löhne	57.8	60.0	104	26.7	25.6	142
Oberkirchen	56.5	59.0	91	31.0	29.4	146
Borgeln	58.6	58.3	152	30.6	29.2	203

Note: Complete inter vivos transfers or inheritances of properties, not confined to parents-children-transfers, but excluding transfers between spouses. Each person (regardless of gender) is counted as a single case, if more than one person is involved in the takeover or the transfer.

Source: Translated from table 3 in G. Fertig (2003, p. 107).

The preference for the oldest or the youngest sons had clear consequences for the age at farm succession (table 6). On average, farms were handed over or bequeathed in the three parishes when the owners were in their late 50s. The three regions differed only slightly at this point. By contrast, the age at taking over a farm in Löhne was four years lower than in the other two places.

Up to this point, we have not tested yet whether there was any correlation across couples between farm succession and marriage in terms of timing and occurrence. At least the findings indicate that an explanation of the average marital age in Löhne should not only focus on the lives and timing-problems of landless hireling households, but also on those of land-owning peasants. The niche concept is about the relation of three events: marriage is tied to taking over a niche, and by that demographic reproduction—having children—is socially controlled. One could think that it was not important when exactly people took over the niche, when they had children and when they married—as long as it became clear before marriage that the engaged couple had a secure position, even without a formal succession. But day labourers can never reach a secure position in this sense. Farmers, in contrast, gained a legally secured basis for their future life only when the property was given over to them. It makes sense therefore to expect the sequence 'transfer–marriage–first pregnancy' (or 'transfer–first pregnancy–marriage') provided that the niche model is indeed valid. Table 7 shows all people who married in the three parishes between 1830 and 1866 by the sequence of those three events. In most cases inheritance and transfers were not involved. In 40 percent of all cases the property transfer did not come first for couples that succeeded to a farm or an inheritance; the ideal sequence 'transfer–marriage–first pregnancy' characterised no more than half of all cases with transfers, in Borgeln it was even less. Borgeln in particular shows that couples had sex before marriage. This finding contradicts the demographic argument that the socially and family controlled transfer of farming niches determined the couples' individual decision when to start reproducing.

Table 7 *Sequence of farm transfer, marriage and conception of the first child for people marrying between 1830 and 1866 in Löhne, Oberkirchen, and Borgeln*

	Löhne			Oberkirchen			Borgeln		
	N	% ^a	% ^b	N	% ^a	% ^b	N	% ^a	% ^b
transfer–marriage–conception	58	9	47	88	11	46	58	12	32
transfer–conception–marriage	10	2	8	14	2	7	44	9	24
marriage–transfer–conception	0	0	0	2	0	1	4	1	2
conception–transfer–marriage	10	2	8	0	0	0	18	4	10
marriage–conception–transfer	26	4	21	70	9	37	24	5	13
conception–marriage–transfer	20	3	16	16	2	8	34	7	19
marriage–conception–no transfer)	278	45		430	54		112	22	
conception–marriage–no transfer)	212	35		174	22		208	41	
Sum	614	100	100	794	100	100	502	100	100

^a Percentage of cases with transfer, ^b Percentage of all cases

All persons were included who had a first marriage between 1830 and 1866 and produced at least one child during this first marriage. First conception of a child refers to a man's or a woman's first child. The distance between conception and birth is assumed to be 38 weeks. A transfer is each person's earliest inheritance or hand-over of registered property directed either to themselves or their (also future) spouses, not confined to transfers by the person's parents.

Source: Translated from table 4 in G. Fertig (2003, p. 110).

The analyses presented above have demonstrated that any view of niches as constituting some kind of necessary prerequisite for marriage is utterly mistaken even in a region where farms were passed on undivided to one successor. It seems to be 'very nineteenth century' wishful thinking (Tilly, 1984, p. 2) rather than reality that the property-less somehow had no place in reproduction, were 'socially sterilized' or bound by an 'iron chain.' This casts doubt on the underlying 'Oedipal model' (Benz, 1999) of father-son-relations as well as on the zero-sum competitive, or resource dilution, understanding of sibling relations. Nevertheless, it does not seem to be absurd to think of landed property as one of the resources that could, in a more gradual than rigid sense, be useful for the making of new households and families. In terms of analysis strategies, this question of gradual usefulness can best be approached through disaggregate life course methods such as event history analysis.

4.2 EMPIRICAL STRATEGY: EVENT HISTORY ANALYSIS

Event history analysis is an analysis of speeds in the course of life. We ask how fast or slow people were reaching the three events introduced above: (1) taking over a 'niche' (which can occur through post mortem inheritance or through pre-mortem succession), (2) marriage, and (3) producing children. In other words: we look at the number of events per period of time (technically speaking: 'hazard-rates'), which can be compared to pace as measured by km/h: number of kilometres per period of time (hour). These biographic speeds then undergo regression analysis (i.e. a Cox proportional hazards model with spells of variable length, using Efron's method for ties). The result of the regression calculation is presented in tables 8 and 9 as an accelerator or decelerator factor (technically: the 'hazard-ratio'). The value 1 means that the 'speed' was not changed by the respective impact factors. A higher value is read as an acceleration, a lower one as a deceleration. For instance, the value 1.64 in the first column of table 8 means that people succeeded to a farm 64 per cent more quickly if they (or their spouse) became pregnant (i.e. the independent variable was raised by one unit). The models also measure if the event in question is reached at all: a very strong negative impact would have to be interpreted as not meaning 'slowly', but 'never'.

The hazard rates should relate to all persons who can be affected by the respective event. As we do not have migration data and thus no information on who was present, we studied all persons who ever married or died in the parish and who had not yet experienced the corresponding end-event (earliest transfer/marriage/first pregnancy). We did not include persons aged under 18 and over 40 years as well as periods before 1 January 1830 or after 1 January 1866, respectively. All life courses under observation were transformed into periods (spells) that begin and end at the day when one of the relevant independent or dependent variables

underwent a change (or can crudely be estimated to be the date when the change came). When only the month of an event was documented in the sources, random days were interpolated. However, only the life-courses of persons were used for whom no interpolation of the marriage, first pregnancy, or earliest transfer was made. The independent variables consist of events or other changes in the individual course of life. Events such as marriage or access to land are coded with the value 1, if the person under observation has already experienced them at least once in the past, otherwise 0. Covariates that change over time such as the number of siblings alive or the price of grain are coded with the value that was valid in the respective time period (with prices being filtered using a HP filter and $\lambda = 100$). Unchanging classification variables include gender (male or female), place (Löhne, Oberkirchen, or Borgeln), and social class (being the child of landowning parents, or not).

As stated above, three types of dependent events are modelled: (1) the acquisition of a farm through inheritance or an *inter vivos* contract, (2) marriage, (3) the first pregnancy. All three events are measured on the level of the couple, i.e. land acquisition from the husband's side will show up in the wife's life course, and pregnancy is an event for the husband. Six types of independent variables are tested, all of them time-varying: (1) age groups (as covariates, results not reported), (2) marriage (when marriage is not the dependent variable) and pregnancy (when not the dependent variable), (3) events that are related to niche transmission from parents (death of father, death of mother, death of both, and acquisition of a peasant holding through inheritance or an *inter vivos* contract), (4) variables or events relating to siblings (absolute number of living siblings or half siblings, acquisition of a peasant holding through inheritance or an *inter vivos* contract by a sibling), (5) any access to land (parcels or full holdings, through inheritance, familial contracts, or sales, measured as a dummy variable taking the value of 1 at the date of the first such access), (6) annual prices of rye and linen (HP filtered, changing each January 1st for linen and each October 1st for rye; the cycle is used in the models).

The analysis will proceed in two steps for each type of dependent event. First, we will base a model on one pooled dataset comprising the life courses of men and women, peasants and non-peasants, from all three regions. Secondly, we will ask if any of the effects we find have a particular contextual base in gender, class, or ecotype, by running regressions of the complete model by subgroup (male/female, children of landowners/not landowners, locality; all of these are time invariant). The discussion will be organized by independent variable (or group thereof), not by locality or other subgroups.

4.3 EVENT HISTORY ANALYSIS: RESULTS

Table 8 presents the results for the pooled dataset⁴. Row 1 contains the age group parameters which are not reported. Reading across rows 2a–2b, a first observation is that we are looking at three deeply entangled events: getting a farm, getting married, and getting pregnant. Circular causalities are very obvious: marriage makes people pregnant, and pregnancy makes people marry. Also (row 3d), taking over a farm encourages marriage (but only insignificantly pregnancy), and is in itself made more likely by pregnancy and marriage. Within this circular association, pregnancy seems to be an equally strong driver of marriage, as vice versa. This runs counter to the assumption that marriage was somehow a societal control mechanism that regulated the onset of reproduction. While there was certainly some truth to this, the opposite was also true (as suggested above in our interpretation of table 7): pregnancy could actually be an independent factor in the timing of marriage. Both pregnancy and marriage were also, but to a more limited degree, a factor in the timing of farm transfers.

Row 3a to 3d relate to the central element of the niche thesis: the assumption that parents would have to give way to the next generation (parents-effects). This is often (e.g. Lundh & Kurosu, 2014b, p. 5) put in 'Oedipal' (Benz, 1999) terms as the death of the father (and not the mother, row 3a) which however turns out to be less consistently a timing factor than the death of the mother (while the father is still alive, 3b), at least for farm transfer and marriage. This could be interpreted in two ways. First, it is not surprising that the death of a mother mattered at all since at least in Löhne and Borgeln women as well as men had co-property rights in the farms which were at least partly transferred to their children (in terms of collective ownership) when the other parent died. Secondly, the death of a mother would quite frequently lead to remarriage of the widower, but less often the other way around. A widow might be more in need of her children than a remarried widower and thus they would not encourage their children to marry and leave; hence mothers and their potential children in law might compete over the domestic labour power of adult children, independent of farm ownership and transfer. This second argument would explain why the effect of maternal death

4 The data and SAS program files for the event history analysis are downloadable from [here](#).

seems to be stronger that the effect of paternal death, and would be consistent with the end of care thesis developed above. Indeed, the death of the mother might create a double incentive for marriages in the younger generations: daughters might be freed from the expectation to care for their mother, sons' plans to remarry might be encouraged because they would thus bring additional female labour power into the family. Row 3c shows the effect of cases where both father and mother have passed away, with a strong result for marriage. Row 3d shows effects of the succession to a farm; these, too, are strong for marriage. Seemingly, farm succession has no significant direct effect on the onset of reproduction; since marriage is held constant in that regression (column 3), this means that the effect of succession on first pregnancy works exclusively through marriage (which is plausible). Taken together, the results on these parents-effects can neither be read as a clear rebuttal nor as a full corroboration of the niche thesis. It seems that parental resources did matter, as did the care labour of children. The Oedipal concept that a father had to go if a son should find his place is wrong. But parental resources, including those that were passed on by mothers, could shorten the time span that would elapse until a family was founded.

Table 8 *Event history analysis of succession to farm, marriage, and first pregnancy in three Westphalian communities, 1820–1866*

	(1)	(2)	(3)
	Succession to farm	Marriage	First pregnancy
(1) Age groups (not reported)			
(2a) First pregnancy	1.64 *	15.44 ***	
(2b) Marriage	1.30 *		21.85 ***
(3a) Father dead	1.01	1.10 *	0.95
(3b) Mother dead	1.65 ***	1.22 ***	0.98
(3c) Parents dead	1.20	1.25 ***	1.00
(3d) Succeeded to farm		6.66 ***	1.29
(4a) Siblings	0.99	0.99 +	1.03 **
(4b) Sibling succeeded to farm		1.75 ***	0.80
(5) All access to land		6.33 ***	1.00
(6a) Rye price	0.97	0.99 *	0.97 ***
(6b) Linen price	1.08 *	1.01	1.02 +
Events	381	3,527	2,731
Spells	12,428	88,023	64,243
Degrees of freedom	13	15	15
Likelihood ratio χ^2	160.34 ***	11,422.31 ***	15,427.57 ***

Source: Own calculation, current (2019) database version. Cox regression using SAS PROC PHREG. Effects for age groups (18 to 21, 22 to 24, 28 to 30, 31 to 33, 34 to 39, with 25 to 27 as the reference group) are included but not shown. Significance levels: + < 0.1, * < 0.5, ** < 0.01, *** < 0.001.

Rows 4a and 4b elucidate sibling effects. The niche thesis implies that sibling relations were fundamentally competitive: those who could not inherit were 'jettisoned' from the family (Moch, Folbre, Scott Smith, Cornell & Tilly, 1987, p. 114). In demography, this is known as the 'resource dilution thesis' (Blake, 1981). In contrast, kinship historians tend to emphasize sibling cooperation in fields such as agricultural labour and marriage markets (Sabeau, Teuscher & Mathieu, 2007). Row 4a shows ambivalent results: a high number of (adult, living) siblings may have slowed marriage, but more clearly helped with having a first child. In row 4b, the question to be tested is what consequences the succession of ego's sibling to a farm would have on ego's marriage and reproduction chances; that the effect on marriage is significantly elevated clearly rebuts the concept that siblings competed over niches. An explanation might be that parents tried to place all their children in a viable household, and that farm transfers were accompanied by resource transfers to the other children as well (for a more thorough discussion see Fertig & Fertig, 2006).

Row 5 covers any access to land including farm succession, the buying of entire farms, the buying and inheriting of parcels (the latter missing for the 1820s). In a regression where farm succession is held constant

(columns 2 and 3), it indicates the influence these alternative ways to landownership exert on the dependent variable. In the case of marriage, this influence is roughly as strong as the impact of farm succession itself, which corroborates the concept of a marriage fund whose accumulation offers an equally viable path to the founding of a farming household as does niche inheritance. In other words, while familial farm succession was helpful, or even conducive, though not required for marriage, the same can be said for other forms of land acquisition. For first pregnancies, no additional influence of farm succession or other forms of land acquisition beyond the one operating through marriage can be detected.

Rows 6a and 6b measure the impact of short-term economic stress and opportunities through prices of the goods that were mainly consumed (grain) or produced (grain and linen) locally. The analysis refers to current prices, relative to the time point of transfers, of marriages, and not of the (first) births but of the beginning of pregnancies. In the Eurasia project literature, the influence of prices is in the centre of attention, and high prices are basically understood as a negative impact, or 'economic stress'. It has been demonstrated elsewhere (Fertig, 1999) that marriage in Westphalia was, conversely, made easier by high grain prices in the 18th century, and that this relationship turned negative only in the 19th century. This reflects the fact that higher prices imply higher income for producers, and lower income for consumers. Most of Westphalia's rural population seems to have been grain producers rather than consumers in the earlier period, and consumers rather than producers later. In our data, which are from the 19th century, we see a negative impact of rye prices on marriage and first pregnancies as well as successions, and a positive impact of linen prices on farm succession. The latter may indicate that farm succession was easier to arrange when income from the production of manufactured goods was high in general and particularly for the lower classes. Such arrangements often included paying some siblings off and having them start their own household based on income from spinning and weaving. This was more difficult in times of low income for textile producers.

While table 8 gives a summary view of the pathways and strategies leading to all three elements of household foundation for all classes and ecotypes as well as for both genders, it remains to be seen if families and individuals had similar options at hand. In Table 9, the regression results for marriage only—leaving out farm succession and pregnancies—are given separately by class and gender (on the left), and by place (on the right). This serves a double purpose. For one, there are four non-overlapping sub-samples on the left and three distinct sub-samples on the right side. The direction, approximate strength and mostly also the significance level for all but a few coefficients are similar across those sub-samples. This does not only demonstrate the overall robustness of the results presented in Table 8 (at least for marriage), but it also suggests that indeed the underlying behavioural logic was similar.

Moreover, some of the differences we do see can be interpreted on historical grounds. For instance, the influence of the mother's death seems to run mostly through the marriage timing of their sons, not their daughters. If we assume that taking care of elderly mothers was mostly a female task, this does not fit with the end of care thesis. Instead, Mitterauer's (1986) point that familial roles had to be refilled (*Rolleenergänzungszwang*) may offer a better explanation if widowers were content with having a new daughter in law after the passing of their wife. Widows, conversely, tended to keep their formal property right for a longer time; it is hence not surprising that their passing had a more visible effect than the death of widowers who tended to give way to their successors earlier (see above, chapter 3.4). Also, this influence was weakest in Oberkirchen. Here, the Roman version of 'dotal' marital property law implied that women had no co-ownership in land, and the resources widows could command were mostly meagre (Fertig et al., 2005). While this explanation is based on what we know about property transfers, it is clear from the results in rows 3a to 3c that the impact of a mother's death on the marriage intentions of their sons was quite strong in nonowner families, too. In this perspective, the labour power of women seems to be an important element of the family economy which needed to be replaced in the case of death. We also see that the positive impact of a sibling's succession to the parental farm—which generally runs counter to the common intuition that the non-inheritors had to give up all prospects to having a family life—was also absent in Oberkirchen (row 4b). Again, this points to the different type of property devolution in this region where non-successors received much less than in Borgeln (Fertig & Fertig, 2006, table 5, where data for Löhne are lacking). Another variation across sub-samples is that elevated rye prices seem to depress marriage more in the two regions where the consumption of grain exceeded its production, an effect possibly limited to the owners of the smallish farms in proto-industrial Löhne. This might suggest that what in the Eurasia project literature is discussed in terms of 'vulnerability' was linked to subsistence farming in contrast to export farming, textile production, and labour market incomes.

Table 9 *Event History Analysis for marriages, by class and gender, and by place*

		From nonowner family		From owner family		Löhne	Oberkirchen	Borgeln
		Male	Female	Male	Female			
(1)	Age groups (not reported)							
(2)	First pregnancy	15.42 ***	13.10 ***	25.15 ***	14.27 ***	18.19 ***	11.99 ***	17.81 ***
(3a)	Father dead	1.25 *	0.92	1.05	1.18	0.99	1.05	1.16
(3b)	Mother dead	1.51 ***	1.04	1.41 *	0.96	1.09	0.99	1.52 ***
(3c)	Parents dead	1.31 **	1.04	1.39 *	1.45 **	1.19 +	1.09	1.35 **
(3d)	Succeeded to farm	6.62 ***	8.26 ***	6.17 ***	16.23 ***	14.01 ***	9.16 ***	4.73 ***
(4a)	Siblings	0.99	0.98	0.92 **	0.97 +	1.00	0.99	0.95 ***
(4b)	Sibling succeeded to farm	1.37	1.60	1.93 *	1.51	3.05 ***	0.77	2.79 ***
(5)	All access to land	5.12 ***	8.76 ***	10.68 ***	4.22 ***	16.62 ***	1.80 *	7.83 ***
(6a)	Rye price	0.99	0.99	0.94 **	0.99	0.97 *	0.98	1.00
(6b)	Linen price	1.01	1.01	0.99	1.04	1.03	1.00	1.01
Events		1,241	1,384	381	521	994	1,525	1,008
Spells		36,191	31,071	11,180	9,581	18,876	41,050	28,097
Degrees of Freedom		15	15	15	15	15	15	15
Likelihood Ratio χ^2		1,978.07 ***	1,582.16 ***	734.09 ***	591.60 ***	1,585.59 ***	1,719.98 ***	1,634.65 ***

Source: Own calculation, current (2019) database version. Cox regression using SAS PROC PHREG. Effects for age groups (18 to 21, 22 to 24, 28 to 30, 31 to 33, 34 to 39, with 25 to 27 as the reference group) are included but not shown. Significance levels: + < 0.1, * < 0.5, ** < 0.01, *** < 0.001.

5 CONCLUSION

This article has set out as a test of the niche thesis, but has led, through the empirical analysis of patterns of household formation in three northwest German rural locations, to an exploration of several alternative explanations. The niche thesis itself, linking the transfer of a position from the parents to the next generation as a precondition of marriage, can clearly be refuted if understood as a general rule. For those segments of the population who owned farms, quite obviously farm transfers were an encouragement to get married. But the view of internal familial relations that is implicit with the niche thesis, setting farm successors against non-succeeding siblings and fathers against sons, seems inappropriate in this particular region. Apart from the effects of property transfer, we also see that the death of both parents or particularly the mother could trigger household formation. Our interpretations have emphasized the necessity to substitute familial labour roles more than parental authority, male breadwinning or the need to care for the elderly. This suggests that while the room made by death was a highly relevant context of household formation, the simple 'Oedipal' mechanism suggested by the niche concept is no adequate model of family relations. Moreover, we have seen an impact of prices which suggests that the availability of income from labour markets as opposed to self-employed farming was another important type of resource used for household foundation, corroborating the concept of a marriage fund or the importance of income expectations. Also, all of the above has to be understood against the background of the widespread practice of marriages that followed from sexual encounters as indicated by premarital pregnancies.

Beyond the validity of the niche concept as a model for familial and social relations, and also beyond the methodological advantages of multivariate life course methods, the most important wider question addressed in this article is whether the social institutions that regulated the lives of young and old people were harmful or beneficial to the pursuit of individual lives and to the development of the economy at large. In comparison to other German-speaking regions where social practices and regulations of household formation have been studied (Mantl 1999; Ogilvie, 1995, 1997, 2003) the strategies that were habitually practiced in this region do not seem to have prevented young men and women from following their inclinations to live in self-organized households. This is true at least as opposed to extra-familial servitude or communal supervision, while intra-familial cooperation in joint households remained an option. It is an empirical question to what degree this relative openness of society should be interpreted in terms of regional culture, rurality or demographic-economic systems. A cultural interpretation might set northwest Germany against the more class-divisive culture of the south; a rural or proto-industrial view might point to the absence of many regulations in the countryside, as opposed to cities and towns where guilds had more power. In terms of periodization in economic history, unified growth theory emphasizes that the onset of modern growth became possible in economies which could no longer be understood as Malthusian (Fertig et al., 2018; Galor & Weil, 2000; Pfister & Fertig, in press), allowing for the increase of household numbers and population without a crippling decline of living standards. All three views suggest that social institutions in pre-transitional and pre-industrial Germany offered alternatives to a 'bitter living' (Ogilvie, 2003).

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