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Population Growth and State Policy in
Central Europe Before Industrialization

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I. Introduction

This paper seeks to answer the following question: Does the history of present-day developed societies suggest that it is desirable or feasible to institute state policies to restrict rapid population growth - particularly high fertility by poor people - in less-developed economies? Comparisons between the development process of Europe in the past and that of poor countries in many parts of the world today are dangerous for a number of reasons, among which I will only mention the enormous differences in social institutions, the technological environment, and international trade and politics. However, the historical record *is* sometimes invoked to argue that population growth should be viewed as generally - perhaps invariably - constituting the fundamental source of economic insecurity and socio-political conflict in human societies.¹ This paper explores the economic and demographic development of Central Europe from the seventeenth to the nineteenth century, in order to find out how much weight should be placed on such arguments from history.

With the enormous growth of the state from about 1550 onward, governments in Central Europe began to adopt policies directed at controlling the growth of population in the name of public security. These policies touched upon all aspects of demographic behaviour, but by far the most severe and thoroughly implemented were those directed at controlling fertility. This paper examines the nature of state demographic policies, how they varied across Central Europe, how much success they enjoyed, and whether there is evidence that state control of demographic behaviour did increase collective security.

Central Europe is a good context in which to examine these questions for several reasons. First, to a greater extent than any other part of Europe, Central European states

early developed the administrative structures - including, crucially, the paid, local-level bureaucracies - which enabled them to adopt a highly interventionist stance toward many aspects of everyday life. In this they were more similar to modern states than was pre-industrial England, where until the nineteenth century the state relied largely on unpaid amateurs - village constables and local Justices of the Peace - and was therefore unable to exercise control over local behaviour without the cooperation of local elites. Particularly in the field of population policy, Central European states have long been recognized as having developed political regulation of marital and sexual behaviour to a level quite unknown in England, and far beyond the other continental countries. This was acknowledged in 1868 by Karl Braun, a leading German economist, in an essay directed against the so-called *politische Ehekonsens* (political consent to marriage) which, although it was reaching a peak in the 1860s, had prevailed in most Central European states for centuries:

Readers ... in Germany, Austria and Switzerland will understand me when I speak of forced celibacy for the propertiless. By contrast, this will be hard for those in France, Italy, Belgium, England, etc. The latter do not know the institution of which I wish to speak, and I am convinced that it would have been much better if we in Germany had never made its acquaintance either.²

Thus Central Europe provides a completed test-case - as perhaps no other pre-industrial society does - for examining the aims, implementation and effectiveness of state policies to control human reproduction in the name of public security.

A second reason Central Europe provides a good context for addressing these questions is that Central European economies grew relatively slowly throughout the early modern period, and industrialized very late by European standards. While industrial 'take-off' occurred in Britain between 1760 and 1780, and in Belgium, Switzerland, and France over the next few decades, in Germany it did not take place until 1835-50, in Bohemia around the same time, and in Austria not until much later in the nineteenth century.³

Although some German regions, especially the Rhineland and Saxony, experienced a phase of 'pre-industrialization' from about 1780 onward, with scattered establishment of mechanized factories, industrialization proper did not begin even here until about 1815. Many other areas, especially in the east and the south, failed to industrialize until the late nineteenth century or even later.⁴ Thus the population growth which took place in Central Europe in the sixteenth century, and resumed after 1650, co-existed with relatively low levels of material well-being and sluggish growth rates. In this, as well, early modern Central Europe was more similar to many modern less developed countries than were, for example, early modern England or the Low Countries, where from the sixteenth century onward economic growth was much faster.⁵

A third factor that makes Central Europe a good context for examining state population policies is the extraordinarily late survival there of social institutions other than the state which regulated social, economic and demographic behaviour: village communities, seigneurial systems with powerful landlords, privileged town corporations, urban and rural guilds, and guild-like merchant companies. While most of these institutions began to break down in England and the Low Countries in the sixteenth century (or even earlier), and some began to weaken in France and Switzerland in the late seventeenth century, in most territories of Central Europe they only began to be challenged in the late eighteenth century, and many retained at least some of their powers long into the nineteenth century, giving a special character to Central European industrialization.⁶ In this way, too, Central Europe was perhaps more similar to modern less developed countries, where population growth and economic change are occurring in a framework still partially shaped by traditional institutions. For all these reasons, pre-industrial Central Europe may provide a fruitful context for considering present-day demographic policies.

This paper begins, in Section II, with a brief survey of the relevant characteristics

of Central European societies between *circa* 1500 and *circa* 1870. Section III examines the regulation of demographic behaviour in these societies: first, the controls exercised by institutions other than the state (landlords, villages, towns, guilds); then the proliferation of government policies after *circa* 1550; and finally the variations in the intensity of demographic regulation across different Central European territories. Sections IV and V analyse available empirical findings to provide answers to two questions: Did state policies successfully influence demographic behaviour? And did political control of fertility in Central Europe before industrialization indeed increase collective security?

II. What was early modern Central Europe like?

Central Europe, for the purposes of this paper, encompasses not just present-day Germany, but the entire area covered by the Holy Roman Empire of the German Nation up to 1804. Politically, economically and socially, this area was enormously fragmented and variegated. Before the nineteenth century, what we now call Germany did not exist; instead, it was a conglomeration of some 384 separate sovereign jurisdictions - indeed, almost 2500, when the sovereign estates of Free Imperial Knights are also taken into account. This conglomeration included 85 dominions of Free and Imperial Cities; 136 ecclesiastical territories, belonging largely to bishops and religious houses; and 173 secular territories ruled by princely dynasties, some small and relatively enclosed, but many larger and interspersed with the territories of others, and some (such as Brandenburg-Prussia) scattered across Europe from Poland to the Netherlands. Almost the only thing they had in common was that they spoke the same language, and were loosely organized, along with what are now Austria, the Czech Republic, and parts of western France, northern Italy, northern Slovenia and Croatia, and southern Poland, into a constitutional entity called the Holy Roman Empire of the German Nation.⁷ It is this geographical area that I

will be discussing in this paper.

The constitution of the Empire meant that until 1804 everyone living in the various states of Central Europe was in theory subject to the Habsburg Emperors in Vienna and could appeal against their own princes to the Imperial courts, diets and circles. However, in most everyday matters, the individual states of the Empire were independent sovereign countries. It was not until 1814-5 that the plethora of Central European principalities was reduced to a mere 39 (including Austria), not until 1834 that they even formed a customs union, and not until 1871 that all (except the Austrian lands) were unified into a single state, the German Empire, headed by the King of Prussia.

Political fragmentation and the two-level structure of imperial and territorial government created on the one hand considerable social and economic diversity, but on the other a number of shared pressures and experiences which gave rise to common features in all Central European societies. Diversity arose because economy and society were segmented, over very small geographical areas, by trade and immigration barriers, and by differences in economic policies, currency, weights and measures, transportation infrastructure, the level and distribution of taxation, warfare, diplomatic alliances, religion, education, and law. Above all, each state in Central Europe possessed a different legacy of social institutions, and thus a different framework for economic activity.

However, there were also common pressures created in all Central European societies by the two-level structure of imperial and territorial state, the competition between them, their participation in networks of outside alliances and conflicts over spheres of influence, and their geographical location in the centre of Europe. In combination, these helped to generate a situation of almost continual warfare in most areas of Central Europe from 1618 until 1814. This warfare induced - or compelled - both the Imperial and the territorial states enormously to expand the size of their armies and

bureaucracies, the level of taxation, and the intensity of social and economic regulation.⁸ To achieve this, they were forced to obtain the support of traditional social groups and institutions: noble landlords, privileged cities and towns, village communities, guilds and merchant companies. Almost all the Central European states did so by issuing and enforcing corporate privileges for these institutions and social groups, privileges which ultimately came to cover almost every sector of economic and social activity - including the privilege of marrying and setting up a family of one's own. Only within the framework of corporate privileges were individuals permitted to make economic and demographic decisions.⁹ Historical demographers of Central Europe, whatever their other disagreements, invariably stress that 'in the corporative societies of the early modern period, marriage was a privilege and by no means a right'.¹⁰

Thus early modern Central Europe was characterized by enormous economic, social and institutional variation over very small geographical distances, but also an overarching common pattern of economic backwardness, powerful corporate institutions, and strongly interventionist states. It is within this context that there arose, from the early seventeenth century on, the most draconian system of demographic regulation ever observed in human societies before the present day.¹¹

III. How was demographic behaviour regulated in Central European societies?

German historical demographers date the intensification of demographic regulation in Central Europe to the sixteenth century, with the emergence and rapid growth of the modern state.¹² By about 1550, not only were Central European states extending their regulatory activity into many new areas of human life, but they were taking over the regulatory apparatus and responsibilities of the increasingly 'nationalized' post-Reformation churches.¹³ They were also offering - in exchange for local cooperation

with state policies - a new degree of enforcement and codification to the demographic regulation which had traditionally been exercised by landlords and peasant communities in the countryside, and urban corporations, craft guilds and merchant companies in the towns.¹⁴

A. Demographic regulation by traditional institutions

Feudal landlords in Central Europe had long enjoyed a variety of institutional powers over peasants, including over their marriage, settlement and geographical mobility. This was the case in all European societies during the medieval period. By about 1500, however, landlords in Central Europe west of the river Elbe - where a manorial system called *Grundherrschaft* dominated - largely ceased to operate their own demesne estates by using labour dues from serfs, and instead leased land out to independent peasants who paid rents in cash or kind. Some western landlords still retained considerable control over peasant marriage and settlement, but others lost it entirely. East of the river Elbe, where a manorial system called *Gutsherrschaft* dominated, landlords retained large demesne estates, extorted labour dues, and exercised wide institutional powers over their peasants. Indeed, after about 1600, in a process sometimes called the 'second serfdom', they greatly extended their institutional powers over the rural population, with the support of the state. Here, peasants' marriage, settlement and mobility were wholly dependent on permission from the feudal landlord, who himself constituted the state on the local level.

Differences in *institutional* powers meant that eastern and western Central European landlords enjoyed quite different measure of *control* over demographic behaviour. At the same time, differences in *rights* over peasant labour gave them quite different *incentives* as far as peasant demography was concerned. Landlords in eastern Central Europe, so as to increase labour services, dues paid on marriage and inheritance,

and the probability that holdings would be farmed by young and vigorous serfs, tended to restrict emigration from the feudal domain, permit immigration, and encourage serfs to marry early and have large families.¹⁵ Landlords in western Central Europe, by contrast, sought to maximize rent revenues, and thus tended to restrict marriage except for owners of full peasant holdings, prevent sub-division of farms, prohibit the settlement of land-poor and landless people who could not pay rents, control immigration, and sometimes even expel paupers.¹⁶ It must be stressed that these are generalizations: the actual powers and incentives of landlords both east and west of the Elbe depended on the particular institutional framework, the actual density of population, and the specific production functions of agriculture and rural industry in each regional economy.

The two different manorial systems in eastern and western Central Europe also created different powers and incentives for peasants and peasant communities. In the east, peasant communities were much weaker because they were restricted in many ways by feudal landlords; thus they had much less ability to regulate their members' demographic behaviour. Their incentives were also different. First, the landlord often imposed lump-sum demands for *corvée* labour on the village at large; the more people there were to perform them, the less the burden on each village member. Second, relatively unlimited powers of landlord expropriation destroyed the incentive for peasants to delay marriage in order to accumulate savings. Third, poor relief was provided primarily by the family, which - as we know from modern less-developed societies - provides an incentive to marry young and have large numbers of offspring for insurance purposes.

In western areas of Central Europe, by contrast, peasant communities were often very strong, and exercised enormous control over their members' actions, including marriage, reproduction and mobility. Their incentives were also different from those in peasant communities in the east. Taxes and rents were paid in cash or a proportion of the

harvest, not as labour, so there was an incentive to adjust the family labour force in such a way as to optimize the performance of the farm, not to maximize labour supply. There were significant opportunities for capital accumulation, creating an incentive for peasants to delay marriage in order to accumulate savings. Labour requirements were provided to a greater extent through the market than through the family: owners of full peasant holdings had an incentive to place restrictions on the marriage of young people, so as to maintain a source of unmarried servants for agricultural labour, instead of having to pay the higher wages demanded by married labourers with families to support. Central European villages had at their disposal extensive common lands, woods and waters, and thus had an incentive to restrict immigration and reproduction so as to prevent over-use. Finally, poor relief was provided primarily by the community, thereby reducing the incentive to marry young and have large families for insurance purposes. So village community councils required community members to demonstrate their ability to support a household and often an inherited right of access to common resources before they were permitted to marry and set up an independent household; immigration and illegitimate fertility were severely controlled, except in the aftermath of mortality crises.¹⁷ Again, it must be stressed that this is a broad-brush picture: the powers and incentives of peasant communities both east and west of the Elbe varied according to the institutional framework in the particular territory and the production functions of agrarian and rural industry in the specific region.

Demographic behaviour in towns was controlled by the corporate institutions of the town itself, and by its constituent occupational corporations, craft guilds and merchant companies. In both eastern and western parts of Central Europe, urban communes, guilds and merchant companies retained enormous power for much longer than, for example, in England or the Low Countries, again often because they enjoyed state support. The town corporation itself enjoyed various legal privileges restricting the practice of industry and

commerce in the countryside, and forcing the rural population to sell agrarian produce in town markets. Guilds and merchant companies enjoyed monopolies and other privileges over particular sectors of the economy. Both towns and guilds thus operated as closed corporate groups defending access to important monopoly rents. As a consequence, they had strong incentives to prevent immigration by outsiders, and to restrict the reproduction of their own members. Town councils required that citizens demonstrate citizenship and their ability to support a family in a recognized *Nahrung* ('livelihood'), to which access was regulated by membership in the appropriate corporate group.¹⁸ Guilds required would-be members to undertake a long apprenticeship and journeymanhood, and to obtain a craft workshop of their own, before they were permitted to become masters and marry; masters were often restricted to training only one of their sons in the craft, providing an incentive for late marriage and low fertility. As in villages, so too in towns, poor relief was provided by the community, reducing the individual incentive to have large families for insurance purposes and increasing the collective incentive to limit marriage, reproduction and immigration, especially of poor or high-risk social groups.¹⁹

B. Demographic regulation by the state

It is against this existing background of local institutional controls that we must assess the growing battery of state policies in Central Europe directed at demographic behaviour from the late sixteenth century onward. These policies were directed at all aspects of demographic behaviour: at immigration and emigration, at mortality, and - above all - at nuptiality and fertility.²⁰

Perhaps the best-known state demographic policies of this period were the attempts which some Central European states made to attract skilled refugees from other countries by offering them economic and institutional concessions; these attempts were loudly

publicized by these regimes, for religious or political purposes. Thus, for instance, territories in the Rhineland accepted some 19,000 Protestant refugees from the Spanish Netherlands between 1567 and 1600; Franconia and Swabia accepted some tens of thousands of Protestant refugees from Austria after the failed peasants' war of 1626; Saxony and Upper Lusatia accepted tens of thousands of Protestant refugees from northern Bohemia and Silesia after the Thirty Years' War, as did Brandenburg and Mecklenburg; some 44,000 French Huguenots settled in Germany after the revocation of the Edict of Nantes in 1685; and some 22,000 Protestants settled in Prussian territory after they were driven out by the Archbishop of Salzburg in 1731/2. Especially the rulers of Brandenburg-Prussia and Hessen-Kassel, but also other German princes, competed for skilled refugees from the Netherlands and France by offering them economic privileges, fiscal advantages, and religious freedom; often, in order to circumvent resistance by their existing subjects, they settled the exiles in new settlements or on royal domain lands.²¹

Indeed, this fact draws attention to the less visible side of state immigration policies. For on the local level, the stringent citizenship requirements which were exercised autonomously by all towns, and by villages as well in most western territories, and were enshrined in almost all national law codes and enforced by state administrative structures, meant that it was often very difficult for 'foreigners' to the community - let alone to the territory - to immigrate successfully without special countervailing privileges from the prince to overcome the resistance of local communities. Although some princes were strong enough to issue such privileges, the profound and enduring local opposition often experienced by refugee groups even when they did arrive with privileges are a testimony to the strength of local resistance.²² The princes of Prussia and Hesse were unusual in risking such opposition, and even they did not do it regularly.

State policy toward emigration was also largely motivated by populationist rhetoric.

For hundreds of years, between the late fourteenth and the late nineteenth centuries, German-speaking central Europe was, in Pfister's description, 'a classic emigration arca'.²³ Germans began emigrating to eastern Europe after the Black Death in 1350, continued to do so over the following centuries, and then were actively encouraged by the Habsburgs to settle their southeastern European dominions - and help defend them against the Turk - throughout the seventeenth and eighteenth centuries by offers of land and subsidized travel. Shortly after 1700, in addition, inhabitants of German-speaking Central Europe began to emigrate in enormous numbers to North America, Poland and Russia and continued to do so until the late nineteenth century. Until the beginning of the eighteenth century, Central European states were perfectly ready to let their superfluous poor emigrate, but after about 1750, they began to try to deter emigration through dissuasion and disinformation.²⁴

Of course, it must be remembered that each group of refugees whose immigration was encouraged by the policies of one prince, had also had their *emigration* encouraged by the policies of another prince. The policies of the Austrian Habsburgs, in particular, were mainly directed at encouraging emigration of undesirable elements, especially non-Catholics, and immigrants into their territories had to demonstrate a willingness to conform in confessional matters.²⁵ Similarly, there were territories such as the bishopric of Würzburg, where as part of a programme to control population growth in the eighteenth century the prince-bishop not only restricted marriage and house-building, but forbade immigration and expelled paupers.²⁶ However, both immigration and emigration policies by Central European states tended more in a 'populationist' than in an 'anti-populationist' direction, although at the same time many Central European states helped enforce citizenship requirements by local communities which in reality deterred immigration and encouraged emigration.

As far as mortality was concerned, explicit state policies were naturally populationist in nature, since the only policy which any state can openly take toward mortality is to seek to reduce it. In actuality, most Central European states did institute measures, beginning in the late seventeenth century, to reduce the impact of epidemic diseases through prevention, monitoring, quarantining and public hygiene, though close analysis of these policies has concluded that they were motivated much more by fear of social disorder than by concern about population decline.²⁷ Apart from this, however, little action was taken by Central European states to reduce mortality.

In practice, therefore, the most wide-ranging and severe state population policies were those affecting fertility and nuptiality. In almost every state except Prussia, these were directed at restricting rather than encouraging population growth, and they increased in severity between the sixteenth and the mid-nineteenth century. Fertility was addressed *directly* through laws designating marriage as the only legitimate institution within which reproduction could take place, and imposing penalties on pre-marital and extra-marital conceptions. These were already penalized by landlords (at least in western areas of Central Europe), village communities, town corporations, and guilds and companies. Women bearing children out of wedlock were greeted with a range of formal and informal sanctions, and the children themselves were excluded from inheritance, community citizenship, access to common resources, exercise of gilded occupations, and sometimes a claim on poor relief. This existing system of institutional sanctions was built upon and greatly expanded by most Central European states from the early eighteenth century on: extra-marital sexual activity was defined as a crime, midwives and ordinary citizens were legally obliged to report it, and women bearing illegitimate children were expelled from communities and penalized in other ways. In the small town of Stockach, between 1691 and 1700 three youths between the ages of 14 and 15 years were actually executed for

sexual 'straying'. These state penalties on extra-marital sexuality increased in severity over the course of the eighteenth century, and only gradually began to be reduced in the early nineteenth century.²⁸

Once reproduction was contained within marriage, fertility could be controlled by restricting permission to marry. Before the Reformation began in the 1520s, marriage was in law a matter for the church, although in actuality, as we have seen, access to it in the corporative societies of Central Europe was controlled by landlords, villages, towns and guilds.²⁹ The confessional conflicts after the Reformation led both the emerging Protestant and the old Catholic churches to become much more dependent on the princely state, which alone could defend each against the rival confession.³⁰ In the Protestant territories of the Empire, marriage passed from canon to civil law, while in the Catholic territories, although formally still a matter of canon law, in practice it was regulated by the state.³¹ Throughout Europe, the period between 1500 and 1800 is generally regarded as one in which marriage was gradually freed from ecclesiastical, feudal, community and guild control and brought under state legislation.³² However, while in western Europe the transfer of control over marriage from traditional institutions to the state turned marriage into a free civil contract between individuals, in Central Europe it became a privilege regulated, especially for the lower social classes, by a system which has been called the *politische Ehekonsens* (political consent to marriage).³³ Beginning in the early seventeenth century, and with increasing frequency after the Thirty Years' War, legislation was issued by a number of Central European states restricting marriage for servants, instructing citizens and local bureaucrats to prevent people from marrying too young, and enforcing community controls on marriage and settlement. The justification for these measure given in the legislation was twofold: first, such measures were necessary to counteract shortages of servant labour; second, they were essential for preventing further

growth in the numbers of cottagers and landless people, who represented a threat to public order. After about 1700, such legislation proliferated throughout Central Europe and was widened to apply to the poor in general. Marriage was not altogether forbidden to targeted groups, but rather people were required to demonstrate their ability to support a family before they would be issued with state permission to marry. Gradually, a clear administrative procedure for state regulation of marriage began to be established, although in many territories the implementation of this procedure remained in the hands of local community officials. Moreover, the criteria for issuing marriage permits included, besides property, occupational and citizenship qualifications, a catch-all 'reputation clause' which was subject to the interpretation placed on it by local elites.³⁴ As Pfister concludes in his recent survey of German demography, during this period 'political regulation subjected marriage to reason of state', to the extent that 'one can speak of a system of state-concessioned marriage, in which free entry into marriage was the exception'.³⁵

C. Variation across societies

Although political controls on marriage were almost ubiquitous in Central Europe from the later seventeenth century onward, their strictness and concrete operation varied from one state to another. Broadly speaking, they tended to be much more severe in the south than in the north of the Empire (as can be seen in Map 1).³⁶ The most stringent controls were imposed in the south German territories, particularly Baden, Württemberg, Bavaria, Würzburg and Hesse. The Austrian Habsburg possessions (i.e. present-day Austria, Bohemia, Moravia, Hungary and Galicia) also restricted access to marriage, although not so severely as did the south German states. This was mainly because the Austrian lands generally did not have such strict community citizenship regulations, and because there was a phase of liberalization after the abolition of serfdom in 1782.

However, with the return to more conservative imperial government in the 1790s, there was also a return to much more strict marriage controls. The revolutions of 1848, by giving power to the local communities, led to draconian marriage restrictions in Austria - as in many parts of Germany - which were not abolished until 1868. In contrast, some central and northern German territories had less severe restrictions than the territories of Austria and the German south.³⁷

However, it is important not to under-estimate the degree to which legal restrictions on marriage were also widespread among central and north German territories.³⁸ Prussia, it is true, had no *state* restrictions on marriage. However, in its extensive territories east of the Elbe, the 'rural subjects' or serfs (who constituted the majority of the population) still required permission from feudal landlords to marry, until serfdom was abolished in 1807. In many of Prussia's western possessions, local communities exercised some control over marriage through citizenship and welfare laws, as is shown by the fact that the Prussian state expressly forbade these practices in legislation promulgated in the 1840s.³⁹ Prussia, moreover, occupied a unique position in the Empire, in this respect as in many others.⁴⁰ The all but total destruction of Brandenburg-Prussia during the Thirty Years' War had laid the basis for a much more absolutist state control after 1648 than was possible in most other German territories, where even the 'absolutist' state had to gain the cooperation and consent of still-powerful social institutions.

Other central and northern German states were still less able to ignore the powers of local institutions - rural communities and urban guilds - with the result that in none was there complete legal freedom of marriage. According to Matz, Saxony and Holstein are the only other German states remotely approaching Prussia in freedom of marriage.⁴¹ Yet even in comparatively liberal Saxony, marriage was forbidden to all journeymen, to

single men who had received poor relief, and to poor men not on relief unless they refrained from begging for a year and showed they could support a family.⁴² In Schleswig-Holstein, no-one could marry who had received poor relief and not repaid it, unless he got permission from his home community.⁴³ In all other member states of what was later to become the North German Union, 'for the most part there were rigorous restrictions'.⁴⁴ In Sachsen-Weimar, those receiving poor relief were deemed too poor to marry, and a community could object to a marriage if it threatened to burden community funds.⁴⁵ In Mecklenburg, the state granted absolute power over marriage to landlords, who used them to restrict marriage and settlement for cottagers and day-labourers into the 1860s.⁴⁶ In Hannover, state control of marriages was very strict, and was increased by laws of 1827 and 1840 which made state consent for marriage dependent on a whole range of preconditions.⁴⁷ In the Nassau principality of Siegen, although a successful rural industry was accompanied by 1.5 per cent annual population growth between *circa* 1740 and 1770, this was stopped by a rigorous implementation of legal restrictions on marriage after 1770.⁴⁸ Although there were also northern and central territories of the Empire in which state controls on marriage were relatively loose, 'even here the restrictions were not without their effects on marriage behaviour'.⁴⁹

Prussia was therefore the only part of the Empire that had 'freedom of marriage' of the sort that existed in England and France.⁵⁰ It was not until just before German unification in 1871 that other German states adapted, more or less, to the Prussian practice.⁵¹ Bavaria explicitly declined to do so, retaining its restrictions on 'marriages of morally and economically weak persons' until 1916.⁵²

IV. How successful were state population policies?

Between the late sixteenth and the late nineteenth century, therefore, Central

European states adopted measures directed at controlling human demography to a far greater extent than states in other parts of Europe. But just how successful were these policies?

The most well-known policies, those directed at migration, were spectacularly ineffectual. Although in individual localities and regions, expulsions and re-settlements of refugees could produce short-term effects, the long-term demographic impact was minimal. The largest migration movement initiated by any Central European state was the expulsion of 150,000 Protestants from Bohemia by the Austrian Habsburgs after the Thirty Years' War. Although large numbers settled in particular German regions, particularly Saxony and Lusatia, they were easily absorbed in a German population which had fallen catastrophically during the war, from 15 million in 1618 to 10 million in 1650. The population loss in Bohemia was swiftly made good by early and universal marriage, and immigration of Catholics. The scale of the Bohemian expulsion, moreover, was altogether exceptional: as a general rule, the religious refugees offered asylum by Central European states numbered a few hundreds, at most a few thousands, and were received at scattered intervals.⁵³

Attempts by Central European states to prevent emigration were even more ineffectual, particularly when - as so often - emigrants had no property which could be confiscated. Between 1683 and 1800, despite repeated prohibitions on the part of many Central European states, an estimated 250,000 to 1 million people emigrated out of the Empire, the largest migration movement of European origins in the period.⁵⁴ This was followed by an even larger wave of emigration in the first half of the nineteenth century, with almost 800,000 persons leaving Germany between 1815 and 1849.⁵⁵

This leaves mortality and fertility. Before examining the success of state policies, it is important to assess the relative importance of fertility and mortality for demographic

growth in Central Europe. Traditionally it has been argued that, in contrast to England, where the motor of demographic growth was fertility, in Central Europe it was mortality. But recent research in German historical demography casts doubt on this view. The argument for the central importance of mortality relied excessively on a single study of Bavaria, and it is now argued that the data used in this study were narrow, aggregative and superficial, that Bavaria was demographically unrepresentative of the rest of Central Europe, and that the results of this study are contradicted by recent calculations of mortality tables for various regions of Germany.⁵⁶ German historical demographers increasingly emphasize the role of fertility. Empirical studies for Central Europe show that even the typical 10-30 per cent fatality rate of epidemics such as bubonic plague could be made good within less than ten years through earlier and more universal marriage, which could push fertility up to as high as 65 per thousand.⁵⁷ For the nineteenth century, econometric investigations by Ionnadis and Lee find that in Prussia between 1818 and 1866, 'the rate of growth of population ... was primarily attributable to an increase in the birth rate, rather than to a decrease in the death rate'.⁵⁸ Although the mortality school is far from defunct, Pfister's 1994 summary of recent findings comes down decisively on the side of marital fertility, especially for the period from 1750 on.⁵⁹

Available evidence from death-sermons and family reconstitutions shows that average expectation of life in Central Europe steadily declined between 1300 and the mid-seventeenth century. The fall was particularly marked during the Thirty Years' War, during which male life expectancy fell by nine years (although that of women rose slightly). After 1650, life expectancies began to rise again, reaching 30 years by 1700, and 32.5 years by 1750. No further improvement in life expectancies occurred between 1740 and 1800, but there was another slow rise to 35 years by 1850.⁶⁰ A major source of the increase in life expectancies in Central Europe between 1650 and 1740 is thought to

have been the reduction in the incidence of epidemics, especially the disappearance of bubonic plague from most areas of southern Central Europe after *circa* 1670 and from most parts of the north after about 1750.⁶¹ There is considerable debate about whether the disappearance of the plague owed anything to state policies to control epidemics: while some studies emphasize the role of state measures, the most thorough and recent German study of the plague follows French plague scholars in concluding that plague probably disappeared because of an exogenous decline in the virulence of the disease.⁶²

Against the effects of deliberate state policies directed at epidemics, which may have reduced mortality, must be set the unintended results of other state policies which increased mortality. For one thing, there were the ubiquitous trade barriers which, by hindering the grain trade, helped maintain famine in Central Europe until well into the nineteenth century, when it had been eradicated from the Netherlands and England since the seventeenth century. It is widely recognized that famine and malnutrition not only led to subsistence crises, but provided favourable breeding-grounds for epidemics.⁶³ As Blaschke has shown, the costs of shipping a grain such as millet from Pirna to Hamburg on the Elbe in 1671/74 increased the price for customers by 22 per cent, of which more than 60 per cent consisted of the customs fees which had to be paid at the approximately 35 customs posts - and this was a minimum, since as is well-known, water transport was by far the cheapest form of transportation before the railway.⁶⁴ If anything, freight and customs costs within the Empire rose, rather than fell, in the course of the eighteenth century, helping to generate and sustain terrible subsistence crises such as that of 1770/71, the severity of which was highly correlated with transport prices.⁶⁵

A second way in which state policies probably increased mortality - although unintentionally - was through the continual wars which the various states of Central Europe waged between 1618 and 1814. Not only did these directly cause loss of life

through violence, but they, too, disrupted trade and production, created subsistence crises, and above all spread disease. According to Pfister, a large number of the subsistence crises and epidemics which struck Central Europe between 1618 and the later eighteenth century can be associated with invasions and troop movements, and he concludes that 'in this sense, the fact that Germany suffered almost continually from war in the first two-thirds of this [the eighteenth] century must be assigned substantial demographic significance'.⁶⁶ In Central Europe, therefore, the net effect of state activities was most probably not to decrease mortality, but to increase it.

What of the impact of state policy on fertility? As we have seen, there is a growing tendency to regard fertility as the motor of demographic growth in Central Europe. Fertility certainly appears likely to have been more susceptible to state policies - at least intentional policy measures - than was mortality. Moreover, as we have seen, the most wide-ranging demographic policies adopted by Central European states were, in fact, directed at fertility.

At first sight, it may seem that state policies to limit fertility, both directly through control of illegitimacy and indirectly by restricting access to marriage, were quite successful. During the period of most draconian controls on illegitimacy, from the late sixteenth to the late eighteenth century, illegitimacy rates in Central Europe experienced an all-time low.⁶⁷ Similarly, the period during which political controls on marriage were developed systematically - from the later seventeenth century to 1870 - was also one in which the mean and median age at marriage and the percentage of people never marrying stayed high or even increased in most parts of Central Europe.⁶⁸ In England, where there was no political control on marriages, average age at first marriage fell by 2-3 years for both men and women between 1675-99 and 1800-25, and probably continued to fall up to the 1870s, before beginning a slight rise again until 1910.⁶⁹ In Germany and Austria, by

contrast, available studies suggest that average age at first marriage and percentage of people never marrying stayed high and even increased throughout the eighteenth and early nineteenth centuries, reaching a peak in the decades between 1830 and 1870, and beginning to fall only after about 1870.⁷⁰

Within the Empire, as well, marriage ages and celibacy rates appear to have been in general higher in southern Germany and Austria, where political controls on marriage were more severe, than in northern and central Germany or Bohemia where they were more lenient, although a variety of regional economic and institutional variables led to a wide dispersion of demographic patterns within this broad outline.⁷¹ For Germany, the remarkable concentration of higher celibacy rates in the south (and in northern and central territories with restrictive controls on marriage) can be seen clearly in Maps 2 and 3.⁷² Within the Austrian lands between 1750 and 1815, population grew by 50 per cent in Bohemia, where the last controls on marriage were removed in 1781, while it grew only 10 per cent in Austria, where controls were retained and, indeed, strengthened from the 1790s on.⁷³ Regional comparisons of population growth rates across German territories, although only available for the first half of the nineteenth century, appear to reflect the regional pattern of institutional controls on marriage and fertility. Thus in Prussia and Saxony, with the least restrictive marriage legislation anywhere in Central Europe, population growth rates between 1816 and 1864 were 1.5% p.a. and 2% p.a. respectively; in the eastern provinces of Prussia, population growth rates were very high, at between 1.7% p.a. and 2.5% p.a.. By contrast, in German territories with severe restrictions on marriage and settlement, population growth rates were much slower in this period: 0.5% p.a. in Württemberg, 0.7% p.a. in Bavaria, 0.9% p.a. in Baden, 0.9% p.a. in Hesse, 0.4% p.a. in Hohenzollern, and 0.4% p.a. in Hannover.⁷⁴

The overall pattern of development of fertility, nuptiality and population growth in

Central Europe thus does not contradict the idea that state policies had an impact.

Knodel's cautious conclusion for the nineteenth century applies equally to the eighteenth: 'The general pattern of change is reasonably consistent with what would be expected if these laws were influencing the age of marriage'.⁷⁵

However, precise investigations into the existence and nature of marriage restrictions on the local level, and their concrete demographic effects, are hard to obtain. The few available studies refer almost exclusively to the nineteenth century. However, their results cast doubt on the impact of state restrictions by themselves, at least for this period. Given that government was probably more effective in the nineteenth century than earlier, this casts doubt on the impact of state demographic policies in earlier periods. There is no clear chronological association between changes in state marriage legislation and changes in marriage behaviour. In Bavaria, for instance, the lowest marriage rates for the whole of the nineteenth century actually preceded the restrictive legislation introduced in 1825, and there is no positive correlation between changes in state marriage legislation and long-term movements in nuptiality.⁷⁶ A local study of the Württemberg town of Esslingen in the nineteenth century, for example, finds a 'low degree of effectiveness of the legal obstacles to marriage'.⁷⁷ In a detailed study of state controls on marriage in the south German states in which they were most severe in the mid-nineteenth century, Klaus-Jürgen Matz finds a relatively modest effect. In Württemberg and Baden, the legislation prevented more than six per cent of all intended marriages; in Hesse, where local communities were weaker, somewhat fewer; and in Bavaria, 'certainly more'.⁷⁸ The usefulness of such percentages is diminished, of course, by the fact that failed applicants may have re-applied, and - on the other hand - that unknown numbers of people may have been deterred by the laws from applying at all.

Even such unsatisfactory studies as these, however, suggest that the percentages of

marriages actually prevented by state legislation, even in southern Germany, are too low to explain the observed rise in marriage and celibacy rates in Central Europe during the period 1650-1870, or the differences in population growth rates between territories with restrictive marriage laws and those with more liberal ones. As has been pointed out in different ways by Schüz in 1848, and Matz and Ehmer in our own day, political controls on marriage tended to be more severe in those Central European territories in which village communities, town corporations and guilds were strongest, and in some, such as Mecklenburg, in which the great landlords had an interest in restricting marriage and settlement.⁷⁹ That is, state controls on marriage were largely a response to pressure by traditional corporate institutions and local elites, and their apparent success was largely owing to the controls already exercised on marriage and fertility by these groups and institutions. State enforcement may have strengthened these practices and contributed to their survival, but the vast majority of the demographic impact was already being achieved on the local level, through traditional institutional arrangements directed at defending the *Nahrung* ('livelihood') of privileged corporate groups.⁸⁰

V. Did political control of demographic behaviour create greater security?

The fact that the survival and strength of traditional social institutions in most parts of Central Europe was partly owing to state enforcement of their regulations, and that conversely the strength of the state derived partly from its symbiotic relationship with local institutions, makes it difficult to disentangle the relative effects of state legislation and other institutional regulations on any given sector of life. However, whatever their relative contribution, in combination traditional institutional arrangements and state policies appear to have contributed to maintaining - and indeed increasing - marriage ages and celibacy rates in Central Europe during the period leading up to and including

industrialization (in stark contrast to the development in Britain). Thus Central Europe does provide an example of an apparently successful set of state policies - admittedly crucially dependent on cooperation by local institutions - to control population through the regulation of fertility and access to marriage.

These policies were defended by both theorists and law-makers in Central Europe in terms of public well-being and corporate security of *Nahrungen* ('livelihoods').⁸⁰ Is there evidence, however, that these policies actually did increase collective security - however defined - in Central European societies between the seventeenth and the mid-nineteenth centuries? According to a wide variety of generally-accepted measures of collective security - economic growth, mortality rates, social polarization, and socio-political conflict - the answer appears to be 'no'.

One way of measuring security is in terms of economic well-being. Indeed, nowadays it is often argued that state policies to control fertility are necessary for economic development to take place. But in Central Europe, state policies to control fertility did not show any association with rapid economic growth. Compared to England, France, and Belgium, where there were no state restrictions on marriage, Central Europe was economically backward, not only in its factory industrialization in the nineteenth century, but also in its agricultural and proto-industrial development during the seventeenth and eighteenth centuries.⁸¹ Within Central Europe, the economy was generally more productive and advanced in northern and central areas of Germany, where controls on marriage were least severe and population grew rapidly, than in the south and in Austria, where marriage was controlled most strictly and population grew more slowly. Saxony and the Prussian Rhineland, where political controls on marriage were least severe of anywhere in Central Europe, and population grew rapidly, also industrialized earliest, between 1790 and 1815, while Württemberg, Baden, Bavaria, Hesse and Austria did not

industrialize until after 1850. Within the Austrian lands, Bohemia, where political controls on marriage effectively disappeared after the abolition of serfdom in 1782, industrialized much earlier and more successfully than Austria, where such controls survived and were strengthened in the 1850s and 1860s. Bavaria, the only German territory which retained political and local institutional controls on marriage after German unification in 1871, and where population grew relatively slowly, was also, as is well-known, one of the most backward economies in Germany into the early twentieth century.⁸²

Although economic growth does not necessarily give rise to economic security for the population at large, living standards and life expectancies were certainly lower in Central Europe than in Western Europe, and lower in those areas of Central Europe whose agrarian and industrial sectors grew least rapidly. A striking example of this is provided by the fact that 'the industrial parts of Rhineland and Westphalia in Prussia, and the kingdom of Saxony ... the most developed early industrial regions of the country' were largely spared the terrible food shortages of the late 1840s.⁸³ Thus, if anything, state controls on marriage in Central Europe were negatively correlated with economic security for the population.

This is not to argue that the strict controls placed on population growth by the poor societies of German-speaking Central Europe were a cause of their poverty. However, there is little evidence that poverty led to the demographic controls, either: after all, the eastern provinces of Prussia were among the poorest in the Empire and yet enjoyed the relatively liberal Prussian marriage legislation. Rather, it seems more likely that the association between strict demographic controls and economic stagnancy observed in central Europe was not causal at all: rather, both phenomena were caused by the same set of underlying factors. The late survival of strong corporate privileges - by communities, towns, guilds and merchant companies - both prevented agriculture and industry from

adopting new techniques and practices in response to a changing economic environment, and created the incentives to devise strict demographic regulations (and the local power to enforce them). Both rapid economic growth and rapid population growth threatened the existing rents of privileged groups; where they managed to maintain their institutional powers, these groups used these powers to resist both economic growth and population growth. That is why the *politische Ehekonsens* and economic stagnation are so often observed in association in pre-industrial Central Europe.

A second way of measuring security is in terms of length of human life. Mortality in Central Europe was correlated with living standards, even in the era of plague and other epidemics, as is shown by clear differences in life-expectancy between social groups.⁸⁴ Thus life expectancies were not simply randomly distributed across the population, but were subject to human control, at least to some extent. But in Central Europe favourable life expectancies and improvements in mortality rates are not found in the areas with strict institutional controls on marriage and slower population growth rates. In the period from 1740 to 1800, during which the political control of marriages greatly increased throughout Central Europe, life expectancies in Central Europe did not increase.⁸⁵ Even after 1800, when life expectancies once again began to increase in Germany as a whole, south German territories did comparatively poorly. Thus in Württemberg, where state controls on marriage were very strict and population growth rates the slowest in Germany between 1816 and 1864, the death rate rose from 28.96 per thousand in the late 1820s to 31.90 per thousand in the 1850s.⁸⁶

A major component of total mortality until the late nineteenth century was infant mortality.⁸⁷ Infant mortality in Germany shows, if anything, a *positive* chronological and geographical correlation with state controls on fertility. Thus infant mortality in Central Europe markedly increased in the late eighteenth and early nineteenth centuries, when

political controls on marriage were being introduced with increasing intensity.⁸⁸ Between 1820 and 1860, precisely the period of the most strict enforcement of the political control of marriages, infant mortality rates increased in most parts of Germany.⁸⁹

There were also clear regional differences within Central Europe: infant mortality was much higher in the south than the north. Thus in the eighteenth century, infant mortality rates were 9-25 per cent in northern Germany, compared to 33 per cent in some areas of the German south, especially Bavaria.⁹⁰ In the period 1810-80, as well, infant mortality was consistently higher in Württemberg (32-36 per cent), Baden (23-28 per cent), and Bavaria (30-33 per cent) than in Prussia (17-21 per cent) or the German Empire as a whole (23 per cent in 1871-80).⁹¹

The causes of these regional differences are still a matter of debate. One possible factor was infant feeding practices: breast-feeding, which improves infant survival, was practised more in Protestant than Catholic regions, and it is thought that this may explain the high infant mortality in Catholic Bavaria. However, the southern Protestant territory of Württemberg also had higher infant mortality rates than the northern Protestant territory of Friesland, and although this may be associated with shorter duration of breast-feeding, the empirical basis for this view is rather insecure.⁹² Moreover, the regional differences in infant mortality within Germany survived as late as 1871-1933, by which time confessional differences and infant feeding practices exercised much less influence on infant mortality than did marital fertility and illegitimacy rates.⁹³

This raises the possibility that a major cause of higher infant mortality rates in the German south, at least in the nineteenth century, was higher illegitimacy. The regional differences in illegitimacy in Central Europe were striking: in 1845-50 the illegitimacy rate was 20.5% in Bavaria, 11.8% in Württemberg, and 11.3% in Austria, while it was only 7.5% in Prussia, a rate equivalent to the 7.4% found in France and the 6.7% observed

in England. Contemporaries certainly believed that the high illegitimacy rates in southern Central Europe after 1800 were a direct consequence of strict controls on access to marriage.⁹⁴ State demographic policies may thus have directly decreased human security insofar as it was reflected in high infant mortality rates.

Another measure of collective security is social polarization, in particular the growth of land-poor and landless groups in the countryside, and journeymen and wage-workers in the towns. The political control of marriages in Central Europe did not entirely prevent the growth of such groups, but it does appear to have reduced it. This can be seen from the divergent responses in southern and northern parts of Central Europe to what has been called 'proto-industrialization': the growth of rural export-industries between the sixteenth and the nineteenth century. In many parts of England, France, Flanders and northern Germany, such proto-industries made possible the expansion of a rural population which could marry and support a family without land. But Baden, Württemberg, Hesse, Bavaria and parts of Austria are well-known to have contained densely proto-industrial regions in which land-poor and landless groups often did not expand greatly. This is associated with the power of local communities and landlords to prevent the marriage and settlement of people who could not demonstrate that they owned property, and with the widespread regulation of the proto-industrial population by rural guilds, which also controlled entry.⁹⁵

Institutional controls on marriage and settlement, therefore, probably did reduce the expansion of propertiless groups in the German south and Austria. This was, after all, precisely the aim of communities, guilds and landlords in seeking to restrict access to marriage. But did this increase security? The answer to this question depends on whether the expansion of propertiless social groups is taken to be necessarily undesirable or harmful. Although proto-industrial regions of Austria and the German south did avoid a

breakdown in rural social structure, they also avoided - or at least did not experience - a transition to factory industrialization. While other parts of Europe and even, gradually, Germany shifted to factory production, the southern German territories and much of Austria remained obstinately wedded to domestic production, and many of these areas returned to agriculture rather than industrializing. This was one of the reasons that, as we saw above, they remained relatively poor; and this was not necessarily in the interests of collective security. That is, maintenance of a traditional social structure is not always a recipe for economic security and well-being for the population.

Within northern Germany, as well, it is far from clear that territories which successfully resisted the growth of landless groups through political controls on marriage and settlement necessarily increased the economic security of their populations. One available comparison of long-term developments in social structure in regions with a similar geographical endowment and economic base but differing institutional controls on marriage and settlement, is provided by the Prussian-ruled Duchy of Ravensberg in Westphalia and the neighbouring prince-bishopric of Osnabrück. Both territories developed dense rural linen industries alongside commercial agriculture from the seventeenth century onward. However, in the prince-bishopric of Osnabrück, communities, landlords and the prince exercised relatively strict controls on marriage and settlement until 1810, whereas in the duchy of Ravensberg these were broken down with the reform of agrarian institutions (explicitly following the English model) by the Prussian state in the 1770s. Mager and Schlumbohm have shown that it was the breakdown of these controls, leading to a rapid expansion in the rural linen-weaving population after 1770, which created the flexibility - of both agriculture and industry - that enabled Ravensberg to shift from linen to cotton and successfully to mechanize production in the nineteenth century. By contrast, Osnabrück, with its inflexible social structure, returned to

agriculture, throwing thousands of rural spinners and weavers into want and forcing them to emigrate to America⁹⁶. In this case, a relaxation of political controls on marriage did increase the numbers of propertiless people, but this in turn created the flexibility in social structure which permitted industrial expansion, thereby increasing, rather than decreasing, collective security for the rural population.

Although a final conclusion would require more systematic empirical studies of the complex interaction between social structure and economic growth, these regional comparisons provide some instructive illustrations. In pre-industrial Europe, liberal marriage and family formation by propertiless people which led to changes in traditional social structure were not necessarily a recipe for economic insecurity. Conversely, maintenance of traditional social arrangements might have provided security in the short term for some, but were not necessarily the recipe for long-term collective security for the whole population.

A final measure of collective security is socio-political conflict. It is sometimes argued that high fertility and rapid population growth increases the likelihood of conflict, whether through social polarization or through straightforward competition for scarce resources by a population too large for its ecological base. Attempts to draw clear connections between population growth and social polarization on the one hand, and war and rebellion on the other, are bedevilled by the multiplicity of causal influences on both sides of the equation. Rapid population growth may take place without rapid economic growth, creating competition for scarce resources; but it may also take place, as in eighteenth-century England, *because* of rapid economic growth, and fail to generate socio-political conflict. Similarly, even when population growth outruns economic growth or creates a large propertiless stratum, whether this leads to social conflict will depend on how resources are allocated and how conflict and violence are organized by the

institutions of the society in question. I do not think that one can make any definitive theoretical claim about whether population growth will or will not lead to social conflict, without a close examination of the sources of the population growth, the nature of the economy, and the social and political institutions of the society in question. The only test can be an empirical one.

In Central Europe, population growth was intentionally controlled by the state, population grew more slowly than in England, and proletarianization increased much less rapidly, especially in the south which had the most severe demographic restrictions. Yet Central Europe is legendary for being the cockpit of European political conflict between 1618 and 1815 and a major centre of revolt in the European revolutionary year of 1848. On a European scale, therefore, institutional restrictions on population growth and social change does not appear to have spared Central Europe from violent socio-political conflicts.

What about within Central Europe itself? Did the southern areas, in which institutional controls on population growth were more effectual, suffer less from social and political conflict than the central and northern areas, where such controls were looser or non-existent? There were three phases of violent conflict in Central Europe between 1600 and 1850: the Thirty Years' War (1618-48); the prolonged warfare of the eighteenth century, much of it between different Central European states; and the revolts and revolutions of 1848.

The causes of the Thirty Years' War, and the accompanying spate of popular revolts and rebellions which are often referred to as the 'crisis of the seventeenth century', are still a matter of lively debate, but population growth is not generally placed among them.⁹⁷ This is not surprising, since although Central Europe saw rapid population growth in the sixteenth century, growth appears to have ceased and been replaced by

stagnation or decline in many areas from the 1560s onward.⁹⁸ The Thirty Years' War did not begin until 1618, some six decades after population had ceased to grow and, in some areas, had begun to decline. Nor does the empirical evidence support the theory that economic crises or class conflict - for instance, between an emerging proletariat and the propertied - played any significant role, either in the Thirty Years' War itself or in the revolts and rebellions which accompanied it.⁹⁹ Popular revolts and rebellions arose not because of competition for resources within an excessively large population, or even between propertied and propertiless groups of this population. Rather, they arose between the subject population at large and the expanding early modern state, which was extorting a rapidly increasing proportion of GNP and also attempting to interfere in local economic, social and religious life to a hitherto unknown and - to local elites - completely unacceptable degree.¹⁰⁰ If anything, the Thirty Years' War itself was waged more severely, and associated with a greater frequency of popular revolts and rebellions, in the stable and traditional social structures of southern and eastern Central Europe (especially Bohemia, Austria and Bavaria) where the beginnings of political control of marriages can already been seen in the early seventeenth century, than in the north and the west where political control of marriage occurred much later if at all. Social polarization - in the sense of the growth of propertiless groups - was furthest advanced by this time in Saxony and the Rhineland, and these weathered the Thirty Years' War better than almost any other part of the Empire, with few if any popular revolts.

The second phase of conflict in Central Europe was the almost continual warfare which raged across many areas from about 1660 to about 1770. This warfare was extremely costly in terms of economic growth and human lives.¹⁰¹ However, it was not accompanied a large degree of popular unrest: most revolts were successfully and immediately suppressed by the expanding absolutist state. These wars cannot by any

stretch of the imagination be seen as an expression of either social polarization or conflict over resources by a population that was too large for its resource base. Quite the contrary. Between 1618 and 1648, the population of Central Europe had declined by some 40 per cent.¹⁰² Thus by 1650, Central Europe had the smallest population, relative to its resource base, that it had had since 1520; the population did not regain its pre-war levels until about 1750. The Central European wars of the late seventeenth and the eighteenth century were not a consequence of the growth of population or competition for resources rendered scarce by population pressure. They were a consequence of the growth and activities of the various states of Central Europe, competing for tax-bases and territory.¹⁰³

The third spate of socio-political unrest in Central Europe arose in the late 1840s, culminating in the 'revolutions' of 1848. As with the Thirty Years' War, the causes of the revolutions of 1848 are a matter of lively debate. However, population growth is again not among the causes generally adduced. Mainstream socio-economic explanations of the revolutions of 1848 emphasize discontent about the gradual replacement of traditional institutions by markets, and the increasing fiscal and military impositions of the state, but not population pressure on resources.¹⁰⁴ An exception is Goldstone's incorporation of Germany in 1848 into his general model according to which 'periodic waves of state breakdown in the early modern world' can be explained in terms of population growth.¹⁰⁵

Neither chronologically nor geographically, however, do the revolutions of 1848 in Central Europe show an association with population growth or the political controls on it. The mid-nineteenth century lay at the culmination of more than a century of exceptionally strong, and quite successful, institutional controls on fertility in many areas of Central Europe. Particularly in the south, as we have seen, marriage ages and celibacy rates had

been maintained at high levels and even increased, population growth rates had fallen to the lowest in the Empire, and social polarization had been kept to a minimum. Yet this did not prevent widespread socio-political conflict in the late 1840s, even in precisely those areas of Central Europe where population growth had been most strictly controlled, and had in actuality been slowest.

A comparison of different parts of Europe in 1848 shows no correlation between population growth rates over the preceding two generations and the severity of socio-political conflict, as Goldstone acknowledges.¹⁰⁶ Thus the population of England and Wales increased by 92 per cent 1800-50, yet 1848 found little echo in Britain.¹⁰⁷ In the territories later to become Germany, by contrast, population rose only 61 per cent 1816-64 (and by only 38 per cent 1815-45), yet the late 1840s saw much greater socio-political conflict.¹⁰⁸ France, with population growth rates as low as those in southern Germany, at 31 per cent 1800-50, was hard-hit by the revolts of 1848.¹⁰⁹ It seems likely that insofar as economic hardship did contribute to the socio-political conflicts in Europe in 1848, it was a hardship caused not by population growth or a rapidly worsening 'ecological balance', but by the failure of traditional and inflexible social institutions to maintain the living standards of hitherto relatively privileged social groups in an era of rapid economic change.¹¹⁰

This is confirmed by comparisons of the severity of the revolutions of 1848 within the Empire, which show no correlation with population growth rates, or, indeed, pressure on food supplies. Prussia, with rapid population growth (1.5% p.a. 1816-64) and no institutional control of marriage, was the least threatened by state breakdown, while Austria, with much slower population growth and severe marriage controls, was only protected from actual territorial dismemberment by Prussian and Russian military assistance. The German territories struck worst by revolt in 1848 were not only Saxony

and the Rhineland (with few controls on marriage and population growth rates of 2.0% p.a. and 1.6% p.a. respectively in 1816-64) but also Württemberg, Baden, and Hesse-Darmstadt (with severe controls on marriage and much lower population growth rates of 0.5% p.a., 0.9% p.a. and 0.9% p.a. respectively). In the Prussian provinces east of the Elbe there was little unrest, despite extremely high population growth rates of 2.0% p.a. in East Prussia, 2.5% in West Prussia, 2.3% p.a. in Pomerania, 1.8% p.a. in Posen and 1.7% p.a. in Brandenburg; the only eastern province of Prussia which saw significant unrest was Silesia, with one of the lowest population growth rates of these eastern provinces, at less than 1.8% p.a.¹¹¹

It might be argued that socio-political conflict was caused not simply by absolutely high rates of population growth (which it clearly was not in Germany), but by high population growth relative to the carrying capacity of the economy. Thus Goldstone argues that revolts were severer in the German south and west because of over-population, citing the oft-repeated fact that partible inheritance in Baden and Württemberg led to rapid population growth and sub-division of holdings into non-viable economic units, while in the north and east land was plentiful.¹¹² However, a closer examination of the situation reveals weaknesses in this analysis.

Baden and Württemberg had *always* been areas of partible inheritance (or at least had been so since the fourteenth century), and had always had to deal with sub-division of landholdings and a potential for rapid population growth. As a consequence, these societies had developed extremely resilient safety-valves, in the shape of institutional controls on settlement and high out-migration. These mechanisms, which continued to operate until long past 1848, had, by the early nineteenth century, reduced population growth rates in these regions far below their eighteenth-century levels and far below the levels observed in other parts of Germany.¹¹³ The strong communities, guilds and other

social institutions which regulated access to livelihoods in these territories were by the mid-nineteenth century threatened with the economic change and superior productivity delivered by more flexible social arrangements elsewhere in Europe, and this threat to entrenched institutions and privileged livelihoods certainly contributed significantly to the revolutionary movements in the German south in 1848. But there is little sign of *increasing* demographic pressure on the productivity of the land, or a *changing ecological balance*.¹¹⁴

If anything, both in the south and elsewhere in Germany, demographic pressure on the economy had fallen in the early nineteenth century, as agrarian reforms began to deliver increases in output which comfortably surpassed increases in population, enabling much larger numbers of people to subsist on the same amount of land. Thus between 1816 and 1864, the population of the territories later to become Germany increased by 61 per cent, but total agricultural production increased 135 per cent. Grain prices - including those in the German south - remained extremely stable between 1750 and 1830, and rose only gradually thereafter, except briefly during the crisis of the 1840s; in general, Lee observes 'classical symptoms of over-production' in German agriculture in this period.¹¹⁵ Moreover, 'almost every area of Germany participated in this process of agricultural expansion': thus between 1800 and 1850, grain output rose 62% in Württemberg, 70% in Prussia, 108% in Saxony and 210% in Bavaria. This can be set alongside population increases for 1816-64 of 24% in Württemberg, 72% in Prussia, 96% in Saxony and 32% in Bavaria.¹¹⁶ Thus population growth in each of these areas - including Saxony, the Prussian Rhineland and Württemberg, where revolts were severe in 1848 - was more than adequately covered by increases in agrarian output. Such findings are borne out by econometric investigations which show that in the period 1816-73, the Prussian economy grew at a faster rate than population growth and that 'demographic fluctuations, despite

their short-term intensity, did not impinge substantially on the pattern of cyclical development within the Prussian economy as a whole'.¹¹⁷ There was no ecological crisis caused by imbalance between population growth and food supplies in Germany in the mid-nineteenth century, and hence such a crisis cannot be assigned responsibility for the revolutions of 1848.

A final test of whether population growth caused socio-political conflict over resources in Central Europe in this period is provided by a recent study of German food riots.¹¹⁸ If any phenomenon provides a test for the slippery thesis that population growth and social polarization cause pressure on resources, insecurity and social conflict, and that control of these phenomena reduces them, it should be food riots. But neither the timing nor the regional distribution of Central European food riots bears out this thesis. Although there were always scattered food riots, according to Gailus 'the onset of far-reaching food riots in Germany seems to have taken place in the crisis years of the 1790s'.¹¹⁹ The timing of the onset of food riots in Germany, at the end of the eighteenth century which had seen the development of enormous political control on marriage, does not suggest that the latter had prevented insecurity from arising in Central European societies.

Nor does the regional distribution of the various spates of German food riots which have been studied between the 1790s and 1840 support such a thesis. One study of 26 riots in the period 1790-1806 finds that although the geographical focus of the riots was in the north, the major centres included not only Holstein (with relatively liberal marriage legislation) but Mecklenburg (well-known for having the most stringent and thoroughly-enforced political control of marriages in northern Germany).¹²⁰ The regional distribution of the second major peak of German food riots, in 1816-7, has not been systematically studied; however, riots were severe in Württemberg, where political control

of marriages was and had been severe for centuries, and population growth was slow compared to other parts of Germany.¹²¹

The major peak of food riots in Central Europe, amounting to several hundred riots in all, took place in the late 1840s.¹²² But their geographical distribution does not bear out the theory that acute population pressure on food causes social conflict, since Gailus finds, as many other European historians have found before him, that 'the geography of high food prices, of dearth, and even of hunger, did not coincide with that of food riots'.¹²³ A number of 'extreme famine regions' - the upper Silesian districts of Pless and Rybnik, the poor regions of the Erzgebirge, proto-industrial eastern Westphalia, and the poor agrarian mountain districts of the Odenwald - remained completely free of rioting. The largest number of riots took place in three parts of the Empire: in Prussia (where there were no political controls on marriage and population growth averaged 1.5% p.a. 1816-64), and in Württemberg and upper Franconia in Bavaria (where political and institutional controls on marriage were the most severe in Central Europe, and population growth rates averaged 0.5% and 0.7% p.a., well below the German average of 1.2% p.a. 1816-64). Saxony and the Rhineland, where political controls on marriage were weak or non-existent, and population growth rates were 2% p.a. and 1.6% p.a. respectively, were conspicuous for not having any food riots at all in the 1840s.¹²⁴

Gailus's analysis of the causes and triggers of food riots within Prussia shows that the riots were evoked not by population pressure on resources, or even by absolute lack of food, but by social allocation mechanisms. The eastern provinces of Prussia, in which the riots were most acute, were actually regions of grain surplus, but social and institutional factors prevented the poor from gaining access to this surplus. This was a region of highly traditional social organization, in which the great feudal nobles retained many institutional and legal privileges despite the formal abolition of serfdom. In the late

1840s, it was the nobles who had control of the Prussian grain surplus, as well as of employment opportunities. It was because rural people were unable to obtain work in the winter that they 'were forced to starve in the midst of Prussia's grain bins'.¹²⁵

Gailus has also investigated the social resentments manifested in the food riots of the 1840s and, in addition to 'vertical' resentments by hungry people against well-off bakers and farmers, he also finds an important component of 'horizontal' resentments directed against outsiders and foreigners, especially Jews. One argument sometimes advanced is that at the root of all serious 'ethnic' or 'communal' conflicts, such as those observed in Rwanda or in India in recent years, lies conflict over resources evoked by rapid population growth. If conflict over resources evoked by population growth were the source of all ethnic conflicts - irrespective of the economic, social, institutional or political framework - one would expect to find that the ethnic component of the Central European food riots of the 1840s was more acute in Prussia, where population growth had not been controlled by state restrictions on marriage, than in the German south, where restrictions were severe and population grew slowly. But Gailus finds the opposite. The ethnic resentments expressed in an extraordinarily large number of the food riots of the 1840s - particularly against Jews - were more acute in the southern states of Baden and Hesse (areas of political control of marriage and low population growth rates of 0.9% p.a. 1816-64) than in Prussia (areas of liberal marriage and rapid population growth of 1.5% p.a.).¹²⁶

VI. Conclusion

Central Europe provides an example of a historical developing economy that we can observe over a long period of time, in which it was believed by intellectuals, political authorities, and local elites that population growth, and in particular high fertility by poor people, was a threat to public security. As a consequence, many Central European

governments, with the encouragement and cooperation of local institutions, instituted a system of political controls on marriage and sexuality which was unique in pre-industrial Europe. At least partly as a result of such measures, the period leading up to and encompassing industrialization, during which age at marriage fell steadily in England and population began to grow quite rapidly, was one in which Central Europe saw a continual rise in marriage age and eelibacy rates, and relatively slow demographic growth.

But there is little evidence that this led to greater security, however we define this quality. In all the ways in which we can measure security, Central Europe was less well-off than parts of Europe in which there were no political controls on marriage and fertility. Those areas of Central Europe which had the most stringent controls - the south German states and Austria - were also least well-off, according to all these measures. Thus the economy of Central Europe - southern Germany and Austria in particular - was backward and grew slowly until the late nineteenth century. Life expectancies did not improve after 1740, and infant mortality was very high, especially in the south. Although Central Europe as a whole, and the southern areas in particular, did manage to place brakes on the marriage and settlement of poor and landless groups, and thus succeeded in maintaining social structures that were profoundly conservative, it is not clear that this was beneficial from the point of view of economic growth and collective well-being. This is not to argue that political controls on marriage caused poverty in Central Europe, any more than poverty caused political controls on marriage. Rather, both economic stagnation and demographic regulations were caused by underlying factors, in particular the close cooperation between state and corporate groups, which to a comparatively late date sustained the powers and 'rents' of privileged social groups to resist both economic change and demographic growth.

The endemic social and political conflict which plagued Central Europe from 1618

to 1815 does not appear to have been caused by population growth directly, or by scarcity of resources and social polarization engendered but such demographic expansion. This continued to be the case into the mid-nineteenth century, the high-point of political and institutional controls on marriage, when marriage ages and celibacy rates were at their highest in many areas, especially the south. The food riots which occurred throughout Central Europe in the 1790s, the 1810s and the 1840s took place in areas of liberal and restrictive marriage alike, and the shortages which provoked them stemmed less from absolute lack of resources than by the social and institutional mechanisms by which they were allocated.

As remarked at the beginning of this paper, it is dangerous to draw comparisons between the economic and demographic development of Europe in the past and that of poor countries in many parts of the world today. Both economic and demographic behaviour are profoundly influenced by socio-political institutions, the technological environment, and international trade and politics, all of which differed enormously between pre-industrial Europe and the present-day less-developed world. Yet it is sometimes claimed that present-day lessons *can* be drawn from pre-industrial Europe. In particular, it is sometimes argued that the lesson of history is that population growth lies behind almost all economic crises and major socio-political conflicts within and between human societies.¹²⁷

The example of Central Europe, which resembled the present-day less developed world more perhaps than any other area of pre-industrial Europe or North America, suggests that the view that population growth is invariably a cause of insecurity, and that political control of demographic behaviour invariably reduces this insecurity, must be regarded with considerable scepticism. The endemic political insecurity, economic backwardness and widespread poverty which plagued Central Europe between 1618 and

the later nineteenth century cannot be traced to rapid population growth. Rather, it seems likely that these forms of insecurity, like the political controls on demographic behaviour themselves, must be traced to a political and institutional framework which placed a great deal of power in the hands of political and corporate elites, who used this power to defend their own privileged livelihoods and a traditional organization of society, at the expense of collective welfare.

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Areas of Germany with legal limitations on freedom of marriage in the nineteenth century

Areas of restrictive marriage limitations:

- 1 rechtsrheinisches Bayern
- 2 Württemberg
- 3 Baden
- 4 Hohenzollern (Sigmaringen, Hechingen)
- 5 Großherzogtum Hessen
- 6 Hessen-Kassel (Kurfürstentum)
- 7 Nassau
- 8 Schwarzburg-Sondershausen
- 9 Sachsen-Weimar-Eisenach
- 10 Sachsen-Altenburg
- 11 Sachsen-Coburg-Gotha
- 12 Hannover
- 13 Mecklenburg-Schwerin
- 14 Mecklenburg-Strelitz

Areas of mild marriage limitations:

- 15 Oldenburg
- 16 Braunschweig
- 17 Lubeck
- 18 Hamburg
- 19 (Frankfurt)

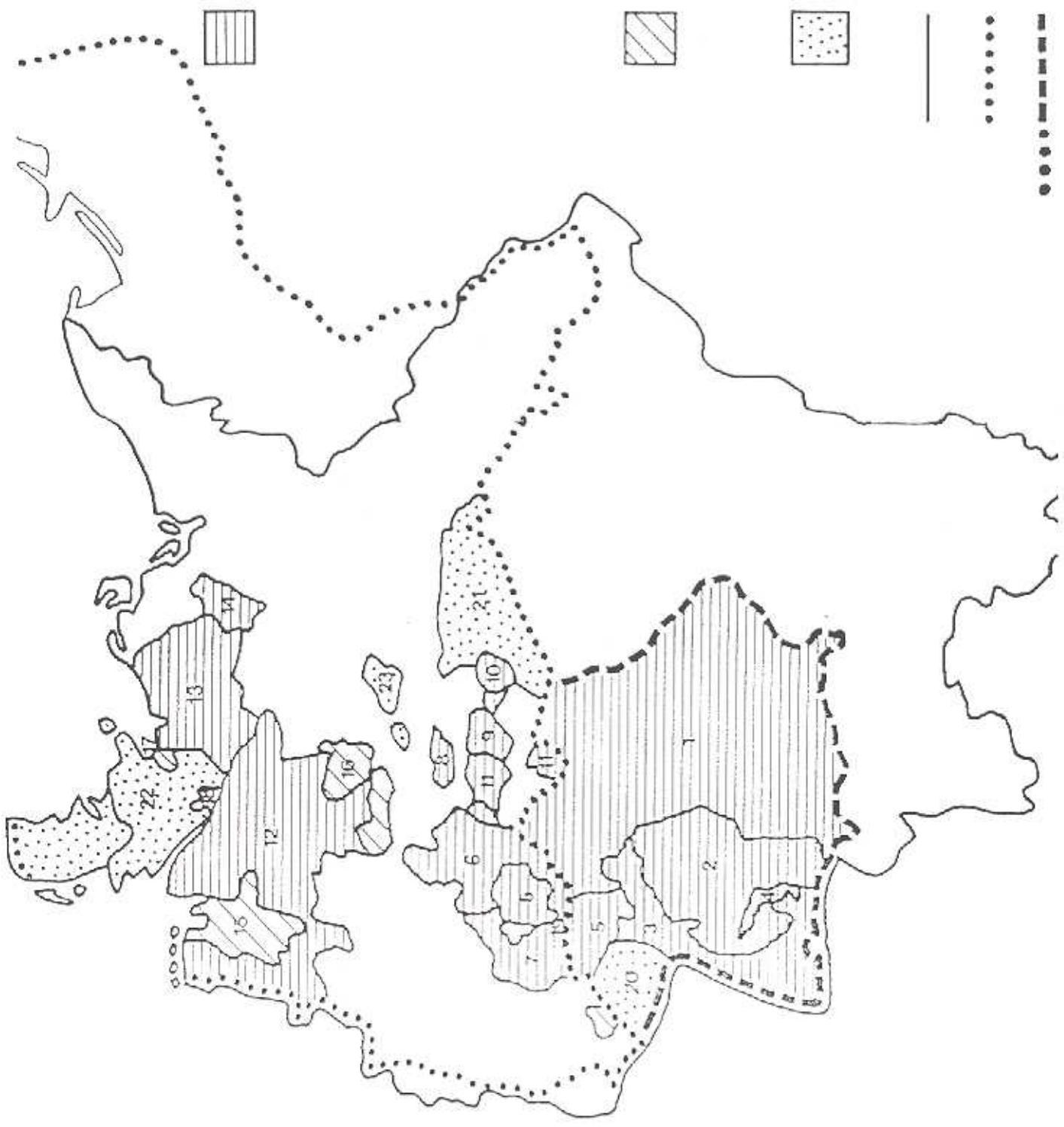
Areas of negligible marriage limitations:

- 20 Pfalz
- 21 Sachsen
- 22 Schleswig-Holstein
- 23 Anhalt-Desseu

Border of the Deutscher Bund (German Union)

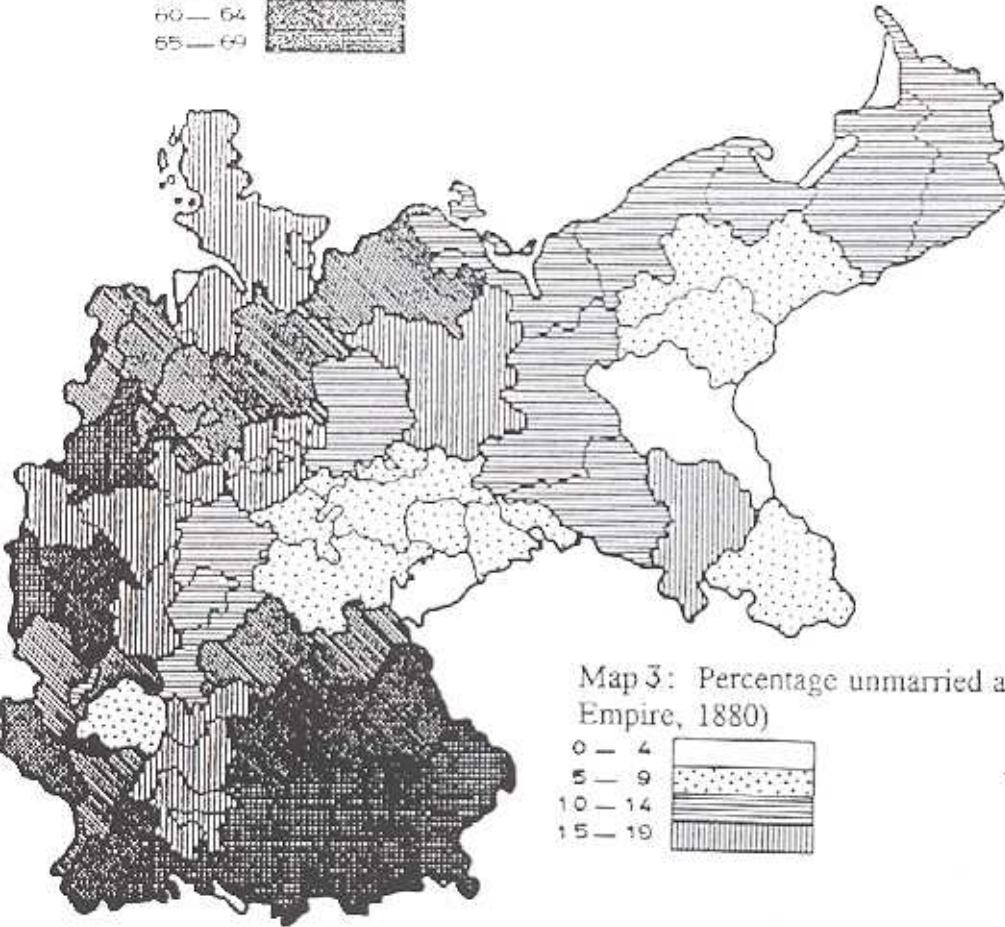
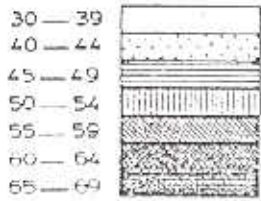
Border of the Norddeutscher Bund (North German Union)

Border of the German Empire

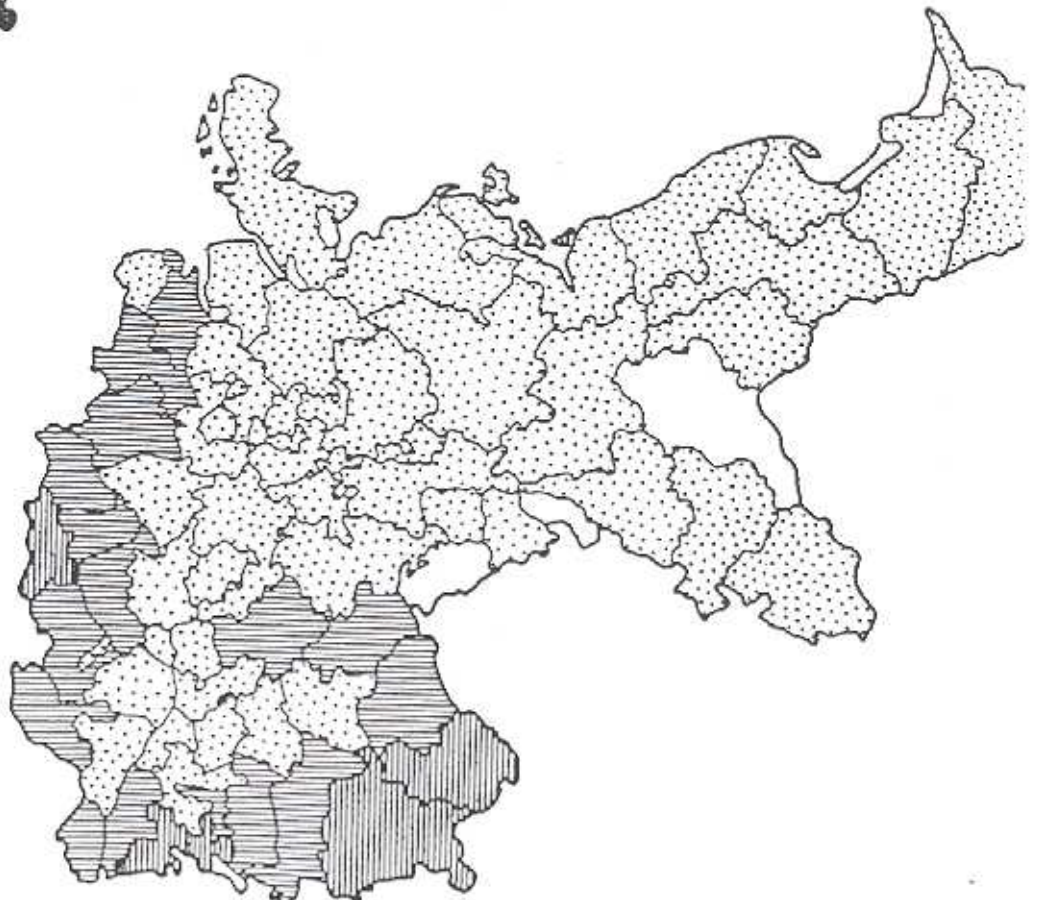
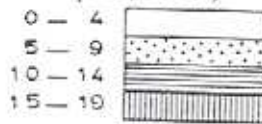


Source: K.-J. Matz, Pauperismus und Bevölkerung. Die gesetzlichen Ehebeschränkungen in den süddeutschen Staaten während des 19. Jahrhunderts (Stuttgart 1980), pp. 176-177

Map 2: Percentage unmarried among men aged 25-29 (German Empire, 1880)



Map 3: Percentage unmarried among men aged 45-49 (German Empire, 1880)



Notes

1. See, for instance, Goldstone 1991.
2. Matis & Bachinger 1973; Spree 1977; Tilly 1979.
3. Matis & Bachinger 1973; Spree 1977; Tilly 1979.
4. Hoffmann 1931; Kiesewetter 1980.
5. See, for instance, the discussion in De Vries 1976.
6. See the discussion in Ogilvie 1995a and Ogilvie 1995b.
7. See the recent survey of the structure of the Empire in Gagliardo 1991.
8. On the expansion of armies, taxation levels, and state indebtedness in pre-industrial Central Europe, see Fiedler 1972 and Klein 1974; for a discussion of the effects on social institutions and social conflict, see Ogilvie 1992.
9. See the literature surveyed in Ogilvie 1992, pp. 434-6.
10. Ehmer 1991, p. 46; Blasius 1987, p. 25; Pfister 1994, p. 24.
11. Pfister 1994, pp. 24, 31; Ehmer 1991; Matz 1980; Schüz 1848; Braun 1868.
12. Blasius 1987, pp. 22-7; Ehmer 1990, pp. 46-52; Matz 1980: 29-33; Pfister 1994, pp. 24-7, 83, 86-9.
13. Schilling 1986, esp. pp. 25-6; Ogilvie 1992, esp. 434-6.
14. This process, which encompassed economic, social, religious, moral and cultural regulation as well, is discussed in detail, along with the empirical studies investigating its local-level effects, in Ogilvie 1992.
15. Ehmer 1991, p. 46; Pfister 1994, p. 25.
16. See the detailed discussion in Schlumbohm 1994 of such landlord controls, even in an area in which non-agrarian earnings were richly available in the rural linen export-industry.
17. Becker 1989; Ehmer 1991; Matz 1980, pp. 37-50; McNetting 1981; Ogilvie 1986; Ogilvie 1995; Pfister 1994, pp. 25, 30-1, 86; Sabeau 1990.
18. The concept of *Nahrung*, and the central position it occupied in the views of economic and demographic matters by intellectuals, policy-makers and ordinary people in German-speaking Central Europe, are demonstrated in Süßmilch 1741, vol. I, pp. 143-6, 154-5, 427; and are discussed in detail by Braun 1868, p. 7; Ehmer 1991, pp. 36-8, 43-4; Elster 1909, p. 937; Lenger 1988, ch. I.1; and Wissel 1929, pp. 328ff, 331ff.
19. Ehmer 1991, p. 46; Friedrichs 1985; Matz 1980, pp. 37-50; Ogilvie 1985; Walker 1971.

20. Pfister 1994, pp. 24ff, 31; Ehmer 1991; Matz 1980; Schüz 1848; Braun 1868.
21. Duchhardt 1985; Kuhn 1971; Mittenzwei 1986; Pfister 1994, pp. 10, 49-53, 78, 110; Schilling 1972.
22. For examples from the sixteenth through the eighteenth century, see, for instance, Magdelaine 1986; Zumstrull 1983; Pfister 1994, esp. 49, 52.
23. Pfister 1994, p. 54.
24. Hippel 1984; Pfister 1991, pp. 54-8, 112-6; Trommler 1986.
25. Pfister 1994, pp. 49-54.
26. Pfister 1994, p. 26; Selig 1988.
27. Bulst 1985; Pfister 1994, pp. 41-2, 101; Rödel 1989.
28. Becker 1989; Breit 1991; Imhof 1981, p. 57; Mitterauer 1983; Norden 1984; Pfister 1994, pp. 29-31, 86-9; on Stockach, see Bohl, 1987.
29. Ehmer 1991, p. 46; Blasius 1987, p. 25; Pfister 1994, p. 24.
30. See, for instance, the exploration of this issue from a variety of perspectives in Tracy 1986.
31. Blasius 1987, p. 22-7.
32. Buchholz 1982; Cornish 1982; Ehmer 1991, p. 47.
33. Blasius 1987, pp. 22-6, 82-5; Ehmer 1991, pp. 45-61; Matz 1980, pp. 29-32 and *passim*.
34. Blasius 1987, p. 24-7; Ehmer 1991, p. 47-50; Matz 1980, pp. 37-50; Pfister 1994, p. 25ff.
35. Pfister 1994, p. 25.
36. Derived from Matz 1980, pp. 176-177.
37. Blasius 1987, p. 83; Ehmer 1991, pp. 52-61; Elster 1909, p. 962; Matz 1980, pp. 44f, 114-81, 191, 233 and *passim*; Schüz 1848, pp. 41-2, 83-4 and *passim*.
38. As emerges strikingly from the map of German areas with legal restrictions on freedom of marriage in the nineteenth century, in Matz 1980, pp. 176-7.
39. Ehmer 1991, p. 52-3; Schüz 1848, p. 80.
40. Matz 1980, p. 175.
41. Matz 1980, p. 175.
42. Ehmer 1991, p. 53; Schüz 1848, pp. 37-8, 82.

43. Schüz 1848, p. 86
44. Matz 1980, p. 175.
45. Schüz 1848, pp. 41, 86.
46. Harnisch 1979, p. 320.
47. Ehmer 1991, p. 53; Elster 1909, p. 963.
48. Göbel 1988.
49. Matz 1980, p. 179.
50. Ehmer 1991, p. 53 and *passim*; Elster 1909, pp. 960ff; Matz 1980, p. 175; Schüz 1848, pp. 37, 82.
51. Ehmer 1991, p. 55; Matz 1980, pp. 179, 233.
52. Quoted in Matz 1980, p. 174 note 364.
53. Duchhardt 1985; Kuhn 1971; Mittenzwei 1986; Pfister 1994, pp. 10, 49-53, 78, 110; Schilling 1972.
54. Pfister 1994, pp. 54-8, 115.
55. Köllman 1976a, p. 101. The largest numbers of emigrants originated in Baden, Württemberg, Bavaria and Hannover, the German territories with the most severe institutional restrictions on marriage and settlement: in 1830-40, 98.9% of German emigrants originated in the southwest, see Lee 1979, p. 160.
56. For the original Bavarian study see Lee 1979, pp. 147-9; for the German regional mortality tables see Imhof et al 1990; for a recent summary of the debate, see Pfister 1994, p. 80.
57. Pfister 1994, p. 39-40; based on empirical studies such as Woehlkens 1954.
58. Ionnadis & Lee 1981, p. 291.
59. Pfister 1994, pp. 35, 80, 94-5.
60. See Marschlack 1987, p. 21 Table 1.2 for estimated life expectancies; Pfister 1994, pp. 42-4, 102-3 (on lack of improvement 1740-1800); for data from death sermons for the earlier periods, Lenz 1981, pp. 88-113; for German regional life tables, see Imhof et al 1990.
61. Pfister 1994, pp. 37-43.
62. Bulst 1985; Mattmüller 1987, p. 244; Pfister 1994, pp. 41-2, 101; Rödel 1989..
63. Imhof et al 1990; Mattmüller 1987; Pfister 1994, pp. 38-9.
64. Blaschke 1964.

65. For the worsening of trade barriers, see Häberle 1975, pp. 164-7; Schremmer 1970, pp. 676-7; on the demographic repercussions of transport costs in 1770/72, see Pfister 1991, pp. 37-8.
66. Pfister 1991, pp. 38-9.
67. Becker 1989; Breit 1991; Imhof 1981, p. 57; Mitterauer 1983; Norden 1984; Pfister 1994, pp. 29-31, 86-9.
68. Ehmer 1991, pp. 61, 103ff; Pfister 1994, pp. 28-9, 83-5; Lee 1979, pp. 146-7, 178 (Table 4.2).
69. Wrigley 1981, p. 147; Wrigley & Schofield 1981, pp. 435ff.
70. The maintenance of high marriage ages and celibacy rates, and a frequent increase between the late seventeenth century and the mid- to late nineteenth century, is shown in empirical studies for a variety of localities and regions in Central Europe: see, for instance, Knodel 1988, pp. 119ff; Flinn 1981, pp. 126ff; Imhof 1967, pp. 205; Kaschuba & Lipp 1982, pp. 305; Knodel 1970, p. 361; Lee 1977, pp. 36; Lee 1979, pp. 146-7, 179 (Table 4.2); Knodel 1974, pp. 70ff; and the summary in Ehmer 1991, pp. 17, 293-5.
71. Ehmer 1991, pp. 74, 86-7, 103-48, esp. Fig. 4 (p. 104), Fig. 5 (p. 105), Fig. 6 (p. 121), and Fig. 7 (p. 122).
72. Derived from Ehmer 1991, Figures 4-5, pp. 104-105.
73. Ingrao 1994, p. 214.
74. Lee 1979, p. 178, Table 1.
75. Knodel 1989, p. 127.
76. Lee 1979, p. 148.
77. Schraut 1989, p. 137.
78. Matz 1980, p. 233.
79. Ehmer 1991, pp. 74, 80-2; Matz 1980, pp. 37-50, 178-9, 265-9; Schüz 1848 *passim*.
80. Empirical knowledge is still lacking on what may have been the causes of the general increase in the desire of local institutions and groups in so many parts of Central Europe to limit population growth (or access to marriage by poor people); for some speculations on the subject, see, for instance, Ehmer 1991.
80. See the discussion in Ehmer 1991, pp. 34-44.
81. On agriculture see De Vries 1976, pp. 55-7, 59-63; on proto-industrialization see Ogilvie 1995b; on industrialization see Hoffmann 1931 and Kiesewetter 1980.
82. On the different patterns of economic development in different regions of Germany, see Tipton 1976; Spree 1977; Tilly 1979. On the Austrian lands, see Matis & Bachinger 1973.

83. Gailus 1995, p. 169.
84. Marschalck 1987, p. 18; Pfister 1994, pp. 35-6 (for infant mortality), 97 (for mortality in general); for an example in a rural industrial district in Westphalia, see Ebeling & Klein 1988, p. 33.
85. Pfister 1994, pp. 42-4, 102-3; Lenz 1981, pp. 88-113; Imhof et al 1990.
86. Lee 1979, p. 153.
87. Lee 1979, p. 155.
88. Imhof 1981b; Pfister 1994, pp. 97f.
89. Marschalck 1987, p. 22; Lee 1979, pp. 155, 186-7 (Tables 4.10-4.11).
90. Imhof 1981b; Pfister 1994, pp. 35-6; Knodel 1988.
91. Lee 1979, p. 187, Table 4.11.
92. Knodel 1988, pp. 42-6; Imhof 1981b.
93. Kintner 1988, p. 297 (on huge regional differences in infant mortality rates in Germany in 1871-1933, which ranged from 114 to 383 per 1000) , p. 306 (for regression results).
94. Lee 1979, p. 191 (Table 4.16).
95. The maintenance of traditional social structures in south German proto-industries was originally pointed out for Bavaria, Württemberg and Hesse by Schremmer 1981; it was recently acknowledged by those who had originally argued that proto-industrialization led to landlessness and proletarianization universally throughout Europe, see Kriedte/Medick/Schlumbohm 1993, pp. 226-32; the institutional reasons for it are discussed in Ogilvie 1993 and Ogilvie & Cerman 1995. For a discussion of the phenomenon of rural guilds in proto-industries, which were particularly widespread in Central Europe (and especially southern Germany and Austria), see Ogilvie 1995a.
96. On Ravensberg, see Mager 1981 and Mager 1982; on Osnabrück see Schlumbohm 1992 and Schlumbohm 1994.
97. See the recent survey of this debate in Ogilvie 1992.
98. Pfister 1994, pp. 11-12.
99. For a thorough exploration of the empirical and theoretical reasons that 'class conflict' cannot be adduced in explanation either of the Thirty Years' War or of the spate of popular revolts and revolutions in Central Europe during the first half of the seventeenth century, see Ogilvie 1992, pp. 421-7.
100. On the growth in the proportion of GNP absorbed by the state all over Europe in the early seventeenth century see Steensgaard 1978, pp. 36-44 and the literature cited in Ogilvie 1992, p. 439 note 84; for a detailed survey of the growing fiscal demands by the state in different parts of German-speaking Central Europe, and the consequences in terms of socio-

political conflict, see Ogilvie 1992, pp. 429-31 and *passim*.

101. Pfister 1994, pp. 38-9; Stier & Hippel forthcoming 1996.

102. Pfister 1994, pp. 14-18.

103. See the well-balanced and empirically supported assessment of the causes and the demographic, social and economic consequences of Central European warfare between the Thirty Years' War and the Napoleonic wars in Stier & Hippel forthcoming 1996.

104. Sperber 1994, pp. 38-63, 239ff.

105. Goldstone 1991, see pp. 334-43 on Germany.

106. Goldstone 1991, pp. 290-4.

107. Wrigley & Schofield 1981, pp. 534-5.

108. Köllmann 1976b, p. 10; Lee 1979, p. 178; for figures on selected regions of Germany between 1816 and 1849, see Köllmann 1974, p. 62, Table 1; for the figure of 38 per cent 1815-45 see Hamerow 1958, pp. 19-20.

109. Armengaud 1976, p. 235.

110. This is tacitly acknowledged by Goldstone 1991 in his discussion of the nineteenth-century European revolutions (pp. 290-4), and indeed throughout his empirical discussion of state breakdown in early modern societies.

111. On the intensity of the 1848 revolutions in different regions of Germany, see Hamerow 1958, p. 107 and Stadelmann 1975, pp. 82-3; on population growth rates of German regions 1816-64, see Lee 1979, p. 178, Table 4.1.

112. Goldstone 1991, p. 336.

113. Thus, for instance, Württemberg had seen population growth rates of 0.71% p.a. in 1750-94, but its population grew at only 0.49% p.a. 1816-64 (Lee 1979, pp. 145, 168). The same can be seen in Bavaria: population growth rates peaked at 1% p.a. in 1817-20, but had fallen to 0.11% p.a. by 1849-52 (Lee 1979, p. 145).

114. Just as the ecological pressure of population on the land in southwest Germany should not be over-emphasized, similarly it is erroneous to place too much stress on the capacities for extending the land in eastern areas of Prussia in this period, as for instance is done by Goldstone when he writes that 'labor, rather than land, was the scarce commodity in the east' (Goldstone 1991, p. 337). While settlement was still going on in 1786, it had largely stopped by the early nineteenth century, as is pointed out by Ionnadis and Lee, whose econometric investigations show that although land input in the Prussian economy did slightly increase during the period 1816-73, it did not increase as fast as population. On the contrary, they find that 'land was the scarce factor throughout the period under consideration and land-saving techniques in agriculture were frequently employed' (Ionnadis & Lee 1981, p. 291-2).

115. Lee 1979, p. 154.

116. Lee 1979, pp. 144, 153, 178.

117. Ionnadis & Lee 1981, pp. 291, 299.
118. Gailus 1995.
119. Gailus 1995, p. 160.
120. Harnisch 1979, p. 320.
121. Gailus 1995, p. 161; Medick 1985; for slow population growth in Württemberg in this period, see Lee 1979, p. 178.
122. Gailus 1995, p. 161.
123. Gailus 1995, p. 163.
124. For regional population growth rates 1816-64, see Lee 1979, p. 178; for regional distribution of 1847 food riots, see Gailus 1994.
125. Gailus 1995, p. 174.
126. Gailus 1995, p. 180; Lee 1979, p. 178.
127. See, for instance, Goldstone 1991.

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