SOCIAL UPHEAVAL AND FERTILITY DECLINE

John C. Caldwell

One theme in demographic theory is that, as society changes, human fertility levels remain high because of the continuing influence of outdated "props" to maintain existing levels of fertility. A corollary is that social upheavals might change these conditions, thus leading to a fall in fertility. This article examines thirteen social crises for which there are adequate demographic data ranging from the seventeenth-century English Civil War to the fall of communism in Eastern Europe in the late twentieth century. All show marked falls in fertility arising from deferred female marriage, declining marital fertility, or both. The evidence is weak that this change constituted an adjustment of fertility to immediately preceding social conditions but stronger that there was a temporary adjustment to a new period of uncertainty about the future and a continuing adjustment to new socioeconomic and legislative conditions.

Keywords: *historical demography; social crisis; revolution; war; fertility theory; demographic transition*

A significant theme in fertility transition theory is that family size tends to be larger than child mortality levels and material conditions would necessitate. This is explained by the persistence of cultural supports or "props" fashioned in an earlier era and implies that fertility is likely to decline if there is a major social upheaval such as is constituted by a revolution or defeat in a total war. The proposition has recently been put forward with regard to the French and American Revolutions. This article examines thirteen major upheavals, most in Europe, and finds support for the thesis that they are accompanied by unusual fertility declines. Less support is found for the proposition that the explanation is the weakening of now outdated cultural forces. Rather, the

---

John C. Caldwell *is an emeritus professor, Demography and Sociology Program, Research School of Social Sciences, Australian National University, Canberra. He published* Theory of Fertility Decline *in 1982. He is currently writing a book on demographic transition. His most recent writings include (with Bruce Caldwell) "Pretransitional Population and Equilibrium,"* Population Studies *2003; (with Thomas Schindlmayr) "Explanations of Fertility Crisis in Modern Societies: A Search for Commonalities,"* Population Studies *2003; "Demographic Theory: A Long View,"* Population and Development Review *2004; (with Bruce Caldwell) "Family Size Control by Infanticide in the Great Agrarian Societies of Asia,"* Journal of Comparative Family Studies *2005.*

Journal of Family History, Vol. 29 No. 4, October 2004 382-406
DOI: 10.1177/0363199004267744

demographic change seems to involve a transition from fertility levels appropriate to earlier material conditions to ones suited to the new situation. The one factor that is common to all upheavals is an uncertainty about the future and a desire to postpone irreversible demographic decisions until the situation is clearer. Among those countries already undergoing a fertility transition, fertility levels do not return to precrisis levels, although the subsequent rate of decline is usually slower than during the crisis.

INTRODUCTION

An important, but little researched, theme in demographic transition theory is that of transition, especially fertility transition, lagging for cultural reasons behind changes in material circumstances. A subtheme is that of the lag time being shortened by social upheaval challenging the cultural retardants and thus causing demographic behavior to catch up with economic and demographic reality. This article examines the apparent demographic impact of deeply traumatic events in societies nearing or experiencing fertility transition to determine whether there is a close relationship. It does not aim at showing that the causes of all steep fertility declines are such events.

The cultural support for high fertility, even if not wholly or any longer economically rational, was central to Notestein's theory. Some of his followers were to speak of cultural "props." Notestein,[1] in a key passage in his seminal paper "Population—The Long View," wrote, "Any society having to face the heavy mortality characteristic of the premodern era must have high fertility to survive. Their religious doctrines, moral codes, laws, education, community customs, marriage habits, and family organizations are all focused toward maintaining high fertility. These change only gradually and in response to the strongest stimulation." He described a population evincing fertility decline as one "increasingly freed from older taboos and increasingly willing to solve its problems rather than accept them."[2] At a 1952 conference, he argued that "these arrangements [i.e., the cultural props] . . . are strongly supported by popular beliefs, formalized in religious doctrine, and enforced by community sanctions. They are deeply woven into the social fabric and are slow to change."[3] Clearly, however, some circumstances were likely to be more propitious than others in hastening change.

Caldwell,[4] examining what he regarded as the surprisingly late fertility decline in Victorian England, concluded that the advent of the decline had been postponed both by an inability of partners to discuss contraception and by the related failure to invent and market suitable contraceptives, a situation brought about by an adherence to what was perceived as Christian family morality. Admittedly, doctors' warnings based on inadequate science played a role, but this was merely another cultural prop and, in most cases, arose from the same religious stance. Eberstadt,[5] in his paper on "Demographic Shocks after Communism," wrote, in explanation of steeply declining birth and marriage rates (and some rising death rates) during Eastern Europe's withdrawal from communism in the 1990s, "the transition to a liberal market order might be expected to entail far-reaching, often traumatic adjustments." Standing[6] charged that this had been the international agencies' deliberate policy in that they fostered "shock therapy" for previously "overprotected populations." In contrast, Victorian England had suffered no traumatic experience.

Marwick[7] concentrated on the social and demographic change resulting from wars and their often accompanying revolutions, focusing on the impact of two world wars on Britain, France, Germany, and Russia. He argued that "total war" rapidly changed

societies because of its destruction, economic stresses, and challenges; the subjection of individuals to new social experiences; and the psychological impact of being caught up in such an enormous social convulsion.[8] He reported that such wars were for many, especially those in refugee streams, traumatic.[9] He had argued earlier that, as a result of the First World War, "The world, and women, had changed,"[10] and that war had altered British sexual and reproductive morality. There was a new understanding of premarital sex when the male partner was headed for the front.[11] The government agreed, and by late 1914, it was prepared to recognize for the purposes of allowances to combatants' dependants, not only wives and legitimate children, but unmarried female partners and their children by the combatants if a home had been kept. The result was that "in various ways the war marked a loosening of the standards of conventional morality. In February 1918 the National Council for the Unmarried Mother and Her Child was founded. After the war, Marie Stopes and her disciples set up [Britain's] first birth control clinic."[12]

The ideas of props and lags underlie some of the central themes of contemporary family planning demographic theory with its resort to concepts of "the crystallization of contraceptive demand" and the related "unmet need."

The issue has been brought back into the limelight by a recent article in *Population* by Rudolph Binion,[13] which claims to be able to show scientifically that the world's first two fertility transitions were initiated by the dissolution of materially irrational supports for high fertility in the furnaces of the French and American Revolutions. Binion's article provides the mainspring of this article, and it and the French Revolution are discussed below in some detail. This is the starting point for an investigation of a wider range of social upheavals to find their relations to demographic change. Two points might be noted. The first is that both Binion[14] and Marwick[15] charge that social historians and demographers are so committed to showing that demographic change is driven by long-term, especially economic, movements that they recoil from suggestions that short-term human experience could play a significant, even a triggering, role. It is said that the historians and demographers seek to show that their disciplines are scientific, with interpretations unmarred by capricious change and unforeseeable events. The second point is that the focus is on secular fertility decline and ignores the impact of social crisis on low-fertility societies in changing factors that may ultimately raise fertility: such as the argument that the First World War produced younger marriages in Britain[16] and that in the West, particularly in English-speaking countries, the Second World War fostered, especially in its aftermath, younger and more universal marriages that made a major contribution to the "baby boom."[17]

To select the appropriate cases of social upheaval, we used standard global and European histories, as well as the works of "upheaval" political scientists, especially Zimmerman,[18] who described these periods as being "crises of legitimacy," and Goldstone,[19] who uses the term "state breakdown." Goldstone has strong demographic interests, but his approach (like that of Boserup[20]) is of "independent movements of mortality" leading to increased population growth and population pressure on resources that in turn produce both social upheaval and greater fertility control.[21] From these sources and from agreements in choice between lists drawn up independently by four different persons, we selected for study (1) England, 1642-66 (civil war, republican Commonwealth, and early Restoration); (2) France, 1789-1804 (revolution and early Napoleonic period); (3) Russia, 1914-22 (war, revolution, civil war, and external intervention); (4) Germany, 1914-24 (war, revolutionary circumstances, and

early Weimar Republic); (5) Austria, 1914-24 (war and dissolution of the Austro-Hungarian Empire); (6) Spain, 1936-42 (civil war and dictatorship); (7) Germany, 1939-50 (war and occupation); (8) Japan, 1939-54 (war and occupation); (9) Chile, 1973-78 (military coup and dictatorship); (10) Portugal, 1974-85 (revolution and aftermath); (11) Spain, 1977-85 (Franco's death and move to democracy); and (12) Eastern Europe from the late 1980s (from communism to a market economy). We omitted the American Revolution, 1775-83, because of lack of fertility data and skepticism about the validity for it of the Binion thesis of social revolution there. However, new data and analysis[22] have allowed us to supplement the previous work by adding (13), the American Civil War. The least agreement was on the inclusion of Portugal and especially Spain, with their relatively mild experiences, but these experiences occurred at a time when fertility was probably sensitive to relatively mild social shocks.

BINION AND THE FRENCH AND AMERICAN REVOLUTIONS

The French fertility experience over the past 220 years is of central importance to fertility transition theory, and accordingly a great deal of effort has been put into its reconstruction, even though fully published vital registration data are available only from 1806 and nationally standardized censuses only from 1831. Bourgeois-Pichat[23] used these data and less certain earlier census and registration statistics to construct a national estimate starting from 1770. The analysis of parish registers in research at INED[24] (the French Institut National d'Études Démographiques) centering on Louis Henry[25] allowed reconstruction to begin at 1740. Van de Walle[26] reconstructed the female population from census data at the *département* level from 1831. This was done as part of the Princeton University Office of Population Research's European Project (his estimates form the French segment of the final statistical compilation[27]) and allowed the Princeton indices, overall fertility (I_f), marital fertility (I_g), and proportions married (I_m) to be calculated every five years from 1831 until 1901. Thus, for the first time, there was a whole series attempting to separate the different components of fertility: age-specific female fertility levels and the proportions of females married at each age. Weir[28] drew on INED[29] data and the lessons learnt from "the flurry of methodological discussion that followed the publication of the *Population History of England*"[30] to produce a series of all Princeton indices from 1740 to 1911. Bonneuil[31] reconstructed overall fertility, placing a different stress on mortality data and assumptions, to produce an I_f series from 1806 to 1911.

The Weir series provide the only comprehensive picture of the components of fertility from the high and fairly stable fertility of the mid-eighteenth century to the low fertility of the early twentieth century and accordingly were eagerly seized on for interpretation by Binion[32] and others. Before we examine Binion's interpretation, we should add some cautionary notes about the extent to which the figures represent underlying reality and about the patterns observed in them.

For 1831, the date when overall fertility can first be compared between van de Walle, Weir, and Bonneuil, Bonneuil estimates I_f as .369, Weir as .318 or 14 percent lower, and van de Walle as .297 or 20 percent lower. Not surprisingly, the three series diverge more as one moves earlier in time. These differences are not insignificant, given that Weir's I_f falls only 16 percent in the first twenty years after the Revolution

and little more over the first forty years. When we turn to marital fertility (taken by the Princeton project to be the real measure of fertility transition), we are in greater difficulties because of the quality of the marriage data, and accordingly, even from 1831, there are only two series to compare. For that year, Weir's I_m (.471) is 8 percent below that of van de Walle (.514), and his I_g (.627) is 17 percent higher than van de Walle's (.537).

When van de Walle's book[33] was published, it appeared to show that the French had experienced not one fertility decline but two, with marital fertility in 1841 (I_g = .526) level with that of 1886 (I_g = .527); between was a dip and a recovery, the latter so prominent in parts of France as to be described as a "ski jump."[34] Using this analysis, Caldwell[35] wrote that what had happened between the late eighteenth and nineteenth centuries "was probably distinct from what was to occur towards the end of the century, when France fully participated . . . in the general fertility transition." Wrigley[36] exhaustively and elegantly argued that the French fertility transition was best treated as two distinct declines (as opposed, he noted, to the conclusions of Knodel and van de Walle[37]), that "nuptiality and fertility must have been sensitive . . . to each other's trends, and jointly sensitive to mortality change," and that higher numbers of surviving children must have encouraged stopping behavior, and possibly spacing.[38]

The picture presented by Bourgeois-Pichat[39] was of high pretransitional fertility (a total fertility rate above five), falling consistently from around 1770 to 1910 with a steeper decline only during the 1790s and a somewhat slower fall between 1850 and 1875. Weir's[40] I_g series remained constant between 1744 and 1788, fell rapidly between 1788 and 1801 (19 percent at an annual linear rate of 1.5 percent), fell more slowly between 1801 and 1872 (24 percent at 0.3 percent per annum), and then fell more rapidly between 1872 and 1911 (38 percent at 1.3 percent per annum). His I_f trends were closer to Bourgeois-Pichat's because of marriage changes, but this did not affect the picture of marital fertility transition. The new interpretation appeared to show that the start of the marital fertility decline began no earlier than the Revolution and that, in the period between the first and second steep declines, there was a slower but continuing decline.

A possible interpretation is that high fertility was a modest problem in the late eighteenth century and was brought more into line with economic reality by the challenge, during the revolutionary years, to old customs and especially to institutional religion; that the subsequent slower decline showed that the French had learnt the lesson of controlling family size to conform with modest socioeconomic change; and that France, like other Western countries, felt the full force of more rapid change, especially the move toward universal schooling, from the 1870s. Certainly France fully participated in the general Western fertility decline, with its I_g falling 33 percent between 1881 and 1911 compared with 31 percent in England during those years. The ability of France to sustain such continuing fertility declines is partly explained by its prerevolutionary levels when its I_g at over 0.8 was 20 percent higher than England's at around 0.675, the latter stable back from 1881 to 1851 and presumably about the same level in the eighteenth century.[41] Indeed, France's level of marital fertility did not fall below that of England until after 1820, well after the end of the revolutionary decline. There were, then, suitable data here for Binion[42] to grasp.

But is the same true for the United States? It could easily be argued that there was a war of independence rather than a revolution and that the social revolutionary experience was largely confined to New England in the 1770s. Certainly, Christianity and

other moral foundations were not attacked. The more serious argument is that we simply do not know the levels and trends of American marital fertility in the late eighteenth and early nineteenth centuries. Binion relies on a single source, Coale and Zelnik,[43] who attempted a total fertility rate estimation of the white population from 1800 onward, without an explanation of how the estimates earlier than 1855 were obtained (except that they were close to those of Thompson and Whelpton,[44] which were based on the reverse survival of zero- to four-year-olds in the censuses), and no estimate at all of marital fertility, for which good national data were not available until the twentieth century. Smith,[45] an important source for the thesis of an early American marital fertility decline, and an important influence on Binion, also drew his evidence solely from Coale and Zelnik,[46] although he referred to "the consensus among demographers and family historians" on this issue.[47] While in Europe there was a close connection in the movement between overall fertility and marital fertility, this was not true in English-speaking countries of overseas European settlement as frontier conditions, with very high proportions of women married, passed into history. Coale and Zelnik,[48] Jones,[49] and Caldwell[50] have all drawn attention to the extraordinary similarity between various fertility measures for the United States and Australia where data exist for both countries. For earlier years, Australia's I_g was stable up to 1881, in spite of steeply falling I_f and I_m indices and a substantial urban-rural I_g differential. This suggests that we had no evidence for declining American marital fertility in the late eighteenth and much of the nineteenth century and that studies of the demography of nineteenth-century northeastern American urban areas did not provide an adequate picture of national fertility trends.

The major problem is, however, Binion's analytical method, which cannot be justified. Having decided that the French and American marital fertility declines were the only two early national fertility transitions, he found that they had only one element in common and hence that it must be the sole causal factor:

> Two almost identical and simultaneous historical trajectories, two radical changes to behavioural norms in the two revolutionary countries of the period, countries which saw themselves as belonging to a community of enlightened minds and sharing a belief in mankind's ability to cast off the servitude of the past and recreate a world in which to live in happiness: those twin developments, expressions of the same transforming impulse, were at the bottom one and the same.[51]

This goes further than Shorter's[52] claim that North American fertility control can be explained because its societies were "born free." In the case of France, Dupâquier[53] much more carefully supported the argument: the Revolution "apparently contributed to accelerate (or even perhaps ignite) what is called, with some exaggeration, the demographic revolution."

Can this be the whole story for France once we have relaxed the condition that causal factors must exist in common with the United States?

One possible additional factor is the mortality rate: France's life expectancy at birth was five years less than that of England and Sweden in the 1780s but had caught up by 1820; similarly, infant and child mortality were much higher in France before the Revolution than in Sweden or England, but the gap had largely closed by the mid-nineteenth century.[54] The problem is that mortality and fertility fell together, and it is hard to determine which was the driving force and which was most closely related

causally to the experience of Revolution. Dupâquier[55] concluded that the fall in child mortality could be explained by neither medical nor economic progress but that "everything shows that attitudes of adults toward children were changing: children were more welcome and subject to better care. These attitudes did not, however, exclude the beginning of the voluntary restriction of births—quite the contrary." He cited Ariès[56] as having the key to the mystery with his explanation that the family turned in on itself and became more interested in its children and the children's progress. This was a process that could easily be accelerated by revolutionary times. Alternatively, in perilous times, parents may merely have become more cautious and careful,[57] although the Revolution made marriage easier[58] and I_m increased by 5 percent over a decade.[59] The result of countervailing movements in mortality, nuptiality, and marital fertility was an extraordinary stability in the net reproduction rate.[60] The balance of opinion is that the Enlightenment had encouraged better spousal and parental relations and that the Revolution had hastened the process without, however, gaining for women a more recognized place in the outside world.[61] There is consensus that the demographic change was not the product of fast economic growth or early industrialization, neither of which was apparent.[62]

There remains the question of legal and institutional factors. One of the principal dicta of the Princeton European Fertility Project was that the communication of fertility control ideas, and consequently practice, halt on linguistic borders,[63] and yet the project's maps show that the French fertility decline occurred within its political boundaries, not even penetrating the Belgian border where there was no linguistic difference with Wallonia.[64] Nor was Wallonia poorer, for its industrial revolution preceded that of France.[65] The widely suggested answer is the enforcement within France, but not Wallonia, of partible inheritance laws threatening the patrimony, whether agricultural or urban businesses, with division, diminishing the worth of single properties and even causing their disappearance. Outside Europe this threat, in the great agrarian societies of Asia, is the only force that has substantially reduced family size, albeit in a way that yields a stability and not a continuing progression to ever-smaller family sizes.[66] The move to universal partible inheritance in France was legislated in 1790 and 1793, to be largely sustained, although in a modified form, in Napoleon's civil code of 1804.[67] The problem with this analysis is, according to Flandrin[68] and Goody,[69] that by 1789, partible inheritance existed only in southern France where the written or Roman Law prevailed, while fertility decline was to be just as conspicuous in the north. This objection is not necessarily insuperable because it may overstate the homogeneity of inheritance customs in the north. Howell[70] described unigeniture (the endowment of one son, not necessarily the elder) as having been most common there in open-field lands where a manorial system had developed, and Ladurie,[71] drawing on Yver,[72] described northern and central France as consisting of a patchwork of customary inheritance law, with most societies allowing, but not mandating, unigeniture. Wallonia had long practiced primogeniture, and that institution seems to have survived the French annexation of Belgium, 1794-1814.[73]

Whatever the institutional changes, Binion is probably right that the social changes wrought by the Revolution were so great that they made sufficient sexual and reproductive change possible as to accommodate marital fertility to both material change and new laws and institutions. Just how marital fertility was controlled is still debatable. Sauvy[74] thought that methods worked out among a licentious aristocracy around the premier court in Europe subsequently played a role in the larger community,

although it is not clear what those methods were. Coitus interruptus is usually assumed to be the main method. Even van de Walle and Muhsam[75] favor it as the main strategy within marriage, while believing other sexual practices probably predominated outside marriage. Sexual abstinence, especially terminal abstinence, was probably also used: this is suggested by the facts that between 1740-90 and 1790-1820, women's age at last birth declined by 2.6 years to 36.7 years (a decline paralleled in England at the same time), and that the average period from marriage to last birth declined to 10 years, a reduction of 3.3 years, compared with only 1.2 years in England.[76]

We will now turn to the listed social convulsions involving successful revolutions, civil wars, or defeat in war and national dismemberment. No other was quite as tumultuous as the French Revolution, and only the Russian Revolution involved a similar attack on religious belief and organization. We will look for parallels to the French demographic experience, although none has been so intensively researched.

FERTILITY AND THE GREAT SOCIAL UPHEAVALS

Table 1 examines trends in fertility for thirteen major social upheavals for the period of greatest social disruption or change. Then, for periods of the same duration before and after that of upheaval, the fertility trend is calculated. The broadest comparison can be made only by resort to crude birth rates, most of which are available in the work of Mitchell.[77] Over the short periods examined, this overall fertility measure is not greatly affected by changes in the age structure but is sensitive to marriage change, the latter being almost inevitable in times of social upheaval. The selection of Eastern European countries for recent years is almost random, since all of them show similar fertility movements.

The most striking feature of Table 1 is that all periods of upheaval were associated with substantial drops in the birth rate, ranging before the 1990s from 12 to 37 percent. The tumultuous political and social changes in Eastern Europe at the end of the twentieth century were responsible for greater fertility declines still, up to 50 percent and even higher. A second feature is that the upheaval fertility declines were greater in every case than declines in equal periods before the crises and in all but one case after them. Indeed, in some cases, there were in these comparable periods rises in fertility, which in the case of Russia in the 1920s completely offset the impact of war and revolution. Certainly, in all cases the fertility decline was substantial and often, but not always, involved changes in levels of both marriage and marital fertility. The exceptions are the two earliest upheavals: the seventeenth-century English fertility decline is explicable almost entirely by delayed or forgone marriage, in contrast with the French revolutionary period for which marital fertility decline supplies almost the whole explanation.

Other social upheavals were examined but then excluded, mostly on the grounds of inadequate data. This was the case in Asia with India and Pakistan in 1947 (partition), Korea in 1950 to 1953 (war), Indonesia 1965 (military coup) and 1998 onward (economic collapse and fall of dictatorship), and Bangladesh 1970 (war and separation from Pakistan). For the Asian countries, the evidence is that there was no significant fertility decline immediately around the time of the crisis. That was to come later with the establishment of national family planning programs, their existence usually owing something to the earlier upheavals. In Europe, France had no significant fertility decline attributable to either world war, and Britain had none associated with the Sec-

Table 1
The Fertility Experience of Countries Experiencing Major Social Upheavals

Country	*Upheaval*	*Period*[b]	*Crude Birth Rates (CBR)*		*Change in CBR (%)*[a]			*Annual Linear Decline during Period (%)*
			Start of Period	*End of Period*	*Before Period*	*During Period*	*After Period*	
England	Civil War, Commonwealth, and early Restoration	1641-66	32.4	26.8	–1.0	–17.3	+6.0	–1.2
France	Revolution	1787-1804	40.4	31.3	+2.9	–22.5	–0.3	–1.3
USA[c]	American Civil War	1860-70	46	40	–2.9	–12.8	–4.9	–1.3
Russia	WWI and revolution	1913-21	43.1	32.6	–4.2	–24.4	+35.9	–3.1
Germany	War, revolution, defeat, inflation	1913-24	27.5	20.6	–21.7	–26.1	–8.3	–2.4
Austria	War, defeat, empire dismembered	1913-24	29.7	21.7	–19.3	–26.9	–39.6	–2.4
Spain	Civil War and dictatorship	1935-42	25.7	20.2	–11.7	–21.4	+6.4	–3.1
Germany	War, defeat, occupation	1938-50	19.7	16.3	+0.5	–17.3	+9.2	–1.4
Japan	War, defeat, occupation	1940-55	29.4	19.4	–15.8	–34.0	–2.6	–2.3
Chile	Military coup and dictatorship	1972-78	27.4	21.3	–11.3	–22.3	+4.2	–3.7
Portugal	Revolution	1973-85	19.2	12.8	–21.6	–33.3	–10.9	–2.8
Spain	Dictatorship to democracy	1976-85	18.8	11.8	–8.7	–37.2	–17.8	–4.1
Eastern Europe	Communism to capitalism	1986-98						
	Russia[d]		20.0	8.8	+11.1	–56.0	—	–4.7
	Poland[d]		17.0	10.2	–7.7	–40.0	—	–3.3
	Czechoslovakia (Czech Republic)[d]		14.2	8.8	–28.6	–38.0	—	–3.2

Source: L. Henry and Y. Blayo, "La population de la France de 1740 à 1860," in *Demographie Historique*, supplement to *Population* 30 (1975): 71-122; B. R. Mitchell, *International Historical Statistics: Africa, Asia and Oceania, 1750-1993* (London: Macmillan, 1998); B. R. Mitchell, *International Historical Statistics: Europe, 1750-2000*, 5th ed. (Basingstoke, UK: Palgrave Macmillan, 2003); E. A. Wrigley and R. S. Schofield, *The Population History of England, 1541-1871* (London: Edward Arnold, 1981); J. D. Hacker, "Rethinking the 'Early' Decline of Marital Fertility in the United States," *Demography* 40 (2003): 605-20.

a. Over same number of years as the duration of the upheaval.

b. Beginning one year before upheaval.

c. CBR read off graph. Rates are for white population only.

d. Selected cases but typical of the region.

ond World War. However, the crude birth rate in England did fall during and after the First World War, although less steeply than in Germany and Austria. More significantly, the fertility decline during this period was hardly distinguishable from England's general fertility transition, with the birth rate falling in three successive nine-year periods by 16 percent in 1904 to 1913, 22 percent in 1913 to 1924, and 23 percent in 1924 to 1933.

Table 2 allows the comparison of revolutionary France with the first German social upheaval as well as allowing separate measures of movements in marriage and marital fertility. It was originally intended to include Russia as well, but the only index calculations available for it before the revolution are twenty years earlier. It is now possible to include for the United States during the Civil War the all-important marital fertility rate.

In France, between 1788 and 1804, marriage showed little variation, although it did change later. Thus, the I_g changes are similar to the I_f changes, and both can be compared with the movements in the crude birth rate shown in Table 1. By these measures, the fertility impact of the French Revolution is less than most of those induced by the social upheavals: perhaps more evidence that fundamental family changes, those relating to the cost of children, were not yet under way in France. This contrasts with the situation during and after World War I in Germany, where marriage change was substantial, although still not comparable with that of marital fertility, in engineering the fertility decline.

We can now proceed by briefly examining individual countries, with the exception of revolutionary France, which has already been treated.

NOTES ON INDIVIDUAL COUNTRY EXPERIENCES

England, 1642-66

The crude birth rate declined by 17.3 percent, double the fall found in Sweden, Norway, and Finland (the only other countries with fertility data) during the same years. Reconstitution studies show a decline in cumulative marital fertility of only 1.6 percent between the first and second halves of the seventeenth century,[78] while the average age at last birth fell about 1 percent.[79] The average age at first female marriage remained almost constant around twenty-six years from 1600 to 1750.[80] The decline in the birth rate in the 1640s and 1650s is almost entirely explained by a drop in the proportion of females ever marrying from around 78.6 percent in 1636 to 1640 to 75.9 percent in 1666 to 1671, although with a short-lived upswing in the early 1650s.[81] This was the last of the identified upheavals in which marital fertility remained unchanged. Wrigley and Schofield[82] noted that the preventive check continued to work "but in a different way." They were surprised that marriage was restricted and births fell while real wages were slowly rising. The answer may be that social upheaval changed attitudes, if not to fertility then to marriage and the proper standard of living, as well as increasing the feeling of insecurity.

The English Civil War did not attack Christianity itself, but almost all its separate tenets were challenged by some group or other. Hill[83] called his account of radical ideas of the time *The World Turned Upside Down*. In a series of debates, 1647-49, the Roundhead army camped around London debated the new world order, bringing up

Table 2
Fertility Experience of Two Countries Experiencing Major Social Upheavals (Princeton Indices)

		I_f *Change (%)*			I_g *Change (%)*			I_m *Change (%)*		
Country	*Period*	*Before Period*[a]	*During Period*[a]	*After Period*[a]	*Before Period*	*During Period*	*After Period*	*Before Period*	*During Period*	*After Period*
France	1788-04	–1.4	–17.7	–0.7	+3.9	–19.1	0.0	–1.5	–0.4	–2.9
USA	1857/59-1867/69				–3.7	–12.4	–2.6			
Germany	1913-25[b]	–16.4	–40.9	–15.1	–16.4	–38.5	–21.0	+2.1	–6.5	+9.0

Source: D. R. Weir, "Two Approaches to the Fertility Transition in France, 1740-1911," in *Old and New Methods in Historical Demography*, ed. D. S. Reher and R. Schofield (Oxford: Clarendon, 1993), 145-58; A. J. Coale and R. Treadway, "A Summary of the Changing Distribution of Overall Fertility, Marital Fertility and the Proportions Married in the Provinces of Europe," in *The Decline of Fertility in Europe*, ed. A. J. Coale and S. C. Watkins (Princeton, NJ: Princeton University Press, 1986), 31-181; J. D. Hacker, "Rethinking the 'Early' Decline of Marital Fertility in the United States," *Demography* 40 (2003): 605-20.

a. Identical periods.

b. As close periods to those as in Table 1 as possible.

almost every political issue of the coming centuries, and religious and political sects went further still.[84] The only significant subjects not mentioned were the problems of large families and the need to control their size. This may well have been because in an era when children were subject to high mortality with the survivors being put out to work early, they presented no burden. Nor, with primogeniture operating, did they represent a threat to the patrimony. The situation was not one of stationary population; indeed, there had been a doubling over the previous 120 years, a situation Stone[85] took to be the critical causative factor of social and political upheaval at the time. And the situation was not one where the family was unchanging. Bridenbaugh,[86] in *Vexed and Troubled Englishmen, 1590-1642*, stressed the changing nature of the family, propelled by the Protestant and Puritan emphasis on its being "a church." Hill[87] attested that the concepts of the family being a spousal partnership, the abhorrence of chastity, and the attack on the sexual double standard all grew out of Puritanism.

Women, women's issues, and sexuality were not major concerns of the period and are barely mentioned in such histories of the time as Woolrych's *Britain in Revolution*.[88] Nevertheless, such groups as the Ranters and the Quakers debated the questions of women's freedom, even their sexual freedom.[89] There were advocates of sexual freedom, but this "tended to be freedom for men only so long as there was no effective birth control. This was the practical moral basis to the puritan emphasis on monogamy."[90] Even these more sexually liberated groups did not raise the issue of marital fertility control, good evidence that there was little demand for it and little fear of large families even among the minority of parents who had an exceptional number of surviving children.

United States of America, 1860-70

The civil war in the United States raged from 1861 to 1865. Like all civil wars, it was a deeply scarring event, compounded in America's case by the high number of combatant deaths, proportionately greater than the country's combined loss in the two world wars of the twentieth century. America's proportions married almost certainly declined throughout the nineteenth century, and one might expect a steepening decline during the civil war to be the major factor in a marked fertility decline. That this was not the case is shown by a comparison between Tables 1 and 2. The decline in marital fertility approximately equaled that of overall fertility (as measured by the crude birth rate), implying little change in marriage between 1860 and 1870. Hacker[91] concludes that the beginning of "the decline in marital fertility should perhaps be dated to the 1865-76 period." Certainly, the total marital fertility, close to 8.0 in the late 1850s, was never to be as high again.[92] Two points might be made. The first is that there seems to be no reason for assigning the beginning of the decline to the late 1860s rather than to the war period itself. The second is that American marital fertility decline probably started a few years before that of England. Given that the American cultural change may have required the challenge to accepted concepts arising from a massive internal war, it is astonishing that the British decline began so shortly afterwards and, if conventional wisdom is right, requiring only the spur of the 1876 Bradlaugh-Besant trial.

Russia, 1914-22

The Russian crude birth rate was fairly stable in the mid- to upper 40s before 1914. Then it progressively fell to near 30 in 1920, almost recovered its earlier levels by 1925, then moved downward in the 1930s.[93] Coale et al.[94] showed that by 1897, marital fertility had begun to decline in the urban population, while by 1926, this was also true of many rural populations. Nevertheless, for our specific period, they believed it purposeless to search for the determinants of this fertility decline because "it would be a study of pathological instances of reduced fertility rather than of the normal conditions under which fertility falls. There is the possibility, which we can only mention without judging its probability, that these prolonged traumata strongly influenced subsequent trends."[95] This perhaps also applies to the fertility decline in other cases examined in this article.

Nevertheless, the revolution was, at least in its early years, one of ideas and innovations that were not easily reversed. Marriage, sexual activity, and birth control were all matters for a flow of views during the hectic years of revolution, civil war, and intervention. On the establishment of the Soviet Union in 1922, abortion was legalized, and provision for it was made in all hospitals and public medical clinics. Contraception was stressed in educational campaigns.[96] In Moscow, the number of abortions was only 21 percent of the number of births in 1922 but by 1934 had risen to almost three times that of births as the city's crude birth rate fell to 15 per thousand[97]. As Europe drifted toward war, the legal rights to abortion and easy divorce were cut drastically in 1936, and legal abortion fell by 93 percent. The result was a rise in the country's birth rate from 30.1 in 1935 to a peak of 38.7 in 1937, still only two-thirds of the 1913 level.

Thus, the 1914 to 1922 crisis came at a time when the fertility transition was in its earliest stage. Births were reduced during the upheaval. This experience of a demand for fertility control probably merged with revolutionary beliefs to bring about legalized abortion and an impressive fertility decline over the next dozen years. The massive resort to abortion both accustomed people to small families and ensured that there was little experience with any form of birth control other than abortion. The result, foreshadowing the Romanian experience of the 1960s,[98] was that, when access to abortion was suddenly cut off, the birth rate rose, only to be followed by a decline as a population accustomed to being able to control its fertility resorted to new methods of control.

Germany, 1914-24

Germany participated in total war from 1914 to 1918, followed by defeat, an insurrectionary period, the establishment of the Weimar Republic, and, in 1923, government-induced inflation[99] on an unprecedented scale, putting renewed pressure on many families. The 1924 birth rate at 20.6 per thousand was 25 percent below that of 1913, a linear fall over the period of 0.6 points per year. This should, however, be put in perspective: the annual linear fall during the fertility transition over the previous four decades had been 0.4 points, as Germany industrialized and infant mortality fell,[100] and it would be 0.7 points over the next decade, as Germany slipped into the Depression, which was characterized by unemployment higher than in any of the other industrialized countries.

Wilke and Wagner[101] presented evidence to show that in agricultural Germany, children worked hard and probably imposed no net economic burden until World War I, as mechanization of agriculture hardly began before the 1920s. The war brought women into the workforce in greater numbers and gave them the vote in the insurrectionary period at the very end of 1918.[102] The whole period of upheaval proletarianized and radicalized much of the middle class, especially the white-collar workers.[103] It was also characterized after the war by many unmarried young women, many young widows, and others forming a surplus in a male-deficient marriage market. Up to World War I, the government of Germany, holding a "bourgeois idea of motherhood" and concerned with defense, "sought by the suppression of knowledge and access to birth control methods, and by the active encouragement of mother and infant welfare measures, to reverse the rapid decline in the birth rate."[104] There was a degree of sexual puritanism. This was reversed under the Weimar Republic, which was the great era of German sexual research. Indeed, the subsequent Nazi government was to charge that "unbridled sexuality" had led to a falling birth rate and a weakening of the country's moral fiber and manpower.[105]

Austria, 1914-24

Austria was hard hit by the war. The Austro-Hungarian Empire was dismembered so that post-Versailles Austria was reduced to a small core area of eighty-four thousand square kilometers with a population of little more than 6 million, of whom almost one-third lived in the now disproportionately large capital, Vienna. Defeat in the war and the loss of most of the empire were not only psychologically shattering but materially disastrous. As Austria was cut off from most of its previous food supplies, famine set in as early as 1917; unemployment, especially in Vienna, was very high because there was no longer an empire to service; there was inflation and a chaotic economy.[106] There were widespread strikes but neither revolution as in Hungary nor threatened revolution as in Germany.

Between 1913 and 1924 the birth rate fell 28 percent from 31.1 to 22.5, with an annual linear rate of decline of 0.8 points, four times that of the previous four decades and somewhat higher than in the next depression-affected thirteen years. Unlike the case of Germany, the government did not intervene to raise the birth rate during the 1930s, and no revival came until 1939 following the *Anschluss* of the previous year.

Spain, 1936-42

Spain's birth rate fell slowly but consistently for the first thirty-five years of the twentieth century from around 35 to 26 per thousand. The Republican Government of the mid-1930s was not pronatalist and did not proscribe contraception. The birth rate fell during the war as much it had during the previous three and a half decades. With victory in the civil war, the Franco government, backed by the Spanish Catholic Church leadership, passed two laws in 1941, the first banning the provision of information about contraception as well as the distribution and sale of contraceptives, and the second promoting higher fertility by assisting large families.[107] The birth rate then stabilized around 20 per thousand for the remaining thirty-six years of the regime at a similar level for most of that time to the levels found in Portugal and the Netherlands but above the fertility rate of Italy, Greece, and Western Europe generally.

Germany, 1939-50

Germany's birth rate fell only moderately as a result of World War II, exhibiting a decline of 20 percent from 20.4 in 1939 to 16.4 in 1950, back to where it had already been in the early 1930s. Thereafter, for the next fifteen years, it changed little in either West or East Germany. During this time Germany, like other non-English-speaking developed countries, did not have a baby boom. In 1960, the crude birth rate was 17 per thousand (17.4 in West Germany and 17.0 in East Germany), a little lower than in France and the Netherlands, similar to that of Belgium, and higher than in Sweden and Austria.

Roseman's[108] explanation for the smaller impact of the Second than the First World War on Germany's demography and society is that the Nazi government deliberately shielded the German population from social stress. The leaders were reluctant to test the society, recruiting only 46 percent of women into the workforce, compared with 66 percent in Britain. They succeeded in doing so by substituting slave labor from Eastern Europe and the Balkans. Roseman[109] claimed that this achievement made it "evident that 'total war' is not an independent cause of social change." The immediate postwar period differed also from that after World War I in that military occupation held potentially disruptive forces in check, while the Marshall Plan from 1948, in the shadow of the cold war, helped rebuild the economy and achieve close to full employment.

Japan, 1939-54

Japan's demographic history is one of a delayed reaction to the war and its aftermath. The birth rate was little lower in 1940 than in 1930, 29.4 compared with 32.5, and it then remained almost unchanged during the war and for five years after it. There was a parallel in the 1930s with the demographic behavior of Japan and Germany when military-oriented governments intervened to keep the birth rate up, again during the war when the home front was shielded as much as possible, and after the war when occupation prevented social disruption and encouraged economic reconstruction. Nevertheless, social and psychological readjustment was not so easy. Although the birth rate fell by just over 1 point, namely by 4 percent in ten years from 1940 to 1950, in the next five years it was to decline by 31 percent, giving for the first time a hint that Japan might later be a leader in the new low-fertility world that lay ahead.

The Japanese fertility decline of the early 1950s was not primarily a reaction to economic growth. As measured by 1990 U.S. dollars, Japan's per capita income was around $1,700 in 1920 (half that of France, one-third that of the United States), $2,900 in 1940, $1,555 in 1946 (one-quarter of Britain's and one-third of the United States's), and not again surpassing its 1940 level until 1956.[110] The demographic reaction may rather have been one to poverty. The huge economic growth came later, taking its per capita income by the end of the century past Western Europe but still below the United States. A more relevant factor is probably mortality decline. Japan's infant mortality rate more than halved from 1940 to 1955 from ninety to forty deaths per thousand births. Its expectation of life at birth climbed from forty-nine years in 1940, and probably no higher in 1946, to sixty-one years in 1950 and sixty-five years in 1954, catching up to the West in the 1960s.

After World War II, the government believed the country's population was contracting. Then in 1949 statistics were published showing rapid population growth with

projected populations becoming ever greater.[111] In 1948 the 1940 Eugenics Protection Law was revised, encouraging family planning and permitting abortion for health reasons and sterilization in the case of large families.[112] Then, in 1949, as public debate questioned whether Japan had already exceeded its carrying capacity, the law was amended permitting abortions on economic grounds, and again in 1952 allowing a single doctor to make the decision. The government made no reference to any of these measures reflecting population policies, but their enactment led to steeply falling birth rates after 1950, almost halving in the following decades. Between 1949 and 1950, the annual number of conceptions remained fairly constant at just under 3 million, but the proportion aborted climbed from 8 to 41 percent.[113] The ready acceptance of abortion by the population was doubtless facilitated by an earlier history of abortion (and infanticide) with little popular disapproval.[114] The willingness to abort was doubtless enhanced by a halving of the infant mortality rate between 1947 and 1955. Then the birth rate leveled off for twenty years before joining the global trend to much lower fertility.

Chile 1973 and Aftermath

Chile, unlike Argentina and Uruguay, experienced no marked fertility transition at the beginning of the twentieth century, but its birth rate slowly declined from around 45 per thousand at the beginning of the century to 40 in the early 1930s and 30 in the mid-1960s.[115] Thereafter, its fertility control policies differed markedly from the history of Southern and Central Europe, where hostility to antenatal policies came from the extreme right (and often Catholic) end of the political spectrum while laissez-faire policies or the support of organized family planning came from the center or left. Chile experienced three successive periods of presidential rule: that of the Christian Democrat Eduardo Frei, 1964-70; then that of the Marxist Salvador Allende, 1970-73; and then the military dictatorship led by Augusto Pinochet from September 1973 until 1990. The first was associated with widespread family planning activities associated with NGO and international organizations (favored by the Christian Democrats but opposed by the church). These activities were out of favor with the Allende regime both because of their large foreign element and because of the implication that the road to development lay through population control, which was at variance with Marxist thought. In contrast, but perhaps explained by strong American influence, the right-wing Pinochet regime moved early to create a National Commission on Family Planning and Responsible Parenthood and encouraged contraception, although being adamantly opposed to legalized abortion and divorce.[116]

Iberia, 1974-87

Around 1890, Portuguese overall fertility had been below both Spain and Italy because of substantially lower proportions of women married, but by 1960, it was the highest of the three countries, with a convergence in the proportions married.[117] Until the Portuguese revolution of 1974 and Spain's movement toward democracy following Francisco Franco's death the following year, both countries had been isolated for decades from population policy trends in the rest of Western Europe. Catholic dictators had encouraged large families and had banned not only divorce and abortion but the advertisement and sale of contraceptives. In both Portugal and Spain, the birth

rates remained above or near 20 per thousand for three decades, even though by 1975, neighboring France and comparable Italy recorded birth rates around 15 per thousand. Explosively after the revolution in Portugal and a little more slowly in Spain, public discourse, especially in the now-freed media, turned to divorce, contraception, and abortion. Even in Spain the sale and use of contraceptives as well as sterilization were legalized in 1978 and abortion in certain circumstances in 1985.[118] Efforts by the left-wing and secular parties did not succeed in liberalizing Spain's abortion law or achieving any rights to abortion in Portugal. Nevertheless, by 1996, Spain recorded fifty-one thousand legal abortions per year and an abortion rate just below those of the Netherlands, Belgium, and Germany although only half those of France and Italy.[119] The demand for fertility control was undoubtedly raised by steep infant mortality declines over the previous decades: Spain's infant mortality fell by half and Portugal's by two-thirds. The need for fertility control was also felt more strongly as a result of rapid economic growth: real per capita income had grown at almost 6 percent per annum in both countries for a quarter of a century, the highest rates in Europe outside Greece;[120] and Reher[121] points to steep rises in female education and workforce participation in the 1970s.

Eastern Europe from the Late 1980s

Political change began in Eastern Europe in the late 1980s, and the Soviet Union was dissolved toward the end of 1991. From the late 1980s to the late 1990s, birth rates halved in all the ex-communist states of Europe (except in Hungary, where the fall had begun earlier) and the ex–Soviet Union's trans-Caucasian republics. In contrast, only a modest fall occurred in Yugoslavia with its different political history. By 2003, total fertility rates everywhere (except Albania) were in the range 1.1 to 1.3, among the lowest in the world, with the extent of decline in unemployment or per capita income bearing little relation to the extent of fertility decline or its ultimate level. This sudden decline was not explained by a steep fall in infant and child mortality, which had achieved their major declines by 1970. Nor was the cause a new access to birth control, as nearly everywhere access to abortion remained unchanged, as did its role as the chief means of fertility control. What had happened was a steep increase in the age of first marriage toward Western European levels and in the control of marital births, especially after the first.

Eberstadt[122] points to "traumatic adjustments," but it can easily be argued that what occurred was not an irrational reaction to fear but a rational reaction to huge changes in material circumstances,[123] although it must be emphasized that fertility reached the same low level irrespective of whether real per capita income fell or not or whether unemployment levels were modest or huge. What did occur was a loss of guaranteed lifelong employment, of subsidized purchases, and of social welfare benefits. Free medical and education services were replaced by relatively expensive medical services and education that could incur substantial costs. Sobotka et al.[124] argued that at least in the Czech Republic, material change was no more important than social, psychological, and behavioral changes of the type that had propelled the West's "second demographic transition" two decades earlier with such phenomena as increases in cohabitation, nonmarital childbearing, and the social acceptance of both homosexuality and childlessness. Even in East Germany, apparently protected by the now pan-

Germanic economic and social welfare systems, analysts are unsure of the balance of responsibility as causal factors between "crisis and adaption."[125]

There was a universal surging feeling of insecurity and of not knowing what the future held. This is, of course, a standard reaction to liberal economics with its attack on continuing secure employment, but this was compounded in Eastern Europe by a profound distrust of the abilities of the new economies to grow. Certainly, much of the population is waiting to see what the future holds. Much of this waiting is demographic in that marriage is being deferred, as is childbearing within marriage. This may come to a halt if the economies begin to grow faster and to absorb more of the unemployed or if the populations become accustomed to insecure employment, short-term jobs, and other aspects of liberal economics. Alternatively, they may become accustomed to marrying and then having only one child, even if employment becomes more certain.

CONCLUSION

There are obvious omissions in our coverage: the American Revolution because of the lack of demographic data; the 1949 Chinese Revolution because there was not provable fertility change (except for the transient demographic reaction to the famine of 1959 to 1961) until the 1970s; and the Asian economic crisis at the end of the twentieth century, when Indonesia was especially hard hit, because neither the economic fallout nor the demographic effect is yet clear. The Chinese experience is, nevertheless, instructive: one of the most marked political, economic, and social changes in modern history occurred from 1949, but in spite of this and an accompanying steep decline in infant and child mortality, a pronatalist policy and a lack of access to means of birth control maintained prerevolutionary fertility levels until birth control policy and access changed, with a resultant steep decline in fertility.

The only other fertility falls in the listed countries that compared in any single case with these declines were during the early years of the economic depression of the 1930s and after the "baby boom" in a few Western countries. No one would deny the trauma associated with the Depression, but it is impossible to cover the large number of countries affected, and in any case, the demonstration is more of the impact of an economic rather than a social crisis. Steep falls after the "baby boom" were mostly confined to English-speaking countries. One can argue that they were the product of radically new contraception or follow the second demographic transition theorists and claim revolutionary cultural change. These points are not particularly important because the aim here has been to show that the great social upheavals were almost always accompanied by the demographic change, not that they were the only cause of demographic change.

What, now, can we conclude from our case studies?

First, every social upheaval mentioned except the Chinese Revolution was accompanied by marked fertility decline over a decade or longer. This was usually in contrast to the periods both before and after the upheaval. There were exceptions to this contrast, where there were preceding marked fertility falls, although none as great as during the crisis period: Germany and Austria before World War I, Japan before World War II, and Portugal before the 1974 revolution. In all these cases, there was a fertility transition already under way but that was accelerated by the upheaval. Austria, Portu-

gal, and Spain also had marked subsequent falls as the fertility transition continued. Only revolutionary Russia, rather surprisingly, had a full subsequent recovery of fertility, perhaps partly a catch-up effect. Indeed, in spite of access to abortion, the renewal of the Russian fertility decline awaited the 1930s and the reconstruction of the Russian economy.

Second, not only are individuals likely to change but so are governments and their legislative programs. In France, the demographic reaction was probably mostly indirect and was probably greatest in reaction to the universalization and enforcement of partible inheritance. But in Russia in the 1920s and Portugal and Spain in the 1970s, liberalizing governments deliberately made access to birth control easier and ceased pronatalist pressures and rhetoric.

Third, society itself changed irreversibly. This was certainly true in the cases of seventeenth-century England, late eighteenth-century France, early twentieth-century Russia, and mid-twentieth century Spain. It has also been true in Iberia of the 1970s and Eastern Europe of the 1990s. Less certain is the impact of the wars on central Europe, although World War II's aftermath left Germany and Austria on the frontier of the cold war and may have produced continuing apprehension.

Fourth, material conditions changed adversely. Certainly, a greater feeling of insecurity was a conspicuous feature of all those crises, except possibly the Iberian ones and nineteenth-century America outside the South. Difficulties with living a normal life, retaining housing, and being adequately fed were conspicuous features of Russia in and after the First World War, Central Europe after that war, and Eastern Europe after the fall of communism.

Fifth, the fertility declines were usually driven or assisted by other demographic changes usually not aimed at reducing fertility. Forgone and deferred marriages drove the seventeenth-century English fertility decline, and marriage rates were not to recover for decades. Marriage delay (and probably marriage forgone) has also been a major component of the recent Eastern European fertility decline. Preceding infant and child mortality decline was probably important in Iberia, as it was, probably interacting with the fertility decline, in France.

Finally, did mindsets change, and if they did so, did this have a demographic impact? Mindsets certainly changed in the English Civil War, but it is hard to prove that this affected marriage. The convulsions of the French Revolution and the organized attack on the church and Christianity should have had an impact and may have made it easier to adjust fertility to the situation created by inheritance changes. The nature of the family and the treatment of children may have changed sufficiently to reduce child mortality and make high fertility more difficult. In Portugal and Spain of the 1970s, the popular desire to adopt the fertility control and marriage legislation of Western Europe (and that of Italy achieved without revolution) was certainly a factor, coupled with the new governments' ideologies and consequent moves in this direction. Central Europe found the wars less liberating, but neither the Weimar Republic nor the Austrian Republic was in social atmosphere the Germany of Wilhelm II or the Austria of the Habsburgs.

What is common in all cases of upheaval is not the growth of material adversity but an increase in feelings of insecurity. In every case, most of the people involved believed that what lay ahead was unknown and might be better known as time passed. There were excellent reasons for delaying marriage and family formation until it could

be seen what the future was going to be like. This reaction cannot be measured by economic indices.

The analysis can be summarized as showing that pretransitional social upheavals depressed fertility for at least a period while posttransitional crises accelerated the decline. That this was partly the result of a weakening of the outdated props to high fertility is less obvious in the case of wars (the Marwick hypothesis) than in the case of revolutions (the Binion hypothesis). It is very clear that change in the individual outlook, philosophy, or worldview does not on its own depress fertility. What is effective is change in legislation or the economic and social systems that provide a different context for individual behavior. Those changes are, in a sense, the result of the sum total of individual actions, but only a minority of the population provides the ideological leadership; perhaps only a minority supports the new social directions. What dominates most situations is a feeling of personal and family insecurity and a fear of being committed to new demographic acts before it is clear what the world will be like when those acts are consummated.

ACKNOWLEDGMENTS

Assistance has been received from Guangyu Zhang, Wendy Cosford, and Vanessa McGrath.

NOTES

1. F. W. Notestein, "Population—The Long View," in *Food for the World*, ed. T. W. Schultz (Chicago: University of Chicago Press, 1945), 39-40.
2. Ibid.
3. F. W. Notestein, "Economic Problems of Population Change," in *Proceedings of the Eighth International Conference of Agricultural Economists* (London: Oxford University Press, 1953), 16.
4. J. C. Caldwell, "The Delayed Western Fertility Decline in English-Speaking Countries," *Population and Development Review* 25 (1999): 479-513.
5. N. Eberstadt, "Demographic Shocks after Communism: Eastern Germany, 1989-93," *Population and Development Review* 20 (1994): 137-52.
6. G. Standing, "Social Protection in Eastern and Central Europe: A Tale of Slipping Anchors and Torn Safety Nets," in *Welfare States in Transition: National Adaptions to Global Economics*, ed. G. Esping-Anderson (London: Sage, 1996), 225-55.
7. A. Marwick, ed., *Total War and Social Change* (London: Macmillan, 1988).
8. A. Marwick, "Introduction," in *Total War and Social Change* (see note 7), xv ff.
9. Marwick, *Total War and Social Change*, 121-22.
10. A. Marwick, *Women at War: 1914-1918* (London: Fontana, 1977), 163.
11. Ibid., 119.
12. Ibid., 37.
13. R. Binion, "Marianne in the Home: Political Revolution and Fertility Transition in France and the United States," *Population: An English Selection* 13 (2001): 165-88.
14. Ibid., 170-74.
15. Marwick, "Introduction," x-xi.
16. Marwick, *Women at War*, 163.
17. J. C. Caldwell, "An Explanation of Continued Fertility Decline in the West: Stages, Succession and Crisis," in *Theory of Fertility Decline* (London: Academic Press, 1982), 248-50.

18. E. Zimmerman, *Political Violence, Crises and Revolutions* (Boston: Hall, 1983).

19. J. A. Goldstone, *Revolution and Rebellion in the Early Modern World* (Berkeley: University of California Press, 1991).

20. E. Boserup, *The Conditions of Agricultural Growth* (Chicago: Aldine, 1965).

21. Goldstone, *Revolution and Rebellion*, 24-29.

22. J. D. Hacker, "Rethinking the 'Early' Decline of Marital Fertility in the United States," *Demography* 40 (2003): 605-20.

23. J. Bourgeois-Pichat, "Evolution générale de la population française depuis le xviiie siècle," *Population* 6 (1951): 635-62; J. Bourgeois-Pichat, "The General Development of Population in France since the 18th Century," in *Population in History: Essays in Historical Demography*, ed. D. V. Glass and D. C. Eversley (London: Edward Arnold, 1965), 474-506.

24. Institut National d'Études Démographiques (INED), *Démographie Historique*, supplement to *Population* 30 (1975).

25. L. Henry and Y. Blayo, "La population de la France de 1740 à 1860," in *Demographie Historique* (see note 24), 71-122.

26. E. van de Walle, *The Female Population of France in the Nineteenth Century: A Reconstruction of 82 Départements* (Princeton, NJ: Princeton University Press, 1974).

27. In A. J. Coale and R. Treadway, "A Summary of the Changing Distribution of Overall Fertility, Marital Fertility and the Proportions Married in the Provinces of Europe," in *The Decline of Fertility in Europe*, ed. A. J. Coale and S. C. Watkins (Princeton, NJ: Princeton University Press, 1986), 31-181.

28. D. R. Weir, "Two Approaches to the Fertility Transition in France, 1740-1911," in *Old and New Methods in Historical Demography*, ed. D. S. Reher and R. Schofield (Oxford: Clarendon, 1993), 312.

29. INED, *Demographie Historique*.

30. E. A. Wrigley and R. S. Schofield, *The Population History of England, 1541-1871* (London: Edward Arnold, 1981).

31. N. Bonneuil, *Transformation of the French Demographic Landscape* (Oxford: Clarendon, 1997).

32. Binion, "Marianne in the Home."

33. van de Walle, *The Female Population of France*.

34. Ibid., 180.

35. J. C. Caldwell, "The Mechanisms of Demographic Change in Historical Perspective," *Population Studies* 35 (1981): 18.

36. E. A. Wrigley, "The Fall of Marital Fertility in Nineteenth-Century France: Exemplar or Exception?" *European Journal of Population* 1 (1985): 31-60; E. A. Wrigley, "The Fall of Marital Fertility in Nineteenth-Century France: Exemplar or Exception? Part II," *European Journal of Population* 1 (1985): 141-77.

37. J. E. Knodel and E. van de Walle, "Lessons from the Past: Policy Implications of Historical Fertility Studies," *Population and Development Review* 5 (1979): 217-45.

38. Wrigley, "Fall of Marital Fertility. Part II," 165-67.

39. Bourgeois-Pichat, "Evolution générale," 654; Bourgeois-Pichat, "General Development of Population."

40. D. R. Weir, "New Estimates of Nuptiality and Marital Fertility in France, 1740-1911," *Population Studies* 48 (1994): 307-31.

41. Ibid., 330-31; M. S. Teitelbaum, *The British Fertility Decline: Demographic Transition in the Crucible of the Industrial Revolution* (Princeton, NJ: Princeton University Press, 1984), 115.

42. Binion, "Marianne in the Home."

43. A. J. Coale and M. Zelnik, *New Estimates of Fertility and Population in the United States: A Study of Annual White Births from 1855 to 1960 and of Completeness of Enumera-*

tion in the Censuses from 1880 to 1960 (Princeton, NJ: Princeton University Press, 1963), 36, Table 2.

44. W. S. Thompson and P. K. Whelpton, *Population Trends in the United States* (New York: McGraw-Hill, 1933).

45. D. S. Smith, " 'Early' Fertility Decline in America: A Problem in Family History," *Journal of Family History* 12 (1987): 73-84.

46. Coale and Zelnik, *New Estimates of Fertility*.

47. Smith, " 'Early' Fertility Decline," 74-75.

48. Coale and Zelnik, *New Estimates of Fertility*, 27-31.

49. E. F. Jones, "Fertility Decline in Australia and New Zealand, 1861-1936," *Population Index* 37 (1971): 301-38.

50. Caldwell, "Delayed Western Fertility Decline."

51. Binion, "Marianne in the Home," 170-71.

52. E. Shorter, *The Making of the Modern Family* (London: Collins, 1976), 14.

53. J. Dupâquier, "French Population in the 17th and 18th Centuries," in *Essays in French Economic History*, ed. R. Cameron (Homewood, IL: Irwin, 1970), 169.

54. J. Vallin, "Mortality in Europe from 1720 to 1914: Long-Term Trends and Changes in Patterns by Age and Sex," in *The Decline of Mortality in Europe*, ed. R. Schofield, D. Reher, and A. Bideau (Oxford: Clarendon, 1991), 38-67; Y. Blayo, "La mortalité en France de 1740 à 1860," in *Démographie Historique* (see note 24), 123-42.

55. Dupâquier, "French Population," 159-162.

56. P. Ariès, *Centuries of Childhood*, trans. R. Baldick (London: Jonathan Cape, 1962).

57. See W. Doyle, *The Oxford History of the French Revolution* (Oxford: Clarendon, 1989), 405-6.

58. M. Reinhard, "Demography, the Economy and the French Revolution," in *French Society and Culture since the Old Regime*, ed. E. M. Acomb and M. L. Brown (New York: Holt, Rinehart and Winston, 1966), 25-26.

59. D. R. Weir, "New Estimates of Nuptiality and Marital Fertility in France, 1740-1911," *Population Studies* 48 (1994): 307-31.

60. Wrigley, "Fall of Marital Fertility. Part II," 163.

61. J.F. Traer, *Marriage and the Family in Eighteenth-Century France* (Ithaca, NY: Cornell University Press, 1980); J. McManners, *Death and the Enlightenment: Changing Attitudes to Death among Christians and Unbelievers in Eighteenth-Century France* (Oxford: Clarendon, 1981), 440 ff.; and O. H. Hufton, *Women and the Limits of Citizenship in the French Revolution* (Toronto: University of Toronto Press, 1992).

62. W. W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960), 38; see also C. Fohlen, "The Industrial Revolution in France," 201-25, T. J. Markovich, "The Dominant Sectors in French Industry," 226-44, M. Morineau, "Was There an Agricultural Revolution in 18th-Century France?" 170-82, all in *Essays in French Economic History* (see note 53).

63. B. A. Anderson, "Regional and Cultural Factors in the Decline of Marital Fertility in Europe," in *The Decline of Fertility in Europe* (see note 27), 305.

64. Coale and Watkins, *The Decline of Fertility in Europe*, end maps.

65. J. Craeybeckx, "The Beginnings of the Industrial Revolution in Belgium," *Essays in French Economic History* (see note 53), 187-200.

66. J. C. Caldwell and B. K. Caldwell, "Population Control in the Great Agrarian Societies of Asia," *Journal of Comparative Family Studies* (forthcoming).

67. R. B. Rose, "Feminism, Women and the French Revolution," *Australian Journal of Politics and History* 40 (Special Issue, 1994): 178-79.

68. J.-L. Flandrin, *Families in Former Times: Kinship, Household and Sexuality*, trans. R. Southern (Cambridge: Cambridge University Press, 1976), 74-75.

69. J. Goody, *The European Family: An Historico-Anthropological Essay* (Oxford: Blackwell, 2000), 103.

70. C. Howell, "Peasant Inheritance Customs in the Midlands, 1280-1700," *Family and Inheritance: Rural Society in Western Europe, 1200-1800*, ed. J. Goody, J. Thirsk, and E. P. Thompson (Cambridge: Cambridge University Press, 1976), 116 ff.

71. E. le R. Ladurie, "Family Structures and Inheritance Customs in Sixteenth Century France," in *Family and Inheritance* (see note 70), 38 ff.

72. J. Yver, *Essai de Géographie Coutumière* (Paris: Editions Sirey, 1966).

73. E. le R. Ladurie, "Family Structures," 53.

74. A. Sauvy, *General Theory of Population* (London: Weidenfeld and Nicolson, 1969), 362.

75. E. van de Walle and H. V. Muhsam, "Fatal Secrets and the French Fertility Transition," *Population and Development Review* 21 (1995): 275-76.

76. M. W. Flinn, *The European Demographic System, 1500-1820* (Baltimore: Johns Hopkins University Press, 1981), 128-29.

77. B. R. Mitchell, *International Historical Statistics: Africa, Asia and Oceania, 1750-1993* (London: Macmillan, 1998); B. R. Mitchell, *International Historical Statistics: Europe, 1750-2000*, 5th ed. (Basingstoke and New York: Palgrave Macmillan, 2003). Also the source for all other unreferenced birth rates in this article.

78. E. A. Wrigley and R. S. Schofield, *The Population History of England, 1541-1871* (London: Edward Arnold, 1981), p. 254.

79. E. A. Wrigley, R. S. Davies, J. E. Oeppen, and R. S. Schofield, *English Population History from Family Reconstitution, 1580-1837* (Cambridge: Cambridge University Press, 1997), 388.

80. Wrigley and Schofield, *Population History*, 255.

81. Ibid., 260.

82. Ibid., 469-71.

83. C. Hill, *The World Turned Upside Down: Radical Ideas during the English Revolution* (London: Penguin, 1975).

84. A. S. P. Woodhouse, ed., *Puritanism and Liberty: Being the Army Debates (1647-9) from the Clarke Manuscripts with Supplementary Material, Selected and Edited*, 2nd ed. (London: Dent, 1950).

85. L. Stone, *The Causes of the English Revolution, 1529-1642* (London: Routledge and Kegan Paul, 1972), 67.

86. C. Bridenbaugh, *Vexed and Troubled Englishmen, 1590-1642* (Oxford: Clarendon, 1968), 29-33.

87. Hill, *The World Turned Upside Down*, 306.

88. A. Woolrych, *Britain in Revolution, 1625-1660* (London: Oxford University Press, 2002).

89. Hill, *The World Turned Upside Down*, 306-23.

90. Ibid., 319.

91. J. D. Hacker, "Rethinking the 'Early' Decline of Marital Fertility in the United States," *Demography* 40 (2003): 617.

92. Ibid., 614.

93. Mitchell, *International Historical Statistics: Europe*, 108.

94. A. J. Coale, B. A. Anderson, and E. Härm, *Human Fertility in Russia since the Nineteenth Century* (Princeton, NJ: Princeton University Press, 1979), 51.

95. Ibid., 17.

96. F. Lorimer, *The Population of the Soviet Union: History and Prospects* (Geneva, Switzerland: League of Nations, 1946), 126.

97. Ibid., 127.

98. B. Berelson, "Romania's 1966 Anti-Abortion Decree: The Demographic Experience of the First Decade," *Population Studies* 33 (1979): 209-22.

99. To show that the agreed-on level of reparations was unrealistic, as Keynes had argued. J. M. Keynes, *The Economic Consequences of the Peace* (London: Macmillan, 1919).

100. J. E. Knodel, *The Decline of Fertility in Germany* (Princeton, NJ: Princeton University Press, 1974), 181.

101. G. Wilke and K. Wagner, "Family and Household: Social Structures in a German Village between the Two World Wars," in *The German Family: Essays on the Social History of the Family in Nineteenth-and Twentieth-Century Germany*, ed. R. J. Evans and W. R. Lee (London: Croom Helm, 1981), 129-35.

102. C. Koonz, *Mothers in the Fatherland: Women, the Family and Nazi Politics* (New York: St. Martin's, 1987), 21-26.

103. W. J. Mommsen, "The Social Consequences of World War I: The Case of Germany," in *Total War* (see note 7), 31.

104. R. Dasey, "Women's Work and the Family: Women Garment Workers in Hamburg after the First World War," in *The German Family* (see note 101), 222-23.

105. Koonz, *Mothers in the Fatherland*, 100.

106. B. Jelavich, *Modern Austria: Empire and Republic, 1815-1986* (Cambridge: Cambridge University Press, 1987), 140 ff., 162 ff., 169-70; G. Brook-Shepherd, *The Austrians: A Thousand-Year Odyssey* (New York: Carrol and Graf, 1996), 23 ff.

107. J. Linhard, "Family Planning in Spain," *International Family Planning Perspectives* 9 (1983): 9.

108. M. Roseman, "World War II and Social Change in Germany," in *Total War* (see note 7), 60 ff.

109. Ibid., 75.

110. A. Maddison, *The World Economy: A Millennial Perspective* (Paris: OECD, 2001).

111. I. B. Taeuber, *The Population of Japan* (Princeton, NJ: Princeton University Press, 1958), 71-72.

112. Ibid., 269.

113. Ibid., 276.

114. Caldwell and Caldwell, "Population Control."

115. O. A. Collver, *Birth Rates in Latin America: New Estimates of Historical Trends and Fluctuations* (Berkeley: Berkeley Institute of International Studies, University of California, 1965); Mitchell, *International Historical Statistics: Africa, Asia and Oceania*.

116. E. G. Fische, L. Martinez Maldonado, and C. Toscanini Garcia, "Family Planning Programs, World Review: Chile," *Studies in Family Planning* 6 (1975): 267-68; R. Cruze-Coke, "The Population of Chile: Past, Present and Future," *Chilean Medical Review* 109 (1981): 68-72; and U.S. Library of Congress, "Chile—Attitudes toward Family and Gender," *Country Studies* (2003).

117. M. Livi-Bacci, *A Century of Portuguese Fertility* (Princeton, NJ: Princeton University Press, 1971); M. Livi-Bacci, *A History of Italian Fertility during the Last Two Centuries* (Princeton, NJ: Princeton University Press, 1977); and A. J. Coale and R. Treadway, "A Summary of the Changing Distribution of Overall Fertility, Marital Fertility and the Proportions Married in the Provinces of Europe," in *Decline of Fertility in Europe* (see note 27), 31-181.

118. M. Delgado and T. C. Martin, *Fertility and Family Surveys in Countries of the EEC Region, Standard Report: Spain* (Geneva, Switzerland: Economic Commission for Europe/New York: United Nations Population Fund, 1999), 78.

119. S. Singh, S. K. Henshaw, and K. Berentsen, "Abortion: A Worldwide Overview," in *The Sociocultural and Political Aspects of Abortion: Global Perspectives*, ed. A. M. Basu (Westport, CT: Praeger, 2003), 28-29.

120. Maddison, *World Economy*, 186.

121. D. S. Reher, *Perspectives on the Family in Spain, Past and Present* (Oxford: Clarendon, 1997), 274 ff.

122. N. Eberstadt, "Demographic Shocks after Communism: Eastern Germany, 1989-93," *Population and Development Review* 20 (1994): 150.

123. See J. C. Caldwell and T. Schindlmayr, "Explanations of the Fertility Crisis in Modern Societies: A Search for Commonalities," *Population Studies* 57 (2003): 241-63.

124. T. Sobotka, K. Zeman, and V. Kantorovà, "Demographic Shifts in the Czech Republic after 1989: A Second Demographic Transition View," *European Journal of Population* 19 (2003): 249-77.

125. See M. Kreyenfeld, "Crisis or Adaption—Reconsidered: A Comparison of East and West German Fertility Patterns in the First Six Years after the 'Wende,' " *European Journal of Population* 19 (2003): 303-29.