Does the European Marriage Pattern Explain Economic Growth?

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1. Introduction

Historical demography has attracted new attention in recent years, as economists have begun to incorporate demographic behaviour into models of long-run growth. Of particular interest is the onset of fertility decline, which some growth models view as causing sustained rises in the level and growth of per capita income. [1] More recent contributions to this literature focus on marriage patterns, arguing that a uniquely European system of late marriage, high female celibacy, and nuclear families made early economic growth possible in the West. This European marriage pattern, it is claimed, lay behind the 'great divergence' between Europe and the rest of the world and the 'little divergence' between northwest Europe and the rest of the continent.

The European Marriage Pattern (henceforth EMP) is a concept devised in 1965 by John Hajnal, who argued that parts of Europe had since the sixteenth century been characterized by a household formation system involving late female marriage, high female celibacy, and formation of a separate household on marriage causing nuclear-family households to predominate.[2] Between the 1960s and the 1990s, this concept was used (and criticized) by a large number of historians of demographic behaviour and family formation.[3] Some of these scholars speculated that the EMP might have encouraged economic growth.[4] But the vast bulk of research on the EMP in these decades was empirical, describing the geographical prevalence of this household formation system, how it worked, and some of the wider social practices associated with it.

Since 2006, however, the EMP has been deployed in support of much more ambitious claims. This new literature argues that the EMP was central to the economic success of Europe compared to the rest of the world, northern and western compared to southern and eastern Europe, and England compared to everywhere else.[5] Though uniformly regarding the EMP as crucial to long-term growth, the new literature varies on its precise contribution. The EMP is supposed to have influenced economic outcomes through five different (and often

[1] Guinnane (2012), 2; Galor (2011), 115-40; Acemoglu (2009), 732-6.
[2] Hajnal (1965).
[3] Laslett / Harrison (1963); Laslett (1977); Laslett (1983); Wrigley (1966); Lee / Schofield (1981); Wrigley / Schofield (1981); Wrigley / Schofield (1983); Smith (1978); Smith (1979); Smith (1981); Laslett / Wall (1972); Wall (1980); Wall (1983); Macfarlane (1978); Macfarlane (1984); Wrightson (1979); Todd (1983); Solar (1995).
[4] Todd (1983); Laslett (1988); Solar (1995).
[5] Greif (2006), 308-11; Greif / Tabellini (2010), 135-9; De Moor / Van Zanden (2010), 4, 6, 8, 12-14, 17-18, 20-23, 25-26; De Moor (2008), 211; Foreman-Peck (2011), 26-7; Voigtländer / Voth (2006), 319, 343-6, 348; Voigtländer / Voth (2010), 5-6, 10-11, 24-7.

overlapping) paths: improving women's position,[6] increasing human capital investment,[7] adjusting population growth to economic trends,[8] sustaining beneficial cultural norms,[9] and fostering corporative institutions.[10]

The first path emphasizes women's economic status. Distinctive cultural values, it is argued, emerged in the Low Countries and England in the fourteenth century, encouraging a shift towards consensual marriage and equal bargaining power for the sexes. [11] This led to later marriage, higher lifetime celibacy, and the formation of nuclear-family households, which strengthened and sustained the distinctive cultural norms associated with such practices, particularly equality between the sexes. This encouraged women to work outside the household, which improved their economic status, created incentives for human capital investment, and reduced fertility, all of which contributed to economic growth. This cultural and demographic pattern, the argument goes, also encouraged the emergence of corporative institutions such as guilds and communities, which benefited the economy by providing vocational training, welfare and insurance. Societies with earlier and more universal female marriage, by contrast, depressed women's labour force participation, reduced human capital investment, and failed to develop corporative institutions, which stifled the growth of their economies. Proponents of this view, therefore, regard the EMP as leading to economic growth mainly by improving women's position, from which flowed a large number of economic benefits including human capital investment, slow population growth, and corporative institutions.[12]

A second path emphasizes human capital investment.[13] According to this view, sometime after 1350 western Europe saw a shift towards late marriage and high lifetime celibacy for both sexes, but particularly for women. This implied lengthy life-cycle phases during which young people were working in the market, giving them the opportunity and incentive to invest in their human capital. The resulting lower fertility also contributed to a shift from having a

[6] De Moor / Van Zanden (2010), 1, 3, 6, 7, 10-15, 20-21, 27; De Moor (2008), 138; Foreman-Peck (2011), 10, 26; Voigtländer / Voth (2010), 2-5, 7-9, 28.
[7] Greif (2006), 310; De Moor / Van Zanden (2010), 3, 15, 21-2, 28; Foreman-Peck (2011), 2, 3, 10, 16, 20-21. Cf. Voigtländer / Voth (2006), 347-8, and Voigtländer / Voth (2010), 5, who differ from the remainder of this literature in dismissing the idea that the EMP increased human capital investment.
[8] Voigtländer / Voth (2006); Voigtländer / Voth (2010).
[9] Greif (2006), 308-09, 311; Greif / Tabellini (2010), 136-9; De Moor / Van Zanden (2010), 1, 5-6, 11, 15, 22, 27; Voigtländer / Voth (2006), 323.
[10] Greif (2006), 308, 310; Greif/Tabellini (2010), 135, 138; De Moor/Van Zanden (2010), 21-22, 23-26; De Moor (2008), 179, 183, 186, 207-11; Voigtländer/Voth (2006), 323-4, 347-8 (specifically strong, community-provided welfare).
[11] This is the argument put forward in De Moor/van Zanden (2010).
[12] De Moor / Van Zanden (2006); De Moor / Van Zanden (2010).
[13] Foreman-Peck (2011); De Moor/Van Zanden (2010).

high quantity of poorly-educated offspring to having a lower quantity of highly-educated ones. The result was a higher level of education in western Europe for both sexes, particularly for women. By the nineteenth century, it is argued, this gave rise to a positive statistical association between the lower nuptiality and fertility of western European societies on the one hand and their superior economic performance on the other. According to this view, then, the EMP caused economic growth mainly by creating incentives for individuals to invest in their own and their children's human capital.[14]

A third path from the EMP to economic growth operates through the linking of population growth to economic fluctuations.[15] In England after the Black Death, it is claimed, labour scarcity and a shift from arable to pastoral agriculture increased demand for women's labour outside the household, encouraging a move towards late marriage, high lifetime celibacy, and a calibration of marriage decisions to economic fluctuations. The result was a break with the growth-stifling 'Malthusian' tendency for temporary economic surpluses to be consumed by population growth. Because of the European marriage pattern, the argument goes, population growth in England was responsive to economic signals, causing economic surpluses to result in capital accumulation, enabling productivity-enhancing innovation and fuelling economic growth. Societies outside England, by contrast, had earlier marriage, lower lifetime celibacy, and no responsiveness of fertility to economic signals, which blocked the development of the virtuous growth circle via greater saving and capital accumulation.[16]

Cultural attitudes and corporative institutions mark the final path from the EMP to economic growth.[17] According to this view, distinctive cultural norms emerged in early medieval Europe, which both favoured the nuclear family and were then sustained by it, while the extended family with its associated norms remained strong outside Europe. The nuclear family fostered growth-inducing attitudes in Europe, specifically trust beyond the familial group which facilitated trade, migration and economic expansion, while non-European cultures retained family-specific trust which stifled growth. Proponents of this view also believe that the European nuclear family was associated with strong corporative institutions (communities, guilds, universities, firms) which benefited economic growth by guaranteeing property rights, enforcing contracts, and facilitating exchange. Non-European extended-family systems, it is claimed, stifled generalized trust and corporative institutions, thereby choking off economic growth. This view thus regards the EMP as leading to economic growth

[14] Foreman-Peck (2009); Foreman-Peck (2011).
[15] As in Voigtlaender/Voth (2006); Voigtlaender/Voth (2010).
[16] Voigtlander / Voth (2006); Voigtländer / Voth (2010).
[17] Greif (2006) and Greif/Tabellini (2010) are examples of this view.

mainly by encouraging cultural norms and institutions favourable to good economic outcomes.[18]

The new literature on the EMP, therefore, is not homogenous. Its proponents mention many of the same phenomena (women's status, human capital, fertility control, growth-favouring cultural norms, corporative institutions) as resulting from the EMP, but single out different factors as making the dominant contribution to economic success. Contributors to this literature also differ on chronology, variously describing the EMP as affecting economic growth as early as the ninth century,[19] in the later fourteenth century,[20] in the early modern period,[21] or in the nineteenth century.[22] Another point of difference concerns the geographical prevalence of the EMP, with its key manifestations variously situated in the entirety of Christian Europe,[23] in Western Europe,[24] in England and the Low Countries,[25] or uniquely in England.[26] But all claim that the EMP caused economic growth.[27] Moreover, these claims about the EMP are now being incorporated into larger projects directed at explaining the divergence between early and late industrializing European economies and the origins of endogenous economic growth.[28] The time is ripe, then, for an examination of the historical evidence on the EMP and a critical assessment of its possible influences on long-term growth.

2. A Meta-Study

Fortunately, there is abundant evidence on marriage and family patterns across pre-modern Europe. We have drawn on 175 published sources to compile a database of 1,491 observations of female age at first marriage, 709 observations of female lifetime celibacy, and 531 observations of family forms. The 2,731 observations in our meta-study cover 32 European countries at various periods between the eleventh and the late nineteenth century. The results of this meta-study are reported in Tables 1-3.

[18] Greif (2006); Greif / Tabellini (2010).
[19] Greif (2006), 308, 310; Greif / Tabellini (2010), 137-8.
[20] De Moor / Van Zanden (2010), 4, 7, 11, 13, 15, 22, 24, 28-9.
[21] Voigtländer / Voth (2010), 3-4, 6-7, 24, 27-8.
[22] Foreman-Peck (2011).
[23] Greif (2006), 308-11; Greif / Tabellini (2010), 135-9.
[24] Foreman-Peck (2011), 292-3, 297, 299, 301, 303, 306.
[25] De Moor / Van Zanden (2010), 4, 12-14, 22-4; Carmichael / De Moor / Van Zanden (2011), 309.
[26] Voigtländer / Voth (2006), 319-21, 323.
[27] Greif (2006), 308, 310; De Moor / Van Zanden (2010), 4; Carmichael / De Moor / Van Zanden (2011), 309; Foreman-Peck (2011), 292-3, 306-07; Voigtländer / Voth (2006), 319, 343-6, 348; Voigtländer / Voth (2010), 5-6, 10-11, 24-7.
[28] See, for instance, Broadberry et al. (2011), 33; Weisdorf / Cinnirella / Klemp (2012).

Before the nineteenth century, national-level statistics are rare, so our data are drawn from studies carried out at different levels of aggregation, with 359 observations at the national level, 674 observations at the level of particular regions (provinces, administrative districts, feudal estates, clusters of settlements for which archival sources survive), and 1,698 at the level of individual communities (cities, towns, villages, hamlets).[29] Observations referring to particular social strata (nobles, burghers, peasants), occupational groups (sharecroppers, craftsmen, factory workers), or religious confessions (Protestants, Catholics, Jews) were excluded from the database, except in cases where the group constituted the majority and could reasonably be regarded as representative of the population under analysis. Neither the level of aggregation nor the inclusion of observations on majority social groups significantly affected the findings, so Tables 1-3 report the results of the pooled database.[30]

Any meta-study must accommodate the conventions used by the underlying research-studies. Studies in historical demography report their findings for different time-periods depending on survival of archival sources, hypotheses to be tested, and analytical convenience. Without access to the underlying data, our meta-study could not impose a standardized periodization. Some observations in the database thus refer to individual years, others to single decades, quarter-centuries, or centuries, and still others to irregular periods determined by documentary survival or other factors. For all research-studies used, all observations for all periods reported were included in the meta-study, regardless of the length of the periods. Where a statistic was reported for a period spanning a century-break, it was included in the analysis for both centuries.

In the remainder of this paper, we use the results of this meta-study to explore the claims about the EMP discussed in the introduction. The findings cast considerable doubt on the view that a uniquely 'European' marriage pattern can be adduced as the cause of European economic growth. Not only do we find significant heterogeneity in marriage patterns across Europe, it also turns out that the EMP was compatible both with dynamic economies such as those of early modern England and the Low Countries and with more static ones like those of eastern central Europe under the 'second serfdom'.

[29] Regional studies cannot always be clearly distinguished from community studies: for instance, when an entire administrative district or feudal estate contained only a few hundred inhabitants scattered in small hamlets, each with only a few households, it is arguably more appropriate to treat the entire unit as a 'community'.

[30] Tabulations of marriage age, lifetime celibacy, and family complexity separately for each subset of research-studies (national, regional and local) are available from the authors on request.

3. The Geographical Prevalence of the EMP

If the EMP was responsible for economic growth, then one would expect to find it in rich and rapidly growing economies and not in poor and slowly growing ones. Establishing the geographical prevalence of the EMP is thus empirically crucial.

One variant of the literature portrays the EMP as characterizing all of Europe, explaining Europe's economic superiority over the rest of the world. In this version, the 'European', nuclear-family-based system, where legal codes no longer linked rights and kinship, is contrasted with 'non-European' (e.g., Chinese or Muslim) systems based on the extended family and large kinship organizations. By the late medieval period, according to this view, '[l]arge kinship groups remained only on Europe's social and geographical margins (e.g., Scotland).'[31] Others similarly ascribe faster growth in Europe than in China to the EMP, maintaining that 'Europe's unique demographic regime' made industrial development much more likely there than elsewhere.[32]

But was there a unique 'European' demographic regime? This view appears to be based on Hajnal's initial hypothesis of 1965, which postulated that all societies west of an imaginary line running from Trieste to St Petersburg exhibited late marriage, high lifetime celibacy, and formation of separate households at marriage ('neo-locality'), resulting in a predominantly nuclear-family household structure. To the east of this line, Hajnal initially believed, a 'non-European' pattern prevailed, marked by early marriage, low lifetime celibacy, and young couples moving into their parents' households upon marriage, creating complex households containing multiple conjugal units. Soon after 1965, however, local and regional case-studies began to reveal huge variations in marriage and household patterns across pre-modern Europe. These findings inspired numerous attempts at geographical systematization, including Hajnal's revision of the Hajnal line in 1982,[33] Laslett's four European 'zones',[34] a 'Reher line' running through Geneva and Budapest,[35] and a 'Mitterauer-Kaser line' focussing on eastern-central Europe as a 'transitional' zone between 'European' west and 'non-European' east.[36] The same findings stimulated a rich array of dissenting voices which rejected any

[31] Greif / Tabellini (2010), 137.
[32] Voigtländer / Voth (2006), 347.
[33] Hajnal (1982).
[34] Laslett (1983).
[35] Reher (1998) [PDR].
[36] Mitterauer (2004); Kaser (2000); Teibenbacher (2012), 11.

geographical zoning of marriage and household patterns, instead advocating analyses of the micro-level constraints within which people made demographic decisions.[37]

The evidence presented in Tables 1-3 confirms the existence of wide heterogeneity across different parts of the European continent and even (in the cases of France, Spain, and Italy) different parts of the same country. The EMP is supposed to have been characterized by female age at first marriage above c. 23 years, female lifetime celibacy above c. 10 per cent, and a proportion of complex (extended or multiple-family) households below c. 10 per cent (with the other c. 90 per cent of households consisting of nuclear families, solitaries, and non-kin domestic groupings).[38]

As Table 1 shows, women's age at first marriage varied widely across Europe. Some societies did indeed show a mean female marriage age above 23 (some as high as 27 or 28), while others showed women marrying on average in the late teens or early twenties. There was also considerable variation within particular societies, as shown by the large standard deviations and fluctuations across the centuries.

Table 2 shows the same for female lifetime celibacy, which did indeed lie at or above 10 per cent in many cases, and surpassed 20 per cent in a number of European societies after c. 1700. But in many other European societies at various periods, only around 5 per cent of women remained permanently unmarried. Female celibacy also varied substantially within particular societies, as shown by the large standard deviations and fluctuations across centuries.

Table 3 shows a similar situation for household complexity, which lay at or below 10 per cent in a number of European societies, but at or above 20 per cent in many others. Again, variation within particular societies was high, as shown by high standard deviations. Several societies universally acknowledged as part of the EMP, including England, the Netherlands, Belgium, northern France, and Germany, varied considerably across the centuries, with high, 'non-European' levels of household complexity in some periods.

It might be argued that although the empirical studies show that Europe contained a multitude of different marriage and household patterns, nonetheless there are reasons for regarding the EMP as the 'core' European system, with 'non-European' demographic behaviour only on the

[37] Notably Benigno (1989); Kertzer (2002), esp. 41-2; Szoltysek (2007); Szoltysek (2008); Sovic (2008); Teibenbacher (2012), 11, 22 (Fig. 2), 60.
[38] For this characterization, see Hajnal (1965); Hajnal (1982); Hajnal (1983), 69; Smith (1977); Fauve-Chamoux (2001), 224-5 (where she postulates that the boundaries of the EMP should be set at the somewhat higher female age at first marriage of 25).

Table 1: Women's Age at First Marriage

Country	10th-15th centuries			16th century			17th century			18th century			19th century			Whole period		
	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n
Denmark							28.2	n/a	1	29.2	2.7	5	28.3	2.0	12	28.5	9.0	18
Iceland													28.0	n/a	1	28.0	n/a	1
Switzerland													27.0	1.4	2	27.0	1.4	2
Austria										26.3	2.0	8	27.3	3.0	10	26.8	3.5	18
Netherlands							25.5	1.4	2	27.1	1.1	11	26.4	0.6	12	26.6	1.0	25
Norway										25.5	n/a	1	26.8	0.4	5	26.6	0.6	6
Sweden				24.5	4.4	3	26.8	1.3	16	24.7	0.8	2	26.9	0.7	9	26.4	1.8	30
Belgium	20.0	0.0	2				26.4	1.6	10	26.3	1.6	52	26.9	1.2	26	26.4	1.8	90
Germany				24.0	1.2	5	25.1	1.7	40	26.1	1.7	103	26.9	2.0	159	26.3	2.0	307
Scotland							26.5	n/a	1	25.8	1.1	2				26.0	0.9	3
Finland										25.8	0.7	2	25.0	n/a	1	25.5	3.5	3
France (North)	15.5	n/a	1	21.6	0.8	2	25.3	2.0	19	25.8	1.6	61	25.1	1.4	26	25.4	1.9	109
England				24.8	1.6	3	25.7	1.3	66	25.4	1.4	110	24.4	1.5	48	25.3	1.5	227
Portugal													25.2	1.7	8	25.2	1.7	8
Bohemia							24.8	1.5	4	24.8	1.9	34	25.4	1.4	62	25.2	1.6	100
France (Whole)							22.0	n/a	1	25.7	0.9	13	24.5	0.9	37	24.8	1.1	51
Spain (North)										24.5	1.1	12				24.5	1.1	12
Ireland										25.9	n/a	1	24.3	1.4	38	24.3	4.0	39
France (Central)				20.0	n/a	1	21.4	n/a	1	25.8	1.9	3	26.3	n/a	1	24.2	3.0	6
Italy (North)	19.3	2.9	14				22.6	2.5	9	24.9	1.8	24	24.3	1.6	55	23.6	2.6	102
Spain (Whole)				20.0	n/a	1	22.0	n/a	1	23.7	0.4	5	23.9	0.6	4	23.3	1.3	11
France (South)	18.1	2.0	5				22.2	1.6	6	23.9	2.0	20	26.3	n/a	1	22.8	2.9	32
Estonia										22.7	n/a	1				22.7	n/a	1
Spain (South)				18.6	n/a	1				22.7	1.4	6				22.1	2.0	7
Greece										22.1	1.4	3				22.1	1.4	3
Poland				20.0	n/a	1	21.3	1.8	2	22.3	1.2	7	23.3	1.1	2	22.1	1.4	12
Italy (South)				19.5	2.7	8	21.2	3.0	22	21.6	2.6	48	23.5	1.4	35	21.9	2.6	113
Spain (Centre)							18.6	n/a	1	22.8	0.5	3				21.8	2.2	4
Italy (Whole)	17.5	0.0	2										23.7	0.4	4	21.7	3.2	6
Ukraine													21.0	n/a	1	21.0	n/a	1
Slovakia													20.8	0.4	2	20.8	0.4	2
Bosnia													20.5	n/a	1	20.5	n/a	1
Hungary										19.8	1.3	41	20.8	1.8	45	20.4	1.7	86
Romania													20.3	0.3	3	20.3	0.3	3
Croatia													20.0	n/a	1	20.0	n/a	1
Bulgaria													19.7	1.3	5	19.7	1.5	5
Serbia													19.3	0.9	5	19.3	0.9	5
Russia										17.5	0.1	5	19.5	1.2	36	19.2	1.3	41
Grand Total	18.8	2.5	24	21.8	3.2	25	24.8	1.6	202	24.7	0.0	583	24.8	23.7	657	24.6	0.0	1491

Note: Based on a meta-study of 175 historical demographic studies. For methodology of meta-study, see text. For sources, see Appendix A.

Table 2: Women's Lifetime Celibacy Rates

Country	10th-15th centuries			16th century			17th century			18th century			19th century			Whole period		
	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n
Austria							13.3	6.0	7	38.0	16.2	10	32.2	14.3	5	28.8	16.9	22
Iceland										23.0	n/a	1	26.0	4.2	2	25.0	3.5	3
Belgium							15.2	n/a	1	18.3	2.9	3	22.2	6.9	11	20.9	6.3	15
Switzerland							4.0	n/a	1				25.7	21.4	3	20.3	20.5	4
Scotland							11.0	n/a	1	15.5	6.4	2	23.5	5.6	3	18.8	7.1	6
Portugal													18.4	6.9	5	18.4	6.9	5
Ireland													15.9	5.8	47	15.9	5.8	47
Finland													15.0	n/a	1	15.0	n/a	1
Bohemia				19.6	11.7	7	12.3	12.3	27	17.5	7.2	19	9.0	0.8	4	14.7	10.6	57
Norway										13.6	0.8	2	15.1	2.2	4	14.6	1.9	6
France (South)										13.0	4.4	66				13.0	4.4	66
Italy (South)													12.5	3.2	24	12.5	3.2	24
Italy (North)										11.5	9.3	8	12.3	3.1	30	12.1	4.9	38
Sweden				16.5	7.8	2	10.2	5.5	16	11.1	0.9	2	17.8	3.7	4	12.1	5.9	24
England				7.8	5.8	5	15.2	7.9	6	11.2	1.5	5	12.7	1.7	11	12.0	5.0	27
Spain (Whole)										13.1	2.7	4	10.4	0.5	3	11.9	4.9	7
Italy (Whole)													11.9	0.5	5	11.9	0.5	5
Netherlands													11.8	5.1	3	11.8	5.1	3
France (Whole)							6.5	1.1	9	10.9	2.2	26	13.9	3.6	34	11.8	3.8	69
France (North)	11.5	n/a	1				10.0	n/a	1	11.5	3.7	89	13.7	5.1	4	11.6	3.7	95
Denmark										6.0	n/a	1	11.3	4.9	29	11.2	10.5	30
France (Central)										11.1	3.2	22				11.1	3.2	22
Poland										10.5	1.2	3	9.9	2.7	2	10.3	1.6	5
Spain (North)										10.2	5.0	5				10.2	6.9	5
Germany							6.3	7.7	19	9.4	5.7	29	12.6	6.0	28	9.8	6.7	76
Spain (South)										8.0	n/a	1				8.0	n/a	1
Russia										3.2	n/a	1	8.0	6.8	18	7.7	6.7	19
Spain (Centre)										6.0	n/a	1				6.0	n/a	1
Greece										7.4	n/a	1	4.0	n/a	1	5.7	2.4	2
Estonia										5.1	n/a	1				5.1	n/a	1
Hungary										4.5	0.9	3	4.2	1.2	7	4.3	1.0	10
Romania													2.9	0.1	2	2.9	0.1	2
Croatia													2.0	n/a	1	2.0	n/a	1
Ukraine													2.0	n/a	1	2.0	n/a	1
Serbia										2.5	n/a	1	0.8	0.2	3	1.3	0.8	4
Bulgaria													0.8	0.2	5	0.8	0.2	5
Grand Total	11.5	n/a	1	14.9	10.5	14	10.2	8.8	88	12.7	7.0	306	13.3	6.7	300	12.7	7.3	709

Note: See Table 1.

Table 3: Percent Complex (Extended- and Multiple-Family) Households

Country	10th-15th centuries			16th century			17th century			18th century			19th century			Whole period		
	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.	n
Spain (South)										4.7	0.7	2				4.7	0.7	2
Germany	6.0	7.0	4				14.9	12.4	3	7.0	2.6	3	9.2	2.6	6	9.1	6.6	16
Bohemia				15.1	4.8	2	8.2	9.1	9							9.4	8.7	11
Netherlands							3.6	n/a	1	12.5	7.9	9	11.0	4.4	3	11.5	7.1	13
Scotland							9.4	n/a	1	14.0	n/a	1				11.7	3.3	2
France (North)							8.8	1.9	3	16.9	15.3	4	10.4	5.4	4	12.3	9.6	11
Ireland										8.2	5.4	2	22.0	n/a	1	12.8	8.8	3
England				8.0	n/a	1	7.9	2.4	9	11.3	2.1	3	17.8	4.0	37	15.4	35.3	50
Belgium										11.6	n/a	1	16.9	2.3	3	15.6	3.3	4
Greece										8.4	1.1	3	39.2	n/a	1	16.1	15.4	4
Italy (South)				9.0	n/a	1	12.7	7.0	8	22.3	12.4	52	15.0	6.2	7	20.2	11.9	68
Austria										30.4	12.6	7	13.1	9.3	10	20.2	13.6	17
Sweden				43.0	n/a	1	33.0	29.5	3	23.9	15.7	15	29.2	16.2	6	27.0	17.2	25
Iceland													28.6	16.9	7	28.6	16.9	7
Poland	46.5	11.0	4							27.6	12.3	41	28.4	12.5	7	29.1	13.6	52
France (South)							35.3	5.6	4	37.6	6.6	3	18.2	4.7	2	32.2	9.5	9
Norway													33.0	n/a	1	33.0	n/a	1
Spain (North)										34.1	5.2	6				34.1	5.2	6
Italy (North)	45.4	6.7	4	38.2	2.9	6	18.5	10.6	2	36.4	11.1	15	42.1	13.0	22	39.2	12.0	49
Slovakia							39.6	n/a	1	41.4	n/a	1				40.5	1.3	2
Serbia										29.0	n/a	1	58.8	n/a	1	43.9	21.1	2
Estonia							30.3	n/a	1	49.9	18.6	4				45.9	18.3	5
Finland							57.6	n/a	1	51.2	8.9	8	44.1	13.9	12	47.5	12.3	21
Latvia										49.7	20.8	43				49.7	20.8	43
Croatia										50.0	n/a	1				50.0	n/a	1
Hungary				8.5	3.5	2				28.9	14.8	18	68.0	23.0	27	50.5	28.6	47
Belarus										53.5	10.4	3				53.5	10.4	3
Russia							39.2	11.5	7	43.0	24.3	6	70.0	17.4	44	63.4	21.2	57
Grand Total	32.7	0.0	12	25.9	33.1	13	19.0	23.7	53	31.1	15.7	252	40.9	29.0	201	33.5	23.2	531

Note: See Table 1.

periphery of the continent. It would certainly be wrong to single out Scotland as part of any such periphery, since Tables 1-3 show late marriage, high celibacy and low household complexity in Scotland as far back as the records go. Nor was the northern fringe of Europe 'non-European', since Scandinavia also displayed late marriage, high lifetime celibacy, and nuclear families.

But perhaps one might characterize Mediterranean Europe as somehow peripheral to the true 'European' system, paradoxical though this might seem given the centrality of Mediterranean societies to European economic growth and development between c. 1000 and c. 1500. Even this argument falls foul of the empirical findings, however. Several divergent marriage patterns have been uncovered for 'Mediterranean' societies, which neither follow the clustering of characteristics postulated as 'European' nor support the idea that geographically peripheral regions were 'non-European'. In southern Italy, female age at first marriage was often low (and thus 'non-European'), but marriage was frequently neo-local resulting in a predominance of nuclear-family households (and thus 'European'); northern and central Italy, by contrast, often exhibited later and non-universal (i.e. 'European') female marriage, but complex (i.e. 'non-European') households.[39] Sardinia, finally, manifested something similar to the EMP with both nuclear-family households and late female marriage.[40]

A similar diversity is observed between different regions of Spain: some regions, communities, and social strata displayed 'European' late marriage, high celibacy, and low household complexity, others showed the opposite, and still others combined early marriage with nuclear families or extended families with late marriage.[41] Portugal showed the same variation: some southern regions had 'non-European' early marriage but in combination with 'European' nuclear families; some northern regions had late 'European' marriage combined with complex 'non-European' households; still other regions had extreme versions of the EMP, with very late marriage and very few extended families.[42] If anything, northern parts of Italy, Spain and Portugal, which might be regarded as closer to the 'core' of Europe, had more complex families than southern, more 'peripheral' regions.

Europe thus manifested a huge diversity of marriage and family patterns, and these did not even systematically comply with the clustering of characteristics (late marriage, high

[39] Sonnino (1997), 505-07; Kertzer (1991); Barbagli (1991); Kertzer (2002), 55-6; Kertzer / Barbagli (1990); Viazzo (2003); Viazzo (2005); Benigno (1989); Silverman (1968). Although see also Douglass (1980) on household complexity in the Molise region.
[40] Viazzo (2003).
[41] Reher (1991); Reher (1998), 536-9.
[42] Rowland (1987); Rowland (1988); Rowland (1998), 555-6.

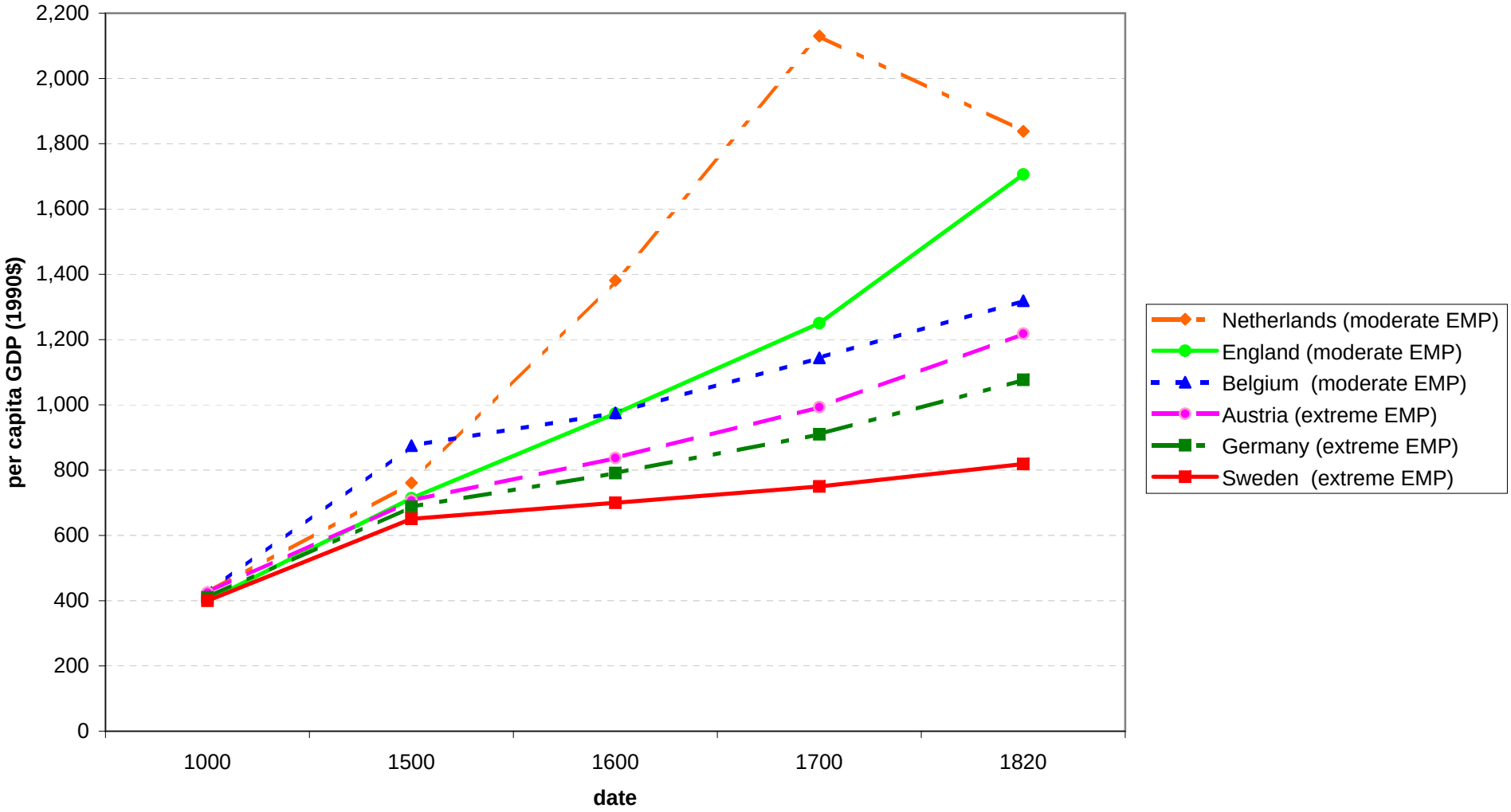
celibacy, nuclear families) postulated as distinguishing 'European' from 'non-European' behaviour. In some European societies in certain periods, nuclear families predominated. But in others (including in western Europe in certain regions and time-periods) the extended family was widespread, and in that respect resembled non-European societies such as China or the Islamic world. These findings decisively refute attempts to ascribe European economic superiority to the prevalence of the nuclear family, since nuclear families were dominant only in some parts of Europe in some periods, and extended families based on wider kinship ties prevailed in many others, including in northern Italy precisely during the period when it was in the forefront of European economic growth between c. 1000 and c. 1500.

But what about the claim that the EMP was a distinctive characteristic of the successful economies of the North Sea region? De Moor and Van Zanden, for instance, assert that the EMP emerged 'in the North Sea area – in England and the Low Countries in particular – and it was ... the long-term dynamism of this structure which helps to explain the long-term success of this region in the world economy of the early modern period'.[43] In this account, the 'core area' of the EMP consisted of Flanders, the coastal Netherlands, and eastern England, while a less 'pure' manifestation of the pattern can be found in the wider North Sea area.[44] Voigtländer and Voth adopt the even more restrictive view that 'England practiced an extreme form of the "European marriage pattern"'; this, they claim, created the 'low-pressure' demographic conditions for England's economic superiority compared to China, southern and eastern Europe, and even France.[45]

England and the Low Countries certainly displayed early and rapid economic growth by European standards, as Figure 1 shows. But did they have a more 'pure' or 'extreme' form of the EMP? Hardly. Tables 1-3 place countries in the order of greatest to least compliance with the relevant feature of the EMP. In no case does England or the Low Countries (Belgium and the Netherlands) occupy the extreme positions, which are instead dominated by Scandinavia,[46] German-speaking central Europe,[47] the Celtic societies,[48] and Bohemia under the 'second serfdom'.[49] Among the 38 countries listed in Table 1, the Netherlands comes only fifth, Belgium eighth, and England thirteenth as far as high female marriage age is concerned.

[43] De Moor / Van Zanden (2010), 4.
[44] De Moor / Van Zanden (2010), n. 10.
[45] Voigtländer / Voth (2006), 323 (quotation), 348.
[46] Clausen / Marker (2012); Hajnal (1983); Moring (2003); Sogner (1998).
[47] Ehmer (1991); Ogilvie (1995); Ogilvie (2003); Medick (1996).
[48] Flinn (1977); Houston (1997), 381; Anderson (1998), 341; Guinnane (1997).
[49] Velková (2009), 379; Čáňová & Horská (1972), 98; Beránková (1994), 80; Fialová (1985), 93, 96; Zeitlhofer (2003), 40-1.

Figure 1: Per capita GDP according to 'extremeness' of European Marriage Pattern, 1000-1820



Evidence on female celibacy is more difficult to obtain for England because of the almost complete lack of evidence on age-specific marital status in censuses and parish registers before the nineteenth century, but available estimates do not suggest that it was extremely high by European standards.[50] The sparse direct evidence places England at rank 15 among 36 countries listed in Table 2. The national estimates proposed by Wrigley and Schofield, based on theoretical assumptions about the relationship between celibacy, fertility, and marriage age, place English celibacy at 5 per cent in 1570, in the 14-22 per cent range between 1591 and 1641, and in the 8-12 per cent range from 1666 to 1816. These rates are also moderate compared to other European economies in the same period, except perhaps for the first half of the seventeenth century. The Netherlands also had moderate female celibacy, occupying rank 18 out of 36 countries listed in Table 2. Although Belgium had higher female celibacy, the third highest in Table 2, it was equalled or surpassed by Austria and Iceland. Overall, England and the Low Countries cannot be described as societies with 'extreme' female celibacy.

Nor did England and the Low Countries, with their high and growing per capita incomes, have extremely low levels of household complexity. Among the 28 countries listed in Table 3, the Netherlands came fourth, England eighth and Belgium ninth as far as non-complexity was concerned. In the seventeenth century, household complexity in England was approximately equal to that in enserfed Bohemia. In the eighteenth century, household complexity was actually higher in England, the Netherlands and Belgium than it was in Germany, Ireland, southern Spain, or Greece. In the nineteenth century, it was higher in England or Belgium than in a number of slower-growing economies including Germany, Austria, northern France, or southern Italy.

In a combined ranking of the 25 countries that appear in all three of Tables 1-3, the most extremely 'European' were Austria, Iceland, and Scotland. The Netherlands and England, far from being at the extreme or 'pure' end of the spectrum, occupied the middle ground, ranking respectively fifth and twelfth out of twenty. England's adherence to the 'European' pattern of late marriage, high celibacy and the nuclear family was surpassed by many other societies with much worse economic performance, including Sweden, Norway, Germany, Ireland, and Bohemia under the 'second serfdom'.

Moreover, differences among societies under the EMP could be as wide as the gap between them and 'non-European' regimes. As Table 1 indicates, 'late' age at marriage for women in societies unquestionably subject to the EMP varied between a low of c. 24 (in sixteenth-

[50] Weir (1984); Schofield (1985); Wrigley et al. (1997).

century Germany and nineteenth-century England) and a high of over 27 (in seventeenth-century Denmark and Sweden, eighteenth-century Denmark and the Netherlands, and nineteenth-century Denmark, Iceland, Switzerland, and Austria). Even a three-year difference in female marriage age could have significant demographic implications: the rise in nuptiality in early modern England, which involved an approximately three-year decline in female marriage age from c. 27 in the mid-seventeenth century to c. 24 by 1800, was sufficient to increase fertility by about 50 per cent.[51] The demographic gap between a EMP society in which women married first at 27-29 (as in Scandinavia or German-speaking central Europe) and one in which women married at 24 (as in England c. 1800), was about the same as the gap between England and a society with a 'non-European' female marriage of age 21-22 (such as Russia, Greece, Hungary, Poland, or Estonia).

Female celibacy, too, as Table 2 shows, also varied widely in societies indisputably subject to the EMP. On the high end, female celibacy exceeded 20 per cent in eighteenth- and nineteenth-century Austria and Iceland, and in nineteenth-century Belgium, Switzerland, and Scotland. On the low end, female lifetime celibacy were only 4-7 per cent in seventeenth-century Switzerland, Germany, and France: these values verged on the 5 per cent described as 'non-European'.

Marriage patterns also changed over time, with age at first marriage and permanent celibacy declining in some 'European' societies and rising in some supposedly 'non-European' ones. In England, marriage age and celibacy rates declined precisely in the period of fastest economic growth, before and during the Industrial Revolution .[52] The rapidly industrializing cities of the English northeast saw an increase in extended-family households during the Industrial Revolution, with the industrial city of Preston in Lancashire in 1851 showing 23 per cent complex family households.[53] Yet at the same time as marriage age, lifetime celibacy, and the proportion of nuclear-family households were declining in England, they were increasing in many parts of the continent, not just in areas of the EMP such as Germany and Austria, but also in Spain and Italy.[54]

Available evidence , then, offers little support for the arguments proposed in the recent literature on the EMP. The nuclear family, late marriage and high celibacy were not universal, distinguishing characteristics of Europe. In many parts of the 'core' of the European continent, women married early and universally, and extended families were important. And

[51] Wrigley / Schofield (1981), 230 (Table 7.15); Wrigley et al. (1997), 126.
[52] Wrigley et al. (1997), chapter 5.
[53] Anderson (1971), 43-6.
[54] See, e.g., Reher (1998) on Spain.

in some parts of Europe – such as England – early marriage and extended families became more prevalent during and after industrialization. Late marriage, high celibacy, and the nuclear family are therefore not plausible explanations for European economic growth.

Nor does this evidence allow us to use the EMP to explain the English and Dutch economic primacy shown in Figure 1. Late female marriage, high female celibacy, and low household complexity characterized not only England and the Low Countries, but also substantial parts of Scandinavian, Celtic, central, southern, and eastern-central Europe, extending even to significant parts of the Italian and Iberian peninsulas. Far from being 'extreme' or 'pure' cases of the EMP, England and the Netherlands manifested moderate demographic behaviour compared to other European societies; the extremes of marriage age and celibacy rates were found in the poorer and slower-growing economies of Scandinavia and German-speaking central Europe.

It appears that the EMP was not monolithic, but subject to many gradations along its different component parts. The conjunction of these components was also compatible with a wide range of different social and economic trajectories, as the remainder of this paper will discuss.

4. Women's Position

Evidence on the geographical prevalence of the EMP does not confirm the claims made in the recent literature. But perhaps there is better evidence on the various paths by which the EMP is supposed to have encouraged economic growth? The first of these relates to women's economic position. England and the Netherlands grew more rapidly, it is argued, because the EMP weakened patriarchal authority over daughters, reduced son-preference, improved women's property rights, encouraged female labour force participation, empowered widows, and created spousal equality. This is supposed to have benefited economic growth because it motivated human capital investment and reduced fertility.[55] Other versions of this view argue that the superior position women enjoyed under the EMP contributed to economic growth by ensuring that fertility responded to economic signals, providing scope for capital accumulation.[56] In still other versions, the EMP, by improving women's position, contributed to economic growth mainly by increasing education.[57]

[55] De Moor / Van Zanden (2010), 1, 3-4, 6-7, 10-12, 13-17, 19-21, 25, 27.
[56] Voigtlander / Voth (2010), abstract, 2-3, 6- 9, 11, 24-8.
[57] Foreman-Peck (2011), 292-3, 305-07.

No variant of this new literature unambiguously spells out the direction of the causal relationships involved. On the one hand, the EMP is supposed to have created a better position for women. But on the other, greater female autonomy is supposed to have given rise to the EMP. And in some variants, both marriage patterns and women's position are ascribed to underlying factors such as European or Christian cultural norms, the Black Death, or pastoral agriculture. The evident *endogeneity* of the different variables limits the scope of these claims to the merely descriptive assertion that the EMP was associated with a higher status for women, which in turn benefited the economy.

But even this claim is at odds with the evidence. As the women's history literature has shown, women had a good economic position in some societies with the EMP and a bad one in others. England and the Netherlands are certainly regarded as having endowed women with a good economic position compared to other European societies.[58] But England and the Netherlands are also recognized as having been distinctive in their per capita incomes (as Figure 1 shows) and many other ways – their factor prices, resource endowments, geopolitical position, trade participation, parliaments, legal systems, financial arrangements, and early liberalization of manorial, communal and corporative institutions, have all been adduced as causes for their early economic success. These numerous distinctive characteristics, indeed, continue to fuel vigorous debate about the causes of economic precocity in England and the Low Countries. The long-running discussion about what caused English and Dutch distinctiveness – whether in economic growth or gender issues – cannot be simplified away by invoking a feature such as the EMP which England and the Netherlands shared with many other societies in western, nordic, central, and eastern-central Europe whose economies grew slowly and industrialized late.

Outside these two precociously advanced market economies, women had a much worse economic status. In Germany, Scandinavia, France and many other regions, as historians of crafts and commerce have found, the EMP prevailed but women's participation in industrial and commercial occupations was severely restricted by guilds of craftsmen, retailers and merchants – the precise corporative institutions which some of the new literature regards as a

[58] Bosch (1962), 347; Charles (1985), 10; Clark (1919/1982), 37; Dekker (1998), 167, 171, 176; De Vries / Van der Woude (1997), 598-601; Eales (1996), 82-3; Harley (1993), 27-31, 42; Lacey (1985), 45; Laurence (1994), 129-35; Marland (1993 [Introduction]), 3, 5; Marland (1993 [The art]), 193-7, 205; Mendelson / Crawford (1998), 284, 314-6, 332; Prior (1994), 138-40; Schama (1987), 402-4, 407-12; Shahar (1983), 182 with note 42; Snell (1985), 306 with note 81; Wesoly (1985), 289. See the contemporary descriptions quoted in Laurence (1994) , 129-35; and Schama (1987), 404, 407-12. For an overview, see Ogilvie (2003), 344-51.

beneficial offshoot of the EMP.[59] In many regions of Switzerland, Germany, and France, as local studies have demonstrated, the EMP prevailed but women's work, wages, property rights, and in some cases even their consumption choices were restricted by local communities – again, by corporative institutions.[60] The female-male wage ratio lay between 0.6 and 0.7 in early modern England and the Netherlands, but as low as 0.4 in many areas of German-speaking central Europe, often because of wage-ceilings and employment restrictions – again, imposed by guilds and local communities.[61] In the Netherlands, female spinners earned a competitive wage which was high enough to attract even male workers into spinning, but in the German territory of Württemberg, where the EMP also prevailed, weavers' and merchants' guilds allied with community institutions to cap spinners' pay, pushing them to the subsistence margins; only blind and handicapped men worked as spinners.[62] In Bohemia, also characterized by the EMP, female household-headship was low, girls could not inherit, and communal institutions collaborated with manorial administrators to harass women working independently outside male-headed households.[63]

The descriptive association between marriage patterns and female economic autonomy, which is central to much of the new literature on the EMP, applies to just two societies, England and the Netherlands, which are universally acknowledged to have been exceptional in many other respects. Other societies with the EMP excluded women from many industrial and commercial activities in which their labour was most productive, capped their pay, curtailed their non-household activities, limited their property rights, and controlled their consumption choices. Whether women enjoyed economic autonomy under the EMP – or any demographic system – depended much more on the balance of power among other institutions. Strong guilds which succeeded in excluding women from industrial and commercial activities and training existed both in northern Italy (in the absence of the EMP) and in German-speaking central Europe (in its presence). Much weaker guilds which increasingly failed to exclude women from training and skilled work prevailed both in eastern Europe (in the absence of the EMP) and in England and the Netherlands (in its presence).[64] Other corporative institutions such as village communities were extremely strong both in Russia (outside the EMP) and in Germany (where the EMP prevailed). Corporative institutions played a central role in

[59] Ogilvie (2004 [AHR]); Wiesner (1986); Wiesner (1989); Wiesner (1991); Wiesner (2000); Coffin (1994); Collins (1989); Hafter (1995); Hafter (2004); Hafter (2007); Lanza (2007); Lanza (2009); Musgrave (1997); Edgren (1986); Edgren (1998); Edgren (2002); Edgren (2006); Lindström (1987);Lindström (2000).
[60] Ogilvie (2003); Ulbrich (1999); Ennen (1989), 257; Rippmann (1996), 35; Dürr (1995); Ryter (1997)
[61] Ogilvie (2003), 111-14; Van Zanden (2011).
[62] Van Nederveen Meerkerk (2010); Ogilvie (1997), 353-7, 362.
[63] Ogilvie / Edwards (1998); Ogilvie / Edwards (2000); Ogilvie (2003).
[64] For a discussion of the relative power of guilds in different European societies, see Ogilvie (2005); Ogilvie (2007).

lowering women's economic status but show no systematic relationships with the EMP. Where such coercive institutions restricted women's choices, the mere prevalence of the EMP failed to guarantee female autonomy.

There were also European societies where the EMP did *not* prevail, but indicators of female economic autonomy reached similar levels to those observed in societies where it did prevail. The female household-headship rate, for instance, is widely regarded as an important indicator of female economic autonomy because it measures women's ability to support a household independently. A female headship rate of 10-15 per cent was typical of many western European rural societies.[65] But societies with completely different household formation systems could also manifest high female headship, as in the case of the Russian estate of Voshchazhnikovo, where well over 17 per cent of households were headed by women in the early nineteenth century.[66] Female labour-force participation is a second important indicator of women's economic autonomy, and this Russian estate had numerous female labourers in the nineteenth century and tantalizing evidence of a high proportion of female servants (42 per cent) in the mid-eighteenth.[67] Yet despite high female headship and labour-force participation, Voshchazhnikovo had neither the EMP nor rapid economic growth: the economic options of both female and male serfs were severely constrained by manorial and communal institutions.[68] The general lesson from this Russian estate, as for many European societies, is that women can and will support their households and participate in the labour force under many different marriage patterns. What mattered for female autonomy and any resulting economic benefits was not just that women could work, but what kinds of work they were allowed to do, what wages they were allowed to earn, and whether they were allowed to allocate their earnings freely. This depended not on the EMP but on other institutions – communes, guilds, manorial systems, the church, the state – which regulated people's economic options.

Early modern England itself provides further grounds for scepticism about associating late female marriage and high female celibacy with high female wages and faster economic growth. In England, the seventeenth century saw slow economic growth and a decline in wages for all workers. This was accompanied by a rise in marriage age and lifetime celibacy

[65] Ogilvie / Edwards (2000), 965-6, 971.
[66] Dennison (2011), 78-9.
[67] Dennison (2011), 160-71.
[68] Dennison (2011), 213-33.

– i.e., *falling* female wages were associated with an *intensification* of the EMP.[69] This is comprehensible when we recognize that a decline in wages will exert two countervailing effects on marriage decisions. The substitution effect is positive: lower wages reduce the value of time in the labour market, giving women an incentive to move out of the labour force and into marriage. The income effect is negative: lower wages reduce women's incomes, diminishing their ability to accumulate the savings necessary to marry and establish the independent household expected under the EMP. The net effect of falling (or rising) female wages on marriage age is therefore theoretically indeterminate. In the case of seventeenth-century England, the income effect apparently dominated the substitution effect. This is also the implication of Wrigley and Schofield's finding that economic growth and rising wages in eighteenth-century England increased women's marriage opportunities, with marriage age falling from c. 27 around 1700 to c. 24 around 1800.[70] These findings are a good illustration of the fact that marriage is an endogenous variable influenced by economic circumstances, making it difficult to view the EMP as an exogenous causal influence on the economy.

A final empirical challenge to the putative link between the EMP and female status is that women's economic autonomy fluctuated significantly across time, even while the EMP remained relatively stable. Agricultural historians find that changes in agricultural technology, farm size, labour demand, and rural institutions reduced women's earnings in farm-work in both the Netherlands and England between the sixteenth and the later eighteenth century – precisely the period during which the EMP is supposed to have fuelled Dutch and English economic success.[71] In many European societies between the late Middle Ages and the eighteenth century, guilds progressively limited women's participation in crafts and commerce and capped the wages of female ancillary workers. The EMP provided no protection against this development, which prevailed across early modern Europe wherever guilds remained powerful.[72]

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[69] On the rise in marriage ages and lifetime celibacy for women in England in the seventeenth century and its fall in the eighteenth century, see Smith (1979), 84. On changes in English women's wages in agriculture in the seventeenth and eighteenth century, see Burnette (2008); Van Zanden (2011), 332-6.

[70] See the summary in Wrigley (2004), 69-79.

[71] Langdon (2010), 74-5; Burnette (1997), 207; Burnette (2008); Snell (1981), 420-9. The fact that women's wages in agriculture probably declined considerably in England in the seventeenth and eighteenth centuries, and to a more modest extent in the Northern Netherlands in the same period, has been acknowledged recently by Van Zanden (2011), 332-6, although he does not let it alter his view that the EMP led to a high female status in the North Sea societies and hence to their economic superiority.

[72] On crafts, see Wiesner (1989); Bennett (1993); Ogilvie (1990); Ogilvie (2003). On spinners, see Van Nederveen Meerkerk (2006) ; Van Nederveen Meerkerk (2010); Ogilvie (2003). On commerce, see Van den Heuvel (2007); Ogilvie / Küpker / Maegraith (2011).

In short, the claim that women's economic status was determined solely, or even predominantly, by the household formation system – whether the EMP or any other – is not consistent with the empirical findings so far available. Women's economic position was much more strongly influenced by institutional rules restricting female labour force participation, remuneration, property rights, market access, consumption and legal autonomy.[73] Such institutional rules were often manipulated in favour of male insiders, but to differing extents in different European societies – regardless of whether the EMP prevailed. Female empowerment probably does benefit economic development.[74] But there is little evidence that female empowerment was determined by the marriage system rather than by the wider framework of social and institutional constraints on women's (and men's) choices.[75]

5. Human Capital Investment

Human capital investment is the second main path by which the EMP is claimed to have caused faster European economic growth. In this story, the EMP led to more schooling, more apprenticeship, more training during servanthood, higher literacy and numeracy, a lower skill premium (i.e., a narrower wage-gap between skilled and unskilled workers), and a lower literacy gap between the sexes. More generally, 'the comparatively high investment in human capital formation in the North Sea area in this period formed the necessary basis for the rapid growth of its economy in the seventeenth and eighteenth centuries'.[76] A similar argument holds that Western Europe grew faster in the late nineteenth century as a result of developments set in motion six centuries earlier, after the Black Death, when the emergence of the EMP motivated more female education because of late marriage and more child education because of lower fertility: 'the lower time cost and general price of investing in "child quality" of better informed mothers stimulated investment in human capital, which in turn eventually raised outputs and incomes'.[77] Other versions claim that Europe developed faster than China because the EMP fostered corporative institutions such as guilds, cities, and universities, which favoured the creation and diffusion of knowledge.[78]

One problem with these arguments concerns the logic behind parental investment in offspring's education. Parents will only *invest* in their offspring's education (as opposed to

[73] On the role played by institutions in influencing women's economic position, see Ogilvie (2003), esp. ch. 7.
[74] Although Doepke / Tertilt (2011) suggest that the extent to which it does so depends on what form empowerment takes.
[75] Ogilvie (2003); Dennison (2011), 456.
[76] De Moor / Van Zanden (2010), 23 (quotation), also 3, 15, 21-2, 28.
[77] Foreman-Peck (2011), 293.
[78] Greif (2006), 310; Greif / Tabellini (2012), 1.

buying it as a consumption good) if such investment promises a positive return. There are two mechanisms by which this incentive may operate. The first is that is that parents expect to share the returns from their offspring's education via transfers from offspring in adulthood. But this runs counter to a basic characteristic of the EMP, namely that the net intergenerational wealth flow runs from parents to children: offspring leave home early to work in other households, migrate to other localities, form independent households upon marriage, do not reside as adults in the same household (or even the same locality) as their parents, and seldom remit earnings to the parental generation.[79] A family system with these characteristics actually creates *disincentives* for parents to invest in their offspring's human capital since they cannot expect to share returns when offspring reach adulthood.

The second mechanism that can motivate parents to invest in offspring's education is altruism: their offspring's future well-being increases parents' own well-being. But this incentive will only operate if skilled jobs are open to all members of society. Parents will invest in girls' education only if females are able take work that require skills, as opposed to being restricted activities such as labouring or spinning which rely on learning-by-doing rather than formal training. Even for boys' education, skilled occupations must be open to all rather than being restricted to members of specific groups. But access to skilled occupations in preindustrial Europe did not depend on the household formation system – whether the EMP or any other. Rather, it depended on institutions regulating labour markets – craft guilds, merchant associations, urban privileges, village communities, and manorial regulations. As discussed in the preceding section, women were granted access to skilled jobs (e.g. in crafts or commerce) only in some societies with the EMP, specifically the Netherlands and England. In other EMP societies, such as Germany, Scandinavia, and France, craft guilds excluded females (and many 'outsider' males) from skilled industrial work and guilds of merchants and retailers restricted their participation in commerce. This reduced the incentive to *invest* in girls' education, although better-off parents still purchased it as a *consumption* good. The EMP by itself cannot have been crucial in creating incentives for female education since the EMP existed, as we have seen, both in societies where women were permitted to do skilled work and those where coercive institutions excluded them. Rather, what decided whether women learned vocational skills was the strength or weakness of barriers to entry imposed by corporative institutions seeking economic rents for insiders by restricting low-cost competitors such as women.

[79] Caldwell (1976); Caldwell (1982).

A deeper problem with the argument linking demographic regimes, education and economic growth is, once again, the endogeneity of all the variables. Sometimes the EMP is portrayed as *causing* high human capital investment, since this is central to the argument that it led to earlier and faster European economic growth.[80] But at other points, the argument reverses direction: the high rewards provided by the English and Dutch economies in the form of higher wages motivated workers to invest in skills, it is claimed, thereby delaying marriage and restricting fertility.[81] Still other versions invoke underlying variables – European culture, the Black Death, pastoral specialization – as causes for both the EMP and high human capital investment. The endogeneity of all variables again reduces the scope of the claims advanced in this new literature simply to the descriptive assertion that certain European societies combined a certain demographic regime, high human capital investment, and economic success.

But the descriptive assertion itself is problematic. Table 4 presents human capital indicators for European economies in the eighteenth and nineteenth centuries. These show that education levels varied hugely across societies with the EMP. This is not surprising, since the family was not the only, or the main, institution affecting education. Schooling, literacy and numeracy in early modern Europe were more strongly influenced by other institutions: the market, the church, the state, the local community, the occupational guild. These non-familial institutions show no significant correlation with the prevalence of the EMP. In some societies, such as Germany and Scandinavia, the church allied with the state and the local community to impose compulsory schooling on children of both sexes, monitor compliance, and penalize violations, leading to the high education levels shown in Table 4. In other societies, such as England, such institutional pressures were absent, leading to the much lower levels of enrolment and literacy shown in Table 4. Numeracy was typically learned, to some degree at least, informally in response to market demand in commercialized economies, explaining why England, with its mediocre school enrolment and literacy, had numeracy levels similar to more institutionally regulated societies such as Germany or Scandinavia.

Furthermore, there is no evidence that human capital investment was associated with economic growth in pre-industrial Europe. As Figure 1 shows, England grew fast in the early modern period and industrialized before any other society, yet schooling and literacy stagnated there during the 'long eighteenth century' and were not high by European standards until well into the nineteenth. Economic historians who disagree on almost all other issues

[80] E.g., De Moor / Van Zanden (2010), 21; Van Zanden (2011), 333; Foreman-Peck (2011), 293; Greif (2006), 310.
[81] E.g., De Moor / Van Zanden (2010), 28.

Table 4:
Human Capital Indicators in European Economies Before and During Industrialization

Country	Primary School Enrolment			Literacy		Numeracy		
	1830	1840	1850	male, 1800	female, 1800	1700	1750	1800
England	274	351	498	60	40	93	93	93
Netherlands			541	73	51			98
Belgium	346	526	549	60	37	72		98
Germany: Protestant						87	96	88
Germany: Catholic						68	86	
Germany: Prussia	695	714	730					
Germany: Saxony				80	44			
Germany: Hesse				91	43			
Denmark						90	96	100
France: All	388	513	515	48	27	89	93	96
France: Northern				71	44			
Norway	685	671	640				93	96
Poland							94	91
Switzerland						66		98
Austria		367	389			81	86	96
Bohemia						85	85	84
Scotland			592	65	15			
Ireland								77
Italy: All	28		124					
Italy: Northern							89	87

Notes:
School enrolment: pupils enrolled in primary schools, per 1000 children aged 5-14.
Literacy: % of adults who could sign their name.
Numeracy: estimates based on age-heaping in census-type listings.
England = England & Wales for primary enrollment; UK for numeracy.

Sources:
School enrolment: Lindert (2004), 91-2 (Table 5.1).
Numeracy: A'Hearn / Baten / Crayen (2009), 801 (Table 4).
Literacy: Reis (2005), 203 (Table 8.2).

concur that human capital investment was not important in the English Industrial Revolution.[82] In 1800, literacy for both sexes in England was lower than in the German states of Hesse and Saxony, the Netherlands, and northern France, much slower-growing economies; literacy for men in England was lower than in Scotland.[83] School enrolment levels in 1830-50 were lower in England than in the Netherlands, Belgium, France, Prussia, Norway, or Scotland.[84] In numeracy, England's relative disadvantage was less pronounced, but in 1750 numeracy in England still lay below that in Denmark, Protestant Germany, and even Poland; in 1800 it was lower than that of many poorer and slower-growing economies, including Austria, Belgium, Denmark, France, the Netherlands, Norway, and Switzerland.[85]

Conversely, other European societies had outstandingly good educational indicators but slow economic growth. The Netherlands had high school enrolment, literacy, and numeracy, but after the end of the Dutch Golden Age in 1670 its economy stagnated (as Figure 1 illustrates), and it industrialized very late.[86] German territories had much higher school enrolment and literacy than England and even the Low Countries, but stagnated throughout the early modern period and did not industrialize until after c. 1840.[87] A similar pattern is found in Lutheran Scandinavia, with high school enrolment and literacy rates, but slow growth and late industrialization.[88] High levels of book publishing or book ownership in England and the Netherlands do not, as sometimes claimed, demonstrate that these economies had high human capital investment; rather, they suggest that higher incomes led to more purchases of all normal goods, including books – as consumption, not investment items.

It might be argued that even though there is no evidence that education contributed to early modern economic growth, and even though education levels varied greatly among EMP countries, nonetheless there must have been some relationship between the three variables because education and income levels were, on average, higher in societies with the EMP than

[82] Mokyr (2009); Allen (2003).
[83] Reis (2005), Table 8.2.
[84] Lindert (2004), Table 5.1.
[85] A'Hearn / Baten / Crayen (2009), Table 4.
[86] De Vries / Van der Woude (1997); Van Zanden / Van Riel (2004). Van Zanden / Van Leeuwen (2012) present new macroeconomic estimates suggesting that the province of Holland experienced stagnation rather than actual decline between c. 1670 and c. 1800, but their figures refer solely to Holland, by far the most economically successful province of the Netherlands. Even for Holland, they find that industry had a near-zero growth rate between 1665 and 1800 and trade contracted at a rate of 0.13% p.a. between 1720 and 1800 (Table 4).
[87] Becker / Hornung / Woessman (2011) acknowledge that education played no role in British industrialization, but find a positive association between school enrollment and non-textile industrialization in nineteenth-century Prussia, concluding that education was important for industrial 'catch-up'. However, Edwards (2012) shows that these findings are vitiated by omitted variable bias and there is hardly any evidence of a causal relationship.
[88] Skovgard-Peterson (1990); Johansson (1977/2009).

in societies in which 'Mediterranean', 'Slavic', or 'transitional' marriage patterns prevailed. However, southern and eastern Europe differed from north-western Europe not just in their marriage patterns but also in many other economic, social and institutional characteristics which affect both education and growth. Furthermore, as economic theory recognizes, one reason it is difficult to establish that education causes growth is because causation goes in both directions: improving education may increase incomes, but rising incomes will increase consumption of education as a normal good. Regardless of the reasons for greater prosperity in northwest Europe, one would expect to see it consuming more education. The high variability in education and its lack of association with economic performance inside the EMP zone does not support the view that economic growth before the nineteenth century was fuelled by formal education. Such education was often enforced by churches, rulers, overlords, communal officials, and occupational guilds – coercive institutions which used their powers to impose 'social disciplining' on ordinary people in pursuit of elite interests. Until educational investments were chosen by ordinary people for economic reasons rather than being imposed by traditional elites to serve their own interests, educational indicators were unlikely to show any strong association with economic growth. It is therefore unsurprising that no systematic relationship emerges between educational indicators, economic growth and the demographic system.

6. Population Growth and Capital Accumulation

The third main way the EMP is supposed to have fuelled economic growth was by causing people to marry only if they could establish an independent household which, it is argued, ensured that fertility and thus population growth responded to economic fluctuations. This is a feature of the EMP emphasised in nearly all versions of the recent literature. In some accounts, such demographic responsiveness is regarded as contributing to growth indirectly, via its effect on women's economic status[89] or human capital investment.[90] But some regard demographic responsiveness as a primary and direct cause of economic growth: population growth slowed when the economy was doing poorly, ensuring that per capita incomes were high enough for capital accumulation to continue, but accelerated when the economy did well, generating more savers whose larger aggregate accumulation of capital had positive externalities for economic growth via technological innovation.[91] This is the view advanced by Voigtländer and Voth, who argue that England had an 'extreme' form of the EMP, which

[89] De Moor / Van Zanden (2011), 18, 27
[90] Foreman-Peck (2011), 293, 299-301.
[91] Voigtlaender/Voth (2009, 2011).

gave it two key advantages in this demographically induced process of capital accumulation.[92] First, they claim, England started in 1700 with a better demographic regime, resulting in higher initial incomes and larger initial capital externalities. Second, they contend, population growth in England responded more sensitively than in other societies to economic fluctuations between 1700 and 1850, guaranteeing continual capital accumulation with concomitant growth externalities.[93] Via these two mechanisms, they maintain, the EMP caused the economic superiority of England over other parts of Europe and of Europe over other parts of the world.

But how well do these arguments hold up empirically? A first problem is the elision between England and Europe. Voigtländer and Voth derive their results from England between 1700 and 1850. But they use them to draw much wider implications about the economic superiority of the entirety of Europe to the entirety of China. One of their simulations shows that if England had not had moderate population growth that responded to economic trends, but instead high and unresponsive population growth (as they assume China's to have been), its economy would have collapsed, which, they argue, 'underlines the crucial importance of fertility limitation as part of Europe's unique demographic regime'.[94] But, as we saw in Section 2, 'Europe' did not have a unique demographic regime. Rather, it had a multiplicity of different regimes, some of which involved early and universal marriage not dissimilar to the little that is known of Chinese demographic behaviour in that period. Since the EMP did not prevail all over Europe, it cannot be used to explain why economic growth was faster in Europe than in China. The elision of England and Europe sweeps under the carpet the awkward question of whether initial per capita incomes, population growth rates, or the elasticity of population growth with respect to economic fluctuations differed sufficiently between all of Europe and all of China to account for their differing growth trajectories. Indeed, as discussed below, available evidence finds that Chinese fertility also responded to economic fluctuations.[95]

In tacit acknowledgement that Europe did not have a monolithic demographic regime that distinguished it from China, Voigtländer and Voth assert that the growth benefits of the European demographic regime were limited to England, because it had an 'extreme form' of the EMP, while even nearby France lacked this regime and therefore failed to grow and

[92] Voigtländer / Voth (2006), 323.
[93] Voigtländer / Voth (2006).
[94] Voigtländer / Voth (2006), 346.
[95] Wang / Campbell / Lee (2010); Campbell / Lee (2010); esp. 107, 109-11.

industrialize.[96] But the simulations purporting to demonstrate this conclusion rely on two unsupported assumptions about demographic differences between England and France.

The first is that demographic 'starting conditions' differed between the two countries.[97] In England, Voigtländer and Voth claim, 'the demographic regime propped up initial incomes' before 1700, giving greater scope for the capital externality to work; these starting conditions were lacking in France, and that plays an important role in their argument about why the French economy grew more slowly than the English.[98] But they provide no evidence for this assumption. If incomes were higher in England than France before 1700, how do we know it was for demographic reasons, given the many other differences between the two countries and the many variables that can affect per capita incomes? In any case, where is the evidence that the pre-1700 demographic regime differed between England and France? As we saw in Section 2, northern France had late marriage, high celibacy and predominantly nuclear families throughout the entire early modern period (possibly from as early as the fifteenth century),[99] and France was the first society to practise widespread fertility control within marriage (in the eighteenth century, long before England).[100] Population growth was very moderate in sixteenth- and seventeenth-century France,[101] and the authors themselves ascribe to France a low initial population growth rate of 0.32%,[102] which makes it unlikely that its low initial per capita incomes can have been due to high population growth. No evidence therefore supports the notion that differences in demographic regime between France and England explain their gap in per capita income in 1700, which drives much of the divergence in their subsequent growth trajectories in the simulations by Voigtländer and Voth.

The second demographic assumption giving rise to faster English growth, according to Voigtländer and Voth, is that French fertility was constant whereas English fertility responded to economic conditions. This meant French population growth failed to slow down when the economy was doing poorly and to speed up when the economy was doing well, so no virtuous growth circle could develop via more saving and capital accumulation.[103] But doubt is cast on this claim by the literature comparing elasticities of demographic behaviour with respect to economic fluctuations in different historical societies. The most relevant study for this argument is the econometric analysis of French demographic behaviour by Weir, who showed

[96] Voigtländer / Voth (2006), 323, 343-5.
[97] See Voigtländer / Voth (2006), esp. Tables 5 and 6.
[98] Voigtländer / Voth (2006), 321 (quotation), 322.
[99] Perrin (1963), 75-86.
[100] Dupâquier (1997); Goubert / Denault (1977).
[101] See, e.g., Dupâquier (1997), 446-51.
[102] Voigtländer / Voth (2006), 344.
[103] Voigtländer / Voth (2006), 345.

in 1984 that 'at no time between 1670 and 1830 were marriages less responsive to economic conditions in France than in England'; this led Weir to conclude that the origins of the contrast between French and English growth performance 'are not to be found in difference of demographic behaviour'.[104] In Germany, too, the elasticity of fertility with respect to economic signals appears to have been higher than in England (though slightly lower than in France) throughout the eighteenth century.[105] Recent studies of eighteenth-century Chinese regions also show that fertility rates were responsive to prevailing economic conditions as reflected in grain prices.[106] For England itself, the VAR analysis by Nicolini indicates that positive checks on population growth disappeared during the seventeenth century and preventive checks disappeared before 1740, suggesting that population growth became *less* responsive to economic signals in England at the precise period when its economic growth began to accelerate and to diverge most greatly from that of France.[107] The EMP thus cannot explain faster economic growth in England than in France any more than it explains faster growth in Europe than in China.

7. Cultural Beliefs and Norms

All proponents of the view that the EMP explains economic growth maintain, to varying degrees, that this unique demographic regime was associated with distinctively European cultural beliefs and norms that further contributed to economic success. It has been claimed, for instance, that in Europe by the ninth century, 'tribal tendencies were gradually undone by the church which, in addition to generalized morality, advanced a marriage dogma that undermined large kinship organizations'.[108] The resulting combination of nuclear families and corporative institutions, according to this story, fostered additional growth-inducing 'beliefs and norms', including 'the rule of law, the legitimacy of majority rule, respect for minority rights, individualism, and trust among non-kin'.[109] A similar view sees the EMP and its economic benefits arising from, and helping to sustain, the cultural norm that marriage should be based on consensus and the sexes should enjoy relative economic equality.[110] Having once arisen, the EMP then helped sustain these economically beneficial European cultural attitudes, which are contrasted with the attitudes sustained by non-European marriage patterns in eastern Europe and in China.[111] Some even emphasize putative specificities of English culture

[104] Weir (1984), 43-4.
[105] Guinnane / Ogilvie (2008), esp. 23-7, for comparisons between Germany, England and France.
[106] Wang / Campbell / Lee (2010); Campbell / Lee (2010); esp. 107, 109-11.
[107] Nicolini (2007).
[108] Greif / Tabellini (2010), 137.
[109] Greif (2006), 311.
[110] De Moor / Van Zanden (2010), 1, 4-6; Van Zanden (2011), 333.
[111] De Moor / Van Zanden (2010), 4, 6-7

which militated against high birth-rates: 'social and cultural norms limited fertility in early modern England in a way that few other societies did'.[112]

These are difficult claims to sustain empirically. Some scholars refer to secondary literature postulating that early modern England had distinctive cultural norms, while ignoring the controversy which continues to rage over claims relating to English uniqueness.[113] Most refer to early Christianity and the cultural beliefs and norms embodied in medieval church doctrine.[114] Christian norms are most explicitly emphasized by De Moor and Van Zanden, who refer to the prescriptive provisions of medieval canon law, particularly twelfth-century reforms granting men and women the freedom to choose marriage partners without the consent of parents or local authorities and endowing women with a strong bargaining position. These are the norms which, they argue, the rise of the EMP in turn helped sustain.[115]

But no attempt has been made by these scholars to show that the terms of canon law were implemented in practice, and indeed this seems quite doubtful. Bonfield points out severe limits to the enforcement power of the medieval church, which could only implement its 'theologically inspired marriage formation rules' to the extent that it could reach a practical alliance with local institutions and powerful interests.[116] Donahue finds significant differences across western European Christian societies in enforcement of marriage norms: in England, the courts mainly upheld clandestine marriages, while in northern France and parts of Belgium they were mainly used by parents to enforce their offspring's marriage promises. [117] He ascribes this to differences in institutions and property rights, and concludes that in France 'structures of family authority were stronger' than in England.[118] Yet this stronger patriarchal authority did not prevent the EMP from emerging in northern France just as it did in England.

A second problem with the association of the EMP with distinctive Christian cultural norms – whether of generalized morality, consensual marriage, or fertility control – is that marriage and household behaviour varied enormously across Christian Europe. Proponents argue that there was a strong correlation between the cultural norms fostered by the medieval Catholic church and the EMP.[119] As Tables 1-3 illustrate, however, the EMP was not, and did not

[112] Voigtländer / Voth (2006), 323.
[113] Voigtlaender / Voth (2006). See the debate about the claims in Macfarlane (1978) relating to 'English individualism'.
[114] Greif/Tabellini (2010), xx; Voigtlaender/Voth (2013) describe Christian religious doctrine as 'necessary but not sufficient' to explain the rise of the EMP.
[115] De Moor / Van Zanden (2010), 6.
[116] Bonfield (2001), 99-100.
[117] Donahue (2008).
[118] Donahue (1983), 156.
[119] De Moor / Van Zanden (2010), 7; Greif (2006), 309; Voigtlaender/Voth (2013), 2.

become, the prevalent family system in those parts of Europe where the church was strongest. Italy, for instance, was undisputedly and enduringly influenced by the Catholic church whose seat was in Rome, yet many parts of Italy had early female marriage and low female celibacy, and many parts had strong extended families.[120] In Spain, church regulation of marriage and sexuality had observable effects on nuptiality and fertility, yet church teachings were compatible with a 'European' marriage pattern in some regions of Spain and a 'non-European' pattern in others.[121] The same was true of Portugal, strongly Catholic, but with a mixture of 'European' and 'non-European' marriage patterns.[122] These findings for Mediterranean Europe are hard to square with the idea that medieval Christian culture gave rise to the EMP.

The wide variation in marriage patterns within ethnically and linguistically homogeneous regions within Europe casts further doubt on the idea that the EMP was associated with the beliefs and values of particular cultures. In southern Europe, as we saw in Section 3, historians have identified 'two different family systems in the northern and southern regions of Iberia, and no less than three in Italy'.[123] In the countryside around Bologna, sharecropping farmers lived in predominantly complex ('non-European') households while their neighbours who were agricultural wage-labourers lived in predominantly nuclear-family ('European') households.[124] Within France, marriage age, celibacy, and the balance between nuclear and extended families differed substantially between the south and north of the country, and even within smaller regions (such as the south-eastern Loire department).[125] Across Spain, as well, marriage patterns and household structure varied enormously: within the same early modern Catalan community, for instance, household complexity was a 'European' 15 per cent among landless villagers but a 'non-European' 50 per cent among large peasant farmers.[126] Hungary contained regions dominated by nuclear families alongside areas where extended families predominated.[127] In Sweden, communities with only 10 per cent complex households existed alongside others with 25 per cent.[128] European Russia, likewise, manifested a diverse set of marriage patterns and family forms across culturally identical communities.[129]

[120] Smith (1981), 110-11.
[121] Pérez Moreda (1997), 471, 478; Reher (1998).
[122] Sonnino (1997), 505-07; Michelotto (2011), 357 (late marriage for men and women 1760-1814).
[123] Viazzo (2003), 122 (quotation); Sonnino (1997), 505-07; Micheletto (2011), 355-6.
[124] Kertzer (2002), 45.
[125] Kertzer (2002), 55; Lehning (1980), 105; Lehning (1992), 173-4; Shaffer (1982).
[126] Kertzer (2002), 56; Reher (1997a), 35.
[127] Kertzer (2002), 59; Andorka / Faragó (1983).
[128] Kertzer (2002), 56; Egherbladh (1989).
[129] Dennison (2011).

It is difficult, therefore, to find empirical support for the notion that the EMP was caused by, or sustained, distinctive cultural norms, whether about non-familial trust, consensual marriage, or fertility control. There was no systematic relationship between the teachings of the Christian church on the one hand and marriage age, lifetime celibacy, or household complexity on the other. The extent to which the church was able to implement its ideology depended on the institutional characteristics of each European society. Strongly religious European societies included those with early marriage, low celibacy, and extended-family households as well as those with extreme forms of the EMP. The widely variegated distribution of European marriage patterns is not consistent with any notion of a distinctive culture – whether of generalized morality, gender parity, or fertility control – let alone one that accounts for European economic growth.

8. Conclusion

The arguments and evidence presented in this paper imply a new view of the interaction between demographic and economic decisions. That economists and economic historians have turned their attention to demographic behaviour is a positive development. But the recent attempts to attribute European economic superiority to the EMP cannot be sustained empirically or theoretically. The EMP did not prevail throughout Europe, or even throughout the core of Europe. The three key components of the EMP – late marriage, high celibacy, and nuclear families – were not always associated with one another. Where they were associated, they did not lead ineluctably to economic growth. Indeed, where the components of the EMP did coincide in their most 'pure' form, economic growth was slower and industrialization later than in societies where the EMP took less extreme manifestations. Conversely, those European economies that grew fastest had moderate demographic patterns and, at least in the case of England, moved further away from the EMP in the century before industrialization and during the Industrial Revolution itself.

Our evidence suggests that whether a society with the EMP experienced economic growth depended on wider characteristics of its economy and institutional framework. In early modern England, the EMP existed within a framework of labour mobility and relative economic autonomy for women; economic growth was usually positive and ultimately spectacular. In the early modern Netherlands, the EMP initially existed in a similar framework of well-functioning labour markets and successful economic growth; but later the economy stagnated and industrialization came late. In German-speaking central Europe and the Czech lands, the EMP existed in a more coercive framework of mobility restrictions (including, in some areas, serfdom) and corporative barriers to entry in labour markets (for

most women and many men); economic growth remained slow until these institutional obstacles were removed. In parts of southern Europe, nuclear-family households were formed at marriage, but female marriage age, celibacy and labour force participation were low; in other southern European societies, female marriage age and celibacy were high but women's work was severely constrained by non-familial institutions; in most parts of the region, economic growth was unimpressive. Under serfdom in Russia, at least in some regions, female labour force participation was high and substantial proportions of women remained unmarried, but complex households were still widespread; economic growth was slow.

What is needed is a coherent and empirically satisfactory theory of how particular aspects of the EMP were linked to the wider institutional context, and which demographic and institutional characteristics were responsible for which economic outcomes. We would speculate, based on current scholarship, that the demographic practices highlighted in the EMP were only possible within a wider social framework of strong non-familial institutions that could substitute for the labour, insurance and welfare functions which small, nuclear-family households could not provide. However, it was not inevitable that this wider framework should be made up of institutions that *also* benefited the economy, such as well-functioning factor markets or impartial legal systems, instead of institutions with more ambiguous growth effects such as serfdom, guilds, communities, religious bodies, or absolutist states. Future research, we suggest, must place at the centre of its analysis the *non-familial* institutions that constrained both demographic and economic decisions during European economic development.

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Appendix A:
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