Subreplacement Fertility in the West before the Baby Boom (1900-1940):

Current and Contemporary Perspectives

(version September 1, 2008)

Jan Van Bavel – *Interface Demography*, Vrije Universiteit Brussel [1]

Jan.VanBavel@vub.ac.be

Abstract - *Between 1920 and 1940, fertility has been below the replacement level in many western countries for about ten to twenty years. In today's scholarly literature, the interwar fertility trough is explained by economic crisis and war threat. This paper first collects series of fertility and net reproduction rates that are hard to reconcile with such a view. It then confronts current with contemporary interpretations of low fertility during the interwar period. The views held by interwar demographers appear to differ remarkably and systematically from current interpretations. According to the contemporary interpretations, low fertility was not due to war threat or economic crisis but rather to rising individualism, secularization, rationalization, and consumerism. These were trends that, according to leading sociologists, economists, and demographers of the first half of the twentieth century, were already going on at least since the nineteenth century. The paper concludes by discussing some implications for current theorizing about subreplacement fertility.*

[1] Many thanks to Anneleen Baerts for entering some of the fertility and economic indicators employed in this paper. Also thanks to Stephanie Coontz, Ron Lesthaeghe, Tomáš Sobotka, and Robert Woods for their useful suggestions and encouraging comments about earlier versions of this paper. Of course, all claims made in the current version remain the sole responsibility of the author.

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During the past decades, demographers have increasingly been debating causes and consequences of contemporary below-replacement level fertility in the Western world (overviews include Davis et al. 1987; Teitelbaum 1999; Lesthaeghe & Willems 1999; Kohler, Billari & Ortega 2002; Morgan 2003). Indeed, since the 1970s and '80s fertility has dropped to levels that would imply population decline in the future in the absence of migration. Yet, in this debate there are hardly any references to the fact that fertility has stayed below the replacement level for a substantial number of years between the First and the Second World War in many regions of Europe. As a rule, subreplacement fertility today is being studied as a product of the second half of the twentieth century only (Sanderson 1987) and as one of the defining features of the Second Demographic Transition (Lesthaeghe 1995; Lesthaeghe & Neidert 2006). Current discussions of below-replacement fertility do not connect with the discussions held during the inter-war period. Yet, much like today, low fertility incited considerable societal and scientific debate during that period.

The purpose of this paper is twofold. First, it collects facts and figures about fertility, the replacement level, and net reproduction during the first half of the twentieth century. Second, it confronts current interpretations of low fertility in the West during the interwar period (1919-1940) with contemporary ones. The views held by interwar demographers appear to differ remarkably and systematically from current interpretations of subreplacement fertility during the interwar period.

1. Net reproduction and total fertility rates

As is well-known, fertility started to decline steadily in most European countries during the latter quart of the 19th century (Coale & Treadway 1986). During the first quarter of the 20th century, the descent tended to be so steep that by the 1920s more than half of Europe's population was living in a country exhibiting subreplacement fertility (Frejka & Ross 2001).

One way to assess whether and how far fertility is away from the level of replacement is to look at the Net Reproduction Rate (NRR). The NRR has been propagated in demography through the work of interwar demographer Robert Kuczynski (1932; 1935), although he did not originally invent this measure (Lewes 1984). The NRR is intended to measure the average number of surviving daughters born per woman. "Surviving" means: daughters that would survive themselves through the childbearing ages, given age-specific, female mortality rates (Preston et al. 2001). A NRR equal to unity implies that women are having exactly enough surviving daughters to replace themselves. A NRR above unity means that fertility is above the replacement level. A NRR below unity implies a fertility rate below the replacement level. In principle, the NRR can be calculated both from a cohort and a period perspective. In practice, most published NRR's are period rates, probably due to the fact that a cohort perspective needs more detailed data.

Figure 1 plots NRR's for a range of European countries plus the U.S.A., Canada, and Australia for the period 1920-1941. Thanks to the Czech Statistical Office (CSU), we have the most complete series for the current Czech Republic (marked as "CZ" in the graph). From 1925 onwards, fertility was below the replacement level in that country. There was a continuous decline between 1921 and 1936. After that, the NRR started to be on the rise, to reach the replacement level again in 1943 (not displayed in the graph).

[Figure 1. Net Reproduction Rates for 18 European countries plus Canada, the USA and Australia, 1920-1941 – about here]

Time series start in 1925 only for most other countries. Between 1925 and 1929, fertility was below the replacement level in at least the following countries: the Czech Republic, France, Germany, and Sweden. None of these countries returned back to the replacement level any time before the start of the Second World War. At the latest

by 1936, but earlier in most cases, at least the following countries or regions had joined the subreplacement club: Austria, Belgium, Denmark, Estonia, England, Scotland, Finland, Latvia, Luxembourg, Norway, Switzerland, Canada, the USA, and Australia. For the following countries, we do have a period NRR for at least one year, but it never got below the replacement threshold, as far as we know: Ireland, the Netherlands, Italy, Poland, Portugal, Rumania, Spain, and the USSR.

Table 1 displays the level of period TFR corresponding to the exact replacement level as well as the actual period TFR in 1930 (or, in some cases, around 1930) for a number of European countries. The third column shows the period NRR's for the same countries in the same year. In all countries displayed, fertility was below replacement, except the Netherlands, Italy, and Spain. As these rates are period measures, they could reflect tempo as well as quantum lows. So, maybe period fertility was as low as it was because people were just postponing births rather than renouncing them altogether. Yet, Festy (1979) has calculated net reproduction rates for generations born around 1900, who had been entering their reproductive years during the inter-war period (see Sardon 1991 for more cohort data). These rates reflect the quantum of fertility only, not its tempo. As can be seen in the last column of Table 1, the generations of women born around 1900 reached the level of replacement in none of the countries listed. Even Italy and Spain join the subreplacement club in this cohort – in fact, no Italian cohort born between 1900 and 1951 ever reached replacement fertility (Sardon 1991). Only in the Netherlands, fertility never dropped below the replacement line among generations born before the Second World War. So, as far as the data go, replacement fertility seems to have been the exception in the twentieth century rather than the rule (Sardon 1991).

[Table 1. The level of replacement and actual fertility in selected European countries around 1930 – about here]

In theory, countries could slip below the level of replacement for two reasons: the replacement threshold could be rising due to increasing child and adult mortality, and/or the total fertility rate could be falling. In practice, we know that in the interwar period, a secular decline of mortality had been going on for many decades in most countries, interrupted only by the First World War. As a consequence, the replacement threshold was going down rather than going up. Figure 2 presents

period levels of replacement fertility to illustrate this for Belgium, Sweden, and Italy for the period 1875-2000 (Sardon 1991 gives figures for other countries). [2] A number of comments can be made about these figures. First, in Italy the replacement level was still well above 3.5 in the latter quart of the nineteenth century, while it was already below 3.3 in Belgium and Sweden. The difference was due to much higher child mortality in Italy. Second, as age-specific mortality rates stabilize during the mortality transition, so does the replacement level. Third, a process of convergence has clearly been going on towards the minimal level of replacement, with differences between countries getting smaller as the decline of mortality was proceeding. In the absence of any female mortality during childhood and through the childbearing ages, the replacement level is at its minimum of 2.05, assuming a constant sex ratio at birth of 1.05.

[Figure 2. Period level of replacement fertility in Italy, Belgium, and Sweden, 1875-2000 – about here]

So, clearly, the reason that fertility was below the replacement level during the interwar period was not that the level of replacement itself was going up. Rather, the reason was that fertility was continuing its secular decline, as can be seen in Figure 3. In this figure, the two World Wars are indicated by dashed vertical lines. At first sight, nothing unexpected was happening with the course of total fertility rates during the interwar period. In many countries for which yearly data are available, there was a temporary upward peak in the fertility rates immediately after 1918. Yet by the early 1920s, that peak, if any, had faded away and period fertility continued its downward trend. Most countries reached their low fertility trough in the mid 1930s. From the late 1930s onwards, before and during World War II, the baby boom got started in

[2] Assuming a constant sex ratio at birth equal to 1.05 (boys / girls), the level of replacement fertility can be estimated as a function of both the average age at confinement and female age-specific death rates below that average age (Preston, Heuveline & Guillot 2001: 113-116). Mean ages at childbearing do show considerable historical variation but the effect of this variation on the replacement level is small because death rates are generally low during the childbearing ages. Therefore, the main sources of historical variation of the replacement level are age-specific death rates, especially the rates observed during infancy and childhood. As infant and child survival improve, fewer births are needed to assure reproduction and therefore the replacement threshold goes down. See also Sardon (1991).

most countries displayed. (So, judged from the period total fertility rates, the "post-war" baby boom is a misnomer.) Obviously, a special case is Spain, were the Civil War broke out in 1936 and ended in 1939.

[Figure 3. Period Total Fertility Rates for a range of European countries plus the USA and Canada, 1890-1945 – about here]

2. A revolution turned into a transition

How did interwar demographers interpret the pervasive below-replacement fertility they were witnessing? For that matter, their interpretations and publications are conspicuously absent in today's scholarly debates about subreplacement fertility. And how do interpretations by today's demographers of low interwar fertility match with the contemporary ones? And how well do they fit the facts?

After the Second World War, especially in the 1950s and '60s, a highly stylized interpretation of the big demographic changes that started in the latter part of 18th century gained ground, known as the story of the demographic transition. According to this story, the basic thread of the demographic changes was a shift from population equilibrium with relatively high average mortality and fertility rates to a new, modern equilibrium with low average mortality and fertility rates. High modern population growth rates were a consequence of the fact that average mortality rates start to decline first and that the decline of the birth rate started only after some time lag. After the transitional stage, the fertility rate was supposed to decline towards the level of replacement and, consequently, birth rates were to converge towards the death rates. Hence, after the Second World War, the fertility transition became to be seen as a logical evolution towards a new equilibrium in the population systems of the West. In the 1960s, many demographers thought that this transition was about to be finished (Coale 1986; Lesthaeghe & van de Kaa, 1986; van de Kaa 1996).

Before the Second World War, however, demographers were interpreting the ongoing demographic changes quite differently. Leading interwar demographers saw the evolution of mortality and fertility not as a transition from an old equilibrium to the next, but rather as a *revolution* with an uncertain and open ending (Thompson 1929; Landry 1933; 1934). According to Landry, a key characteristic of the upcoming new demographic regime was the lack of forces guaranteeing equilibrium-maintenance:

"La remarque capitale, c'est que dans le régime contemporain, il n'y a plus d'équilibre de la population" (Landry 1934: 53). International colleagues like Alexander Carr-Saunders (1936) and Enid Charles (1934) in the U.K., or Alva Myrdal (1941) in Sweden, agreed: since people start to deliberately limit their family sizes, there is no such thing anymore as a "natural population balance".[3]

According to Landry, an inherent equilibrium was absent in the new regime because people increasingly started to decide for themselves how many children they wanted. As a consequence, fertility was becoming the plaything of personal, individually diverging, and unpredictable considerations. It is therefore impossible to say where and when the decline of fertility will stop (Landry 1933; 1934). "We found reasons to believe", writes his English colleague Carr-Saunders, "that, once the voluntary small family habit has gained a foothold, the size of the family is likely, if not certain, in time to become so small that the reproduction rate will fall below replacement rate, and that, when this happened, the restoration of a replacement rate proves to be an exceedingly difficult and obstinate problem" (Carr-Saunders 1936, 327).

The one thing that was considered quite predictable was that the Pandora's Box of the new Malthusianism would lead to population ageing and decline. "We have shown", Thompson (1929, 974) writes, for example, that the old continent of Europe "is very rapidly approaching the stage of no increase and that this will soon be followed by its actual decline in numbers." The groundbreaking analyses by Robert Kuczynski had made it abundantly clear to the experts that the fertility rate was in a growing number of Western countries below the level of replacement. Therefore, positive population growth rates were just a transitory consequence of population momentum and would die out in time (Kuczynski 1932; 1935; Charles 1934; Notestein 1950). It is well known that Oswald Spengler (1922) saw depopulation as one of the signs of the Decline of the West. Economist John Maynard Keynes was much more optimistic even if he as well was quite sure that population would decline. In a lecture on the occasion of becoming the director of the Eugenics Society in 1937 (Soloway 1995), he

[3] The book *Nation and family* by Alva Myrdal "is written anew for the public in English-speaking countries. It is, however, at the same time to be considered as a substitute for an English version of the Kris I befolkningsfrågan, Stockholm, 1934, by the present author in collaboration with Dr. Gunnar Myrdal, Professor of Political Economy and Public Finance at Stockholm University" (Myrdal 1941: vii). So many of the arguments given by Myrdal in her 1941 book actually date back to 1934.

underlined that man generally cannot know what the future holds but then went on to say that

"perhaps, the most outstanding example of a case where we in fact have a considerable power of seeing into the future is the prospective trend of population. We know much more securely than we know almost any other social or economic factor relating to the future that, in the place of the steady and indeed steeply rising level of population which we have experienced for a great number of decades, we shall be faced in a very short time with a stationary or a declining level. The rate of decline is doubtful, but it is virtually certain that the change-over, compared with what we have been used to, will be substantial. We have this unusual degree of knowledge concerning the future because of the long but definite time-lag in the effects of vital statistics" (Keynes 1937: 13).

Population projections made during the interwar period for Western European countries and the USA indeed "routinely assumed that fertility decline would not stop at replacement level but fall short of it" (Demeny 2005: 2; cf. Myrdal 1941: 83-85). When birth rates started to increase in the West from the late 1930s onwards, the frequently expressed opinion was still that this "does not represent a true deviation from the downward secular trend but a temporary reaction to improved economic conditions" (Kirk 1942). Even around 1950, when the birth rate was already fully booming for several years, the common expectation for Europe as well as the United States was still the return to low pre-war birth rates (Demeny 2005). Notestein (1950: 336) summarizes the views held by demographers during the interwar period (like Warren Thompson in the US) as follows:

“Prior to the war most demographers, and the writers among them, felt that, in the absence of strong positive measures to encourage childbearing, further declines in the birth rates could be expected. There were three main reasons for this expectation. In the first place, the downward trend got under way in a differential fashion, spreading from the upper urban classes of the population down through the social-economic structure and outward from the city to the rural regions. By the end of the interwar period the highest rates were the ones that were declining most rapidly, the lowest were declining least rapidly, and no evidence of a real up-turn was in sight. In the second place, the differences in fertility were closely correlated with differences in the prevalence and effectiveness of contraceptive practice, and there was every indication that contraceptive materials were becoming more abundant, and that the knowledge of their use was spreading. In the third place, the middle class standards, which had been such a strong factor in the motivation for small families, appeared to be spreading throughout the mass of the population. Thus the nature of the trends, the means by which they were brought about, and the nature of the pressures and incentives motivating restrictionist practices all suggested a pattern of decline that had not run its course. On such evidence most of us predicted continued decline unless strong pro-natalist policies were brought to bear.”

According to Charles (1934: 195), the two-child norm had already become so strong among the prosperous middle classes that women with four or more children were subject to "comment, condolence, if not opprobrium". Mombert (1929: 323) pointed out that many people mistakenly seemed to think that two children would be enough for population replacement. Already in 1905, president Theodore Roosevelt of the U.S.A. warned that "[i]f the average family in which there are children contained but two children, the Nation as a whole would decrease in population" (cited in Demeny 2005: 4).

Interwar couples were still largely using inefficient, traditional contraceptive techniques, but demographers like Charles (1934) and Carr-Saunders were expecting that new, more efficient contraceptives could be invented any day. Contraceptive innovation would, in their judgment, cause fertility to decline even further below the replacement level. Carr-Saunders (1936: 258):

"At the moment in this country the reproduction rate is about 25 per cent below replacement rate. If all children born were wanted (that is wanted before conception), the former rate would probably be 50 per cent below the latter. But the day when all children will be wanted children is certainly coming; for contraceptive methods are undergoing continual improvement. The perfect contraceptive, cheap, easy to use, and infallible, may be invented any day. Therefore, if things remain as they are, the reproduction rate will fall, and the prospect will be a reduction of the population to less than a quarter of its present size a century from now".

Yet, the idea of a demographic revolution with an open ending increasingly lost ground during the baby boom after the Second World War, and the concept of the demographic transition eventually became the more dominant interpretative framework. According to van de Kaa (2004), the post-war group of leading Princeton-demographers (including Frank Notestein, Dudley Kirk, Kingsley Davis, and Ansley Coale) was highly influential in spreading this idea. Already in 1946, for example, Kirk (1946: 242) writes: “The essence of the vital revolution is the transition from primitive conditions of wasteful mortality and reckless procreation to a new balance of low death rates and controlled fertility.”

The story of the demographic transition seems to be more coherent and therefore more appealing and convincing. It has a clearly identifiable and logical ending: the old equilibrium of moderately high fertility and mortality has to be replaced by a new balance of low mortality and fertility, because without such population equilibrium,

there are just two possibilities: either dying out or exponentially increasing, unsustainable growth rates. The logic of this argument is, for example, cogently explained in Coale (1986).

3. Was interwar subreplacement fertility due to crisis?

As the concept of the demographic transition gained ground during the 1960s and '70s, the below-replacement fertility of the interwar period lost prominence on the research agenda. Much more study effort was devoted to the start of the fertility transition in the latter part of the nineteenth century (van de Kaa 1996). Today, the interwar fertility trough is generally seen as exceptional or, rather, as the logical response to the exceptional circumstances of deep economic and political crisis and war threat. Current interpretations do *not* see the First Demographic Transition (FDT) as implying fertility rates that were structurally heading towards levels below the replacement line (see, for example, Hakim 2000; Frejka & Sardon 2004; Lesthaeghe 1995; Sobotka, 2008). For example, Lesthaeghe and Surkyn (2004) write: "There are examples of below-replacement fertility during the FDT, but these correspond to exceptional periods of deep economic crises or war only. Sub-replacement fertility is not an intrinsic characteristic of the FDT" (p. 4).

Yet, today's interpretations of interwar subreplacement fertility are not based on evidence from empirical research, nor are they based on the views held by leading demographers and social scientists of the interwar period. As explained above, scholars like Carr-Saunders and Landry rather did see fertility as structurally heading towards levels below the "equilibrium" replacement level, not just in the West but perhaps even for the whole world (Landry 1934: 73). And the main reasons they cited were not economic crisis or war threat. As will be argued below, contemporary interpretations rather attributed low and very low fertility to the increased standards of living and associated consumerism, to the increased aspirations for social mobility, to secularization, rationalization, and individualization.

Economic climate, standard of living, and the war threat

None of the consulted interwar demographers attributed very small family sizes and low period fertility rates to economic stagnation or crisis. On the contrary, they generally linked it to unprecedented economic growth, increasing standards of living and rising consumption aspirations. Adolphe Landry, for example, situates his

discussion of the demographic revolution very clearly in a context of rising well-being, stimulated by innovation in technology and industry, agriculture and transports, which was helped, in turn, by great scientific progress. Numerous inventions of new household consumer goods incited people to raise their consumption aspirations (Landry 1934: 8-10, 37). Also German demographer Paul Mombert (1929: 314-316) saw increasing prosperity, as well as the improved education of the population, very explicitly as a major cause of low fertility (next to secularization and the rationalization of life).[4] Charles (1934: 197) summarized: “Where real incomes have risen fertility has declined. The more prosperous classes have the fewer children."

The economic image of the interwar period is highly dominated by the Great Depression and subsequent recessions of the thirties. Yet, this view ignores the fact that growth paths were very different during the 1920s as compared to the 1930s. Especially in the USA, there is a sharp distinction between the twenties and the thirties, with the former period being considered more prosperous than ever before, while the thirties brought the greatest depression in history. For other countries that closely depended on American trade broadly the same distinction can be made. Europe also was more prosperous in the twenties than in the thirties, but problems of post-war reconstruction and reintegration into the world economy caused economic recovery to take more time there (Lewis 1953; Pollard 1997).

Yet, most Western countries recovered quite successfully from the growth shock of the First World War, Great Britain and Germany being two notable exceptions (Lewis 1953; Solomou 1987; Pollard 1997). Even though the economic climate of the 1920s was highly unstable, the main trend was still one of high economic growth. Before the First World War, during the period 1872-1913, the growth of the world economy was estimated at 2.7 per cent per year. During the period 1913-1929, this was only 2.2 per cent per year when Britain and Germany are included. But the growth rate stood at 2.6 per cent per year when these two countries are excluded from the calculations (Solomou 1987: 147-148). Particularly the years immediately preceding the Great

[4] Paul Mombert was a Jewish economist-demographer teaching at the University of Giessen. He was fired from his position by the Nazis in 1933, arrested in 1938 and died soon after (Mackensen 2001). Mombert seems to have been an important source of inspiration to Landry. For example, in a 1909 paper, Landry calls Mombert's *Studien zur Bevölkerungsbewegung in Deutschland* (1907) "one the most interesting" works that has appeared about the decline of the birth rate (Landry 1909: 184).

Depression marked a period of ferocious economic boom. Reasons for this boom included an increased demand for consumer goods by families, boosted by significant increases of real wages, a boom in corporate investments, and a great influx of fiscal receipts, allowing governments to undertake big investments in infrastructure (Buyst 2006).

Taking the period as a whole, many of the positive pre-war economic trends continued: productivity as well as the standard of living continued to improve. Technical progress continued throughout the inter-war period, in boom as well as in slump. The world economy continued to expand, integrating more and more developing countries (Lewis 1953; Solomou 1987). The standard of living in the West was higher in 1939 than it had been both in 1914 and in 1929. For example, people's houses were better and more comfortable when the Second World War broke out than at the start of the Great Depression (Lewis 1953). As John Maynard Keynes put it in a 1930 paper: "In spite of an enormous growth in the population of the world, which it has been necessary to equip with houses and machines, the average standard of life in Europe and the United States has been raised, I think, about fourfold. [...] And from now on we need not expect so great an increase of population" (Keynes 1930 [1963]: 360). For that matter, Keynes later on expressed his fears that population stagnation and decline would structurally bring down the rate of economic growth, aside from the Great Depression associated with the monetary problems (Keynes 1937).

Despite the continued increase of the average standard of living, there seems to have been a general feeling of insecurity. Contemporaries were very conscious of the fact that economic growth was not proceeding smoothly but was rather marked by repeated phases of booms and slumps, which came to be known as "Juglar" trade cycles (Pollard 1997). In Europe, the first years of the twenties were dominated by attempts to recover from the Great War, by inflations and deflations, by ferocious boom and violent slump. Then, after a number of prosperous years finishing the twenties, unemployment soared after the Wall Street crash. The degree to which people benefited from increasing standards of living in each country strongly depended, among other things, on the level of unemployment (Lewis 1953; Solomou 1987; Eichengreen & Hatton 1988). Yet, in the judgment of Carr-Saunders (1936), "[a]s a motive for keeping the size of family small the fear of unemployment is probably far less important than the ambition of parents for their children" (p. 249).

Empirically, demographers and economists have clearly shown that there were strong correlations between fluctuations in indicators of economic well-being and employment on the one hand, and fluctuations in birth and fertility rates on the other hand before the Second World War. When economic indicators improve (in terms of GDP, employment, or productivity, for example), fertility, birth and marriage rates tend to go up, and vice versa. This finding does not only hold for the interwar period but also for the decades preceding the First World War (Galbraith & Thomas 1941; Kirk 1942; 1960; Simon 1969; Basavarajappa 1971).

Yet, the correlations between short-term fluctuations cannot explain the low fertility of the interwar period. First, the association between economic indicators and fertility rates only holds for the short-term ups-and-downs in the economic and fertility indicators. That is: the correlations found are between de-trended time series, i.e. between the annual deviations from the mid-term trends in fertility and economy (see Galbraith & Thomas 1941 or Kirk 1960, for example). In the longer term, time series of economic performance and the secular trend in fertility were negatively rather than positively correlated. As economic growth, productivity, and standards of living were improving, fertility was falling from the latter decades of the nineteenth into the first half of the twentieth century. "In other words, while the deviations from trend of fertility rates seem to move in the same direction as the trend deviations of economic indicators, the former series exhibits a distinctive character of its own, describing a trend in many respects quite independent of economic conditions. The surface waves are indeed much influenced by economic fluctuations, but the underlying tide appears to be an independent and surprisingly stable force" (Kirk 1960: 254). Second, cross-sectional studies of fertility differentials showed that there was a negative rather than a positive association between family size and economic well-being: higher-income couples were limiting their family sizes more than low-income couples (Myrdal 1941: 61-63, 67-70), both before and after the First World War (Simon 1969; Basavarajappa 1971).

Evidence

If interwar economic insecurity would have played a major role in bringing fertility down below the replacement level, one would expect to see an interwar downward jump in the secular downward trend that was already going on in most countries of the West before the war. Yet, this was not the case, as can be seen in Figure 3. Rather,

the prewar trend seemed to resume after the turbulence caused by the First World War. Also, the interwar fertility trough should have been more pronounced in countries that were affected more than others by the instability of the world economy. Again, there is no evidence supporting that hypothesis. Time series analysis also gives no evidence of a positive correlation between time *trends* (rather than deviations from the trend) in the economy and fertility. In the United States, for example, the "decline of fertility during the 1920's occurred in the face of economic prosperity and its downward course was not markedly accentuated by the depression. In fact, the downward drift of fertility so evident in the 1920's was actually checked and stabilized in the depths of the depression. At its low point in 1933, the fertility rate was only 14 per cent below its 1930 level, a year which reflected the peak prosperity and employment conditions of 1929" (Kirk 1960: 245-246).

Figure 4 graphs unemployment rates, per capita GDP and period total fertility rates (PTFR) for 11 OECD countries with available data for the interwar year. These figures suggest that the mid-term fertility trend, in contrast to the short-term ups-and-downs, was not governed at all by unemployment or by the growth of the economy. For example, all countries exhibit declining fertility, during the 1920s, irrespective of the level of unemployment in industry and the growth of GDP per capita. And in all countries, the decline of fertility halted in the latter part of the 1930s, irrespective of the severity of the economic crisis, as indicated by high unemployment and a slackening or even declining GDP.

[Figure 4. GDP per capita, unemployment in industry, and period total fertility rates in a range of Western countries, 1920-1939 (standardized scales) – about here]

Figure 5 plots the mid-term relations between economic indicators and fertility in a more systematic way for the same 11 countries. The two graphs in the first column display the relationship between the average net reproduction rate for the years 1930-35 on the vertical axis and average economic indicators for the same years on the horizontal axes. There is no correlation whatsoever between average net reproduction and unemployment (panel A). For example, Canada and the Netherlands had about the same level of unemployment, on average, as England and Australia during these years, even though the former two countries had much higher (above replacement) reproduction rates. In the same vein, during the first half of the thirties, there was no

correlation between the average net reproduction rates and the average level of GDP per capita (panel C).

[Figure 5. Net Reproduction Rates by unemployment in industry and GDP per capita (average levels in 1930-35); change in period total fertility rates by change in unemployment and GDP per capita between 1929 and 1934* - about here]

But maybe the *change* rather than the level of the economic indicators mattered? Maybe people drastically restricted their fertility in response to worsening economic conditions, irrespective of the level they were used to? The scatter plots on the right hand side of Figure 5 show that this explanation is deficient as well. The *drop* of total fertility during the early 1930s was also not correlated with the mid-term *change* of the economic indicators during the Great Depression. For example (see panel B), unemployment rose much faster in the Netherlands, Western Germany and particularly in the US than in Australia or Norway, even though the rate of decline of fertility was stronger in the latter two countries. Or, (see panel D) even though the GDP per capita dropped in the US, the Netherlands, and France while the GDP continued to grow somewhat in Norway, fertility fell more rapidly in the latter country than in the former group of countries.

Western Germany (WDE) is an outlier with respect to fertility due to the fact that, according to retrospective estimates based on official census data (Chesnais 1986), total fertility jumped upward when the Nazis came to power, from 1.58 in 1933 tot 1.93 in 1934 (see also Figure 3). If Germany is removed from the picture (not shown, results can be obtained from the author), the correlation remain as they are, i.e. very low and not statistically significant.

What about the war threat? None of the consulted interwar demographers saw this as a major cause of the low fertility they were witnessing. Alva Myrdal (1941) points out that this factor, "more than any other perhaps, is convenient for *ex post facto* explanations for other unrecognized or unadmitted motives" (p. 55). She found that the role played by war threat was easily exaggerated and that "the period when war would have seemed more imminent, namely, after 1933, did not show a striking decline in childbearing" (p. 55). Figure 3 shows that, indeed, fertility was *not* declining more rapidly after 1933 than before. Rather on the contrary. In addition, Myrdal argued, Scandinavian countries are thriving relatively well. Sweden, for

example, has benefited from many years of peace. It did not know major internal social or ethnic conflicts. And, yet, it exhibits fertility well below the replacement level (Myrdal 1941: 7-26).

Enid Charles also argues that war and war threat are not the fundamental cause of very low fertility during the interwar period. During the First World War, fertility dropped in all European countries, “though the sudden drop during the War years was more pronounced in the more belligerent countries. It seems that there was a postponement of marriages and births during the war years. This had the effect of swelling the birth rate during the next few years. There was no alteration in the general course of the decline in the number of births” (Charles 1934: 81). Again, time series of fertility rates in Figure 3 support the point made by Charles. In addition, the baby boom, i.e. the rise of total fertility rates, got started in many countries already before or during the Second World War. Therefore, it does not make sense to claim that the interwar subreplacement fertility was due to war and war threat.

4. Contemporary explanations of low interwar fertility

Interwar demographers do not agree with current interpretations of interwar subreplacement fertility as a response to exceptionally bad conditions of economic crisis and war threat. Rather, the general feeling and dominant expectation was that fertility was structurally setting course for subreplacement levels (Notestein 1950). Yet, that does not mean that general feelings of insecurity did not play an important role in the contemporary views. But not the economic crisis as such was considered as the crucial point – there had been times of high economic, political, and social instability before. The key difference was people's reaction to insecurity.

Secularization and rationalization

In Alva Myrdal's judgment, the factor of insecurity played a greater role than before because people's attitude towards risk had changed in modern times. "Passivity and complacency has decreased. The very fact that the individual is considered more directly responsible for success and failure in an individualistic, competitive, and nonreligious society than formerly makes him more inclined to seek the security he can guarantee himself" (Myrdal 1941: 55). Myrdal adds that the loss of "the basic feeling of security has probably accompanied the process of religious secularization" (p. 56). By this, she does not mean to say that fertility control was "unthinkable" for

people in earlier populations; in her view, fertility control has always existed, but "its wide extension in modern times has caused the fall in marital fertility" (p. 51). As family size limitation is spreading throughout ever more geographic and social regions of Europe, the dike of religious opposition was breaching way in turn; "The denunciation of birth control as contrary to morals and religion is weakened by the statistically established fact of its almost universal spread. Under the influence of democratic doctrine the individual is too cognizant of his own identity and interests to forfeit the right to serve his own welfare in what touches him so intimately as the size of the family" (Myrdal 1941: 3).

The ones who are least inclined to limit their fertility, writes Landry, are typically the ones who stick most to traditional, religiously inspired mores and customs. Large families are typically found among the ones respecting the rules of their church or denomination, who are typically strongly pro-natalist (Landry 1934: 34-37). Paul Mombert concludes from a multivariate analysis of German fertility data that fertility reached particularly low levels in cities and in protestant regions, even if the decline had by then started in rural area's and catholic regions as well (Mombert 1929, 308-313).

Myrdal and Mombert agreed with Landry that "the rationalization of life" may be the most fundamental explanation of the secular decline of fertility (Landry 1934: 39-40), i.e. "an increasing disposition to weigh rationally the motives and actions in one's life" (Myrdal 1941: 51), including the "increase of man's rational control over his reproductive powers" (Charles 1934: 193). Myrdal concludes: religious institutions may propagandize against the spread of birth control, but "[r]eversing the trend and turning away from rationalism will not meet with approval from the majority. Even if their verbal approval could be obtained, they would not support it in their behaviour" (p.52).

So, clearly, secularization and "the rationalization of life" were already key themes in interwar thinking about the causes of low fertility. Explicit opposition against the "plague of Onanism" by the Roman Catholic Church was particularly mounting during this period, culminating in the encyclical *Casti Connubii*, published in December 1930 by pope Pius XI (Stengers 1971). Yet, it should be reminded that even this official Catholic act licensed married couples to apply some form of birth control: it granted that "natural means" of birth control are "not dishonest". Since 1930, the Church did "sanction the practice of confining intercourse to a part of the menstrual

cycle commonly called 'the safe period' when it is believed that conception is unlikely to occur" (Charles 1934: 165).[5]

As to the empirical evidence, it has been convincingly demonstrated that secularization played an important role in getting the secular decline of fertility started during the nineteenth century. This has first been shown with aggregate data (notably by Lesthaeghe 1977; 1983; Lesthaeghe & Surkyn 1988; Lesthaeghe & Wilson 1986), and later on with microdata as well (for example Hacker 1999; McQuillan 1999; 2004; Van Bavel & Kok 2005; Kok & Van Bavel 2006). There is less research about the continuing role of religious differentials and secularization during the interwar period – apart from the contemporary studies already mentioned. The exceptions include a number of studies about the Netherlands, where the religious denominations of individual persons were recorded in the population registers. Already in 1931, Sanders published a study about the declining birth rate in the Dutch city of Rotterdam that showed that, even after controlling for professional group, mixed marriages and marriage partners who declared to have no religion had much lower fertility than Calvinists, Catholics and even (more liberal) Dutch Reformed (Sanders 1931). For the Netherlands as a country, van Poppel (1983) confirms that among interwar marriage cohorts in the Netherlands, couples reporting to have "no religion" clearly had lower fertility than Catholics or Calvinists, also after controlling for the social status of the family. Recently, Van Bavel, Kok and Engelen (2008, forthcoming) have shown that childlessness was significantly higher among both non-religious marriages and religiously mixed marriages in the Netherlands.

In contrast to the Netherlands, Belgium has traditionally been a homogeneously Catholic country. Still, Ron Lesthaeghe has convincingly demonstrated how the start of the fertility transition in Belgium was related to the process of secularization. One way he did that was by correlating the onset and speed of the fertility decline of the nineteenth century forwards to an interwar indicator of secularization. That indicator was the percentage of votes for non-Catholic parties in the first post-World War I general elections in Belgian districts ("arrondissements"). 1919 were the first elections that gave every man one vote (Lesthaeghe 1977) – Belgian women had to wait until 1948 for suffrage. Lesthaeghe did not, however, correlate his secularization

[5] In 1929, Knaus in Austria and Ogino in Japan independently had correctly identified the timing of the fertile period at about two weeks before the onset of the next ovulation.

indicator to the Coale fertility indicators (see Coale & Treadway 1986) for the interwar period. Figure 6 does just that. It graphs the percentage of secularized votes in the 1919 elections to the fertility and nuptiality indicators of 1920 and 1930. These are the two interwar census years.

As can be seen in the first two columns of the matrix of figures, the correlation between the level of fertility and nuptiality on the one hand, and secularization on the other, was strong during the interwar period. For example, both in 1920 and in 1930, two thirds of the district-level variance in total fertility (I_f) can be explained by district-level differences in the index of secularization ($r^2 = 0.66$). The high correlation is foremost a consequence of a particularly strong correlation with the level of marital fertility (I_g): 81 and 72 per cent of its variance can be explained by secularization in 1920 and 1930, respectively. The correlation between secularization and nuptiality (I_m) is somewhat more modest, with a coefficient of determination equal to 62 and 58 per cent in 1920 and 1930, respectively.

[Figure 6. Secularization (as indexed by the percentage of non-Catholic votes in the 1919 elections) and Coale fertility indicators by district in Belgium, 1920-'30 – about here]

Yet, the process of declining marital fertility had clearly started in all districts of Belgium. As can be seen in the bottom right scatter plot, there was no correlation anymore between the level of secularization and the speed of decline in marital fertility between 1920 and 1930. In all districts, except in the very low fertility district of Tournai, marital fertility was heading towards ever lower levels. This process would only be stalled from the late 1930s and early 1940s onwards. So, in conclusion, the timing of the onset of the fertility decline was clearly related to secularization in Belgium (Lesthaeghe 1977) and this translates directly into the *level* reached during the interwar period. There is no need for a special "interwar theory" to understand the interwar fertility levels within Belgium; there is no evidence, at least not in these data, that there mechanisms at work that were unique to the interwar period. Subreplacement fertility levels seem to have been the consequence of the continuation of pre-war fertility trends.

"Altruistic" and "individualist" motives

The following is the top five in a list of reasons for voluntary childlessness, given by friends and close acquaintances of childless couples from California, USA:

Reason	*Number*	*Percentage*
1. Self-centered	180	31
2. Wife's career	128	22
3. Economic pressure	96	16
4. Health	51	9
5. Dislike of children	49	8

Source: Popenoe (1936)

These reasons seem to resemble to a surprising extent current characterizations of voluntary childlessness – although scholars today tend to use other words and more sophisticated concepts than these acquaintances. For example, words and concepts often encountered in the literature accounting for current childlessness and highly restricted fertility include: consumerism, career-orientedness, individualism and self-realization and -fulfillment (van de Kaa and Lesthaeghe 1986; Lesthaeghe 1995; Hakim 2000). Yet, these figures are taken from an article published in 1936 and refer to US-women born at the turn of the 19th century (see also Morgan 1991).

Under the heading of "Self-centered", friends and close acquaintances of childless couples mention motives such as "wanted to be free to travel", "wife wants to teach; husband wants to hunt and fish; each wants to follow own inclination and a child would disturb both of them", "they wanted to save for a home and furniture first, but never reached the point where they were satisfied", " [the wife] feared the experience would spoil their looks of figures", "[the husband] was afraid a child might take first place in the wife's affections", or "they were so much in love with each other that they couldn't bear to think of children that might come between them and spoil the perfection of their romance" (Popenoe 1936: 470).[6]

[6] The organizer of the survey couldn't resist adding the comment that "[t]his is the much advertised Companionate Marriage raised to the *n*th degree!" (Popenoe 1936: 470). Note that this Paul Popenoe was a leading Californian eugenist, who went as far as advocating compulsory sterilization in the 1930s and who became a celebrated marriage counsellor in the 1950s (Ladd-Taylor 2001; Soloway 1995).

The idea that individualist motives played an important role in the rise of small families and childlessness was omnipresent in interwar scholarly literature, not just in this very small-scale survey. According to most authors both altruistic and "egoistic" or individualist motives were important, and both often mattered at the same time in the same households and could even hardly be distinguished. Enid Charles, for example, argues that modern industrial consumer goods and recreational activities proffers a number of alternative and often more attractive ways of spending money, but at the same time she adds that a higher standard of life is usually not demanded by parents for themselves alone: "Their demands for their children have perhaps increased even more. Increased attention to child welfare has raised the standard of life for children." But, still, "[c]hildren are a competing element in a rising, because more variegated, standard of life" (Charles 1934: 197).

Among the altruistic motives, Landry (1933; 1934) cites the idea that, given a limited budget in terms of time and money, a smaller number of children can be given more care and attention, a better education so as to make sure that the next generation would be better off and climb the social ladder. This is the classic idea of social capillarity (Dumont 1890; also cited, for example, by Banks 1954 and many others). But egocentric motives were just as important: children tend to hinder the self-development and self-fulfillment of the mother outside the home in particular. Children are an impediment to traveling and participation in recreational activities outside the home (Landry 1934; Charles 1934). Five years earlier, Paul Mombert (1929: 331) wrote that married couples were strongly limiting their fertility in order to both make their own lives more comfortable and at the same time to give their children a better future.

Even though Landry agreed that altruistic and egocentric motives often come in at the same time within the same household, he speculated that the latter motives were gaining in importance:

> "Often one is thinking of the children: if one wants few of them, it is to cherish them more, it is to provide an education that will allow them to do better than their parents. But there are also selfish feelings, which make people consider the child as an expense and an inconvenience: will the child not be an obstacle to the mother's exercising her profession if she has an occupation? Will the child not get in the way of the parents' pleasures and travel, the taste for which is ever spreading and ever more ardent? And it can be observed that the role of selfish feelings is becoming greater and greater" (Landry 1934: 41 (French original), English translation taken from Landry 1987: 739).

On the other side of the Channel, Carr-Saunders also underlined motives of parental self-fulfillment: “The small family fits in, not only with the enduring wishes of the mother, but also with the new mode of life. The last sixty years have seen an immense increase in leisure time, and a still greater increase in facilities for employing that leisure; and children are impediments to those who want to avail themselves of these facilities” (Carr-Saunders 1936: 111).

Many years later, after the Second World War, two French authors were influential in turning the first stages of the decline of fertility (say about 1870-1940) into an "altruistic" transition, to be followed by a second, "individualistic" or "egocentric" stage (Sauvy 1960 and Ariès 1980). Clearly, the conjectures and speculations by these two authors have heavily influenced thinking about the Second Demographic Transition (SDT). This can be appreciated from the references to both Ariès and Sauvy in the earliest work about the SDT (Lesthaeghe en van de Kaa 1986). The distinction between altruistic and individualist motives still plays an important role in more recent expositions of the theory (Lesthaeghe 1995; Lesthaeghe & Neidert 2006).

"The modern erogamic marriage"

Men and women, who are weighing the pros and cons of making the move to parenthood, will encounter many disadvantages. Many of these costs have been there for many years, argues Myrdal (1941: 51-54), but they are now being felt more strongly. One factor held responsible for this was the cult of female beauty: many women are afraid to loose their "sex appeal" through pregnancy, giving birth, and the hardships of motherhood – and their husbands may have the same fears with respect to their wives. One of the most remarkable features of today's culture, argues Enid Charles (1934), is its obsession with female looks and appearances, adding: "Intensive culture of personal appearance and bodily fastidiousness is not readily reconciled with the corporal realities of reproduction" (Charles 1934: 200). The importance of eroticism in marriage is rising, and this makes reproduction a less self-evident feature of a couple's sexual life; "The irruption of children into the modern erogamic marriage involves a displacement of the emotional pattern" (Charles, 1934, 203). Indeed, historical research about the evolution of marital culture points to the rising importance of sex appeal and eroticism during the interwar period (Coontz

2005: Chapter 12). In England, Carr-Saunders went as far as to state that "[n]o institution has been so degraded and vulgarized as marriage; it would almost seem as though all the artifices known to a sensational press and to a commercialized literature have been employed to emphasize every aspect of marriage except the duties which it imposes and the opportunities of self discipline which it offers. [...] For it is held up to be no more than a mode of self gratification" (Carr-Saunders 1936: 256).

Conflicting work, family, and leisure time

Interwar scholars argued that there were a number of structural developments that made it all too clear that, in modern times more than ever, parenthood involved making a number of socially important sacrifices; for a woman in particular "it causes drawbacks and breaks in her work and ways of life" (Myrdal 1941: 54). Not only had it become more difficult to combine work with childcare due to the separation of home and workplace, modern recreational activities organized during the increased leisure time were in many cases completely unsuitable for children (Myrdal 1941: 56-57).

One of the motives for family limitation, according to Charles (1934: 198-199), is the increased desire of many women to compete on equal terms with men in similar occupations outside the home. For many women, motherhood no longer offers a satisfying career from the cradle to the grave. And children entail important opportunity costs: "The most luxurious of all consumption in our economic system is that of children and mothers, namely, the luxury of unproductivity" (Myrdal 1941: 59). Having children represents "a handicap to vocational advancement in adult life": the childless can devote their lives to work with fewer pre-occupations, have fewer financial embarrassments, can enjoy the opportunities of travel and enlarge their social networks (Charles 1934: 130). And, referring to her own professional career as mathematician and statistician while having four children, "[i]f all scientists were equally intelligent, it is highly probable that the least fertile ones would achieve the greatest distinction in their profession" (p. 130-131). More generally, in short: "The exodus of women from the home encourages family limitation, and family limitation encourages women to seek occupation outside the home" (Charles 1934: 199; cf. Myrdal 1941: 51-54).

Due to the high opportunity costs of children for educated and working women, things like family allowances can hardly be successful in raising the fertility rate

(Charles 1934: 206-209): they "do not supply the need for crèches and holiday camps to enable the parent to enjoy the same amenities of travel as the bachelor or childless woman" (p. 211). Mombert (1929: 333-335) and Carr-Saunders (1936: 257) also expressed serious doubts about the effect of child allowances on family size.

Myrdal (1941: 57) adds: “The burden of children tends to be felt increasingly as not only working time but also leisure time is spent more and more outside the home. [...] Now working hours mean regulated and concentrated work and demands on efficiency are increasingly heightened." Modern leisure activities (mentioned are: theatres, cinema, dancing parties, social evenings, bicycle riding, motoring, picnicking, holidays and the like) are not child friendly: “in general, recreation has become specialized and thus separates the different generations. It decidedly debars small children” (Myrdal 1941: 57); "the pursuit of any of them is made difficult so long as there are children who require care at home. [...] The parental instinct may be strong enough to bring one or two children into the world; but [...] the desire for freedom to engage in these activities overbears the parental instinct when that number has been reached" (Carr-Saunders 1936: 253). Women in particular are paying the shadow prices: “when young children must stay at home at night the mothers must usually remain at home with them. This deprivation of recreation has social consequences” (Myrdal 1941: 58). Therefore, Myrdal goes on to argue, many women are questioning whether they too are willing to pay the price of motherhood and give up their social activities. For a couple who has enjoyed a childfree lifestyle for a number of years, the big step into parenthood often represents a giant leap that is all too easily postponed (Landry 1934: 42; Myrdal 1941: 54).

Consumerism

During the interwar period, the commercial supply of relatively cheap, industrially produced consumer goods and durables was soaring. Sales were promoted more than ever by commercial advertising. Things like the vacuum cleaner, the electric iron, the washing machine, the refrigerator, baby food and new types of baby napkins were sweeping the households of the modern, up-to-date middle class families. In order to stimulate sales, the industry set up large-scale modernization campaigns. More and more people in the West got connected to networks supplying water, gas, and electricity at home (Olney 1987; Frost 1993; Furlough 1993; Crossick and Jaumain 1999; Schot 2001; Buyst 2006).

Both Charles (1934) and Myrdal (1941) noted, in connection with this, that extra financial burdens were being imposed on families not only by new insights into child hygiene but also by modern household goods and appliances; "every step forward in hygiene – all the demands for improved care of babies, better nourishment, more sunshine, better housing – means that costs can accumulate. Again it has been the more intelligent, culturally awake parents who first realized this duty and also reduced the number of children [...]. Expenses for food, housing, fuel, clothing, medicines, and education have increased with these rising demands" (Myrdal 1941: 61). "Increased attention to child welfare has raised the standard of life for children" (Charles 1934: 197).

However, modern adult consumers do not just spend money for their children, if they have any children at all. Rising consumption aspirations feature in many texts (for example Mombert 1929: 314-316; Landry 1934: 8-10; Charles 1934: 197). Aspirations to buying the latest novelties and participate in modern consumer culture may interfere with (what was often being called) "the parental instinct"; "for it is those without young children who have the money to spend. Therefore, the ingenuity and enterprise of inventors and of entrepreneurs are exerted in the interests of the unmarried and the childless" (Carr-Saunders, 1936, 252). Charles summarizes with a witticism: "Statistics clearly show that the choice between a Ford and a baby is usually made in favour of the Ford" (Charles 1934: 197).

5. Conclusion and discussion

Between 1920 and 1940, fertility has been below the replacement level in many western countries for about ten to twenty years. In most cases, a fertility trough was reached around 1935, before the start of the baby boom in the late 1930s and early 1940s. In today's scholarly literature, interwar subreplacement fertility levels are routinely due to economic crisis and war threat. This paper has presented statistical evidence that is hard to reconcile with such a view: there was no mid-term correlation across countries between economic indicators and net reproduction or total fertility rates.

More importantly, this paper has reviewed the interpretations that interwar scholars were giving for the developments they were witnessing. According to these contemporary interpretations, low fertility was not due to war threat or economic crisis but rather to rising individualism, secularization, rationalization, and

consumerism. These were trends that, according to leading sociologists, economists, and demographers of the first half of the twentieth century, were already going on at least since the nineteenth century and were summarized under the broad heading of "modernization".

Interwar demographers were convinced that subreplacement fertility was there to stay for quite some time; that fertility throughout the developed world, and eventually maybe throughout the whole world, was structurally heading towards levels insufficient for the replacement of generations. Even when demographers became aware, basically after the Second World War, that a baby boom was going on since the late 1930s, they tended to see this as a temporary deviation from a more fundamental underlying tide. That tide was pushing fertility structurally down below the replacement level.

Eventually, these interwar demographers turned out to be right in the sense that the baby boom was a rather small and temporary interruption of the secular decline of fertility after all, even if it had long-lasting and very important consequences. Today about half of the world population is estimated to live in a country where fertility is below the replacement level (Wilson 2004). No one knows for how long it will stay there and what countries will still be joining the subreplacement club. It should be noted that the largest post-industrial country of the world, the USA, has both period and cohort fertility at, or slightly above, the replacement line today (Sobotka 2008).

Lesthaeghe and van de Kaa (1986) coined the concept of the second demographic transition (SDT) to interpret the bundle of socio-demographic developments that marked the end of the baby boom. The adjunct "second" serves, among other things, to indicate that the social forces behind the decline of the fertility after the baby boom are very different from the ones operating before the baby boom. During the first demographic transition (FDT), that is. Subreplacement fertility is seen as one of the characteristic features of the SDT. In contrast, it is not considered to be an intrinsic characteristic of the FDT. According to the SDT-literature, the end point of the FDT was supposed to be an older stationary population with replacement fertility (Lesthaeghe 2008, forthcoming).

Yet, the literature review in this paper has shown that this equilibrium view of the FDT emerged only during the baby boom after the Second World War. The contrast drawn between the SDT with an open ending and the "classic" FDT heading towards equilibrium (Lesthaeghe, 2008, forthcoming), is therefore really a contrast between

the current era since the late 1960s and the period cut out by the baby boom (from the late 1930s until the late 1960s). Leading demographers writing before the baby boom did not at all read the demographic developments they were witnessing as a transition from an old to a new equilibrium that would logically imply fertility at the replacement level in the long run. Interwar demographers did not see a transition but rather a revolution with an open ending, and with subreplacement fertility being a structural part of the new demographic regime. The "perfect contraceptive" could be invented any day, and this would facilitate the new regime; it was not considered to be a necessary condition for long run subreplacement fertility.

The main reasons why modern times are pushing fertility below the replacement line include, according to the demographers of the 1920s and '30s, rationalization, secularization, individualization, consumerism, and the rising aspirations of women for self-realization outside the home, in work as well as in leisure. Again, these are keywords often encountered in the literature about the SDT as well. Pre- and interwar social scientists argued that these cultural trends had stimulated economic development and were being stimulated by economic development in turn. Translated into the micro-context of the family, the willingness or motivation to strongly restrict family size was stimulated by parents' rising consumption aspirations, both for themselves and for their children.

Already during the interwar period, there is a tendency in the interwar literature to argue that the "individualistic" motivations, i.e. aspirations for a high standard of life for the parents themselves, were gaining ground at the cost of "altruistic" aspirations for children. Many years later, when the baby boom was coming to an end, Alfred Sauvy and Philippe Ariès again speculated that individualistic motivations were becoming more important than the altruistic motivations supposedly dominating in late nineteenth and early twentieth century. Even if Sauvy and Ariès were hardly supplying any evidence for their claim, they have heavily influenced thinking about the SDT.

In conclusion, the explanations given by interwar demographers for subreplacement fertility show some remarkable resemblances with explanations given for current low fertility levels within the SDT framework. The societal discussions incited by low fertility and the prospect of natural population decline are similar as well. Issues on the agenda during the interwar period, as well as today, include the consequences of an ageing population for the labor market and the issue of replacement migration.

Next to that, typical for the interwar period, and connected with the issue of social differentials in fertility, was the rise of eugenic thought *and* practice (Teitelbaum and Winter 1985; 1998; Soloway 1995). It is well known that the Nazis had racist eugenics programs during the 1930s, but less that the ideas of eugenics were quite popular generally in Western Europe and North America. For example, in the late 1920s, California had the most extensive eugenics program in the world (Coontz 2005, 212). Yet, apart from hard core eugenics, the fact that the higher educated had the lowest (subreplacement) fertility was a concern that was voiced quite generally in the reviewed literature.

The interwar period was an era of strong societal tensions, not just in politics and in the economy, but also in marriage and the family (Coontz 2005). The tide of modernization had been producing ever more social changes at a pace that was bewildering many common people. Some were enthusiastically embracing the opportunities and freedom promised by modernity, within as well as outside the family. Others were alarmed by new patterns of behavior and saw modernity as threatening the proper, established order, bringing degeneration, decline, and decay instead. Over time, the latter group formed a powerful, conservative, even reactionary counter-force against modernity. Maybe that was one of the factors responsible for the rise of "the golden age" (or golden cage) of the nuclear family in the 1950s and early '60s (Cheal 1991), brought to an end by the second demographic transition. In the meantime, the low fertility levels of the interwar period should not be attributed to economic crisis and war threat but should partly be seen as a dress rehearsal for the current demographic play.[7]

[7] The idea of seeing the interwar developments as a kind of dress rehearsal for current turmoil, was kindly communicated to me by Stephanie Coontz. Also, see Coontz (2005).

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Tables and figures

Table 1. The level of replacement and actual fertility in selected European countries around 1930

	Period replacement level TFR around 1930*	Period TFR in 1930°	Period NRR in 1930[$]	Cohort NRR of women born around 1900[+]
Belgium	2.4	2.25	0.91	0.75[&]
Netherlands	2.3	3.02	1.28	1.06
Sweden	2.4	1.96	0.83	0.71
Switzerland	2.3	1.96	0.86	0.74
Spain	2.9	3.68	1.27	0.96[&]
Italy	2.7	3.38	1.20	0.99
Denmark		2.30	0.96	0.89
Norway		2.19	0.89	0.81
England & Wales		1.95	0.81	0.72
France		2.29	0.93	0.72
Germany			0.74	0.69

* Level of replacement calculated by assuming a constant sex ratio at birth equal to 1.05 and a constant mean age at childbearing of 30 years. The figures reported would be about the same for any assumed mean age at childbearing between age 25 and 35. Source of death rates: http://www.mortality.org/.

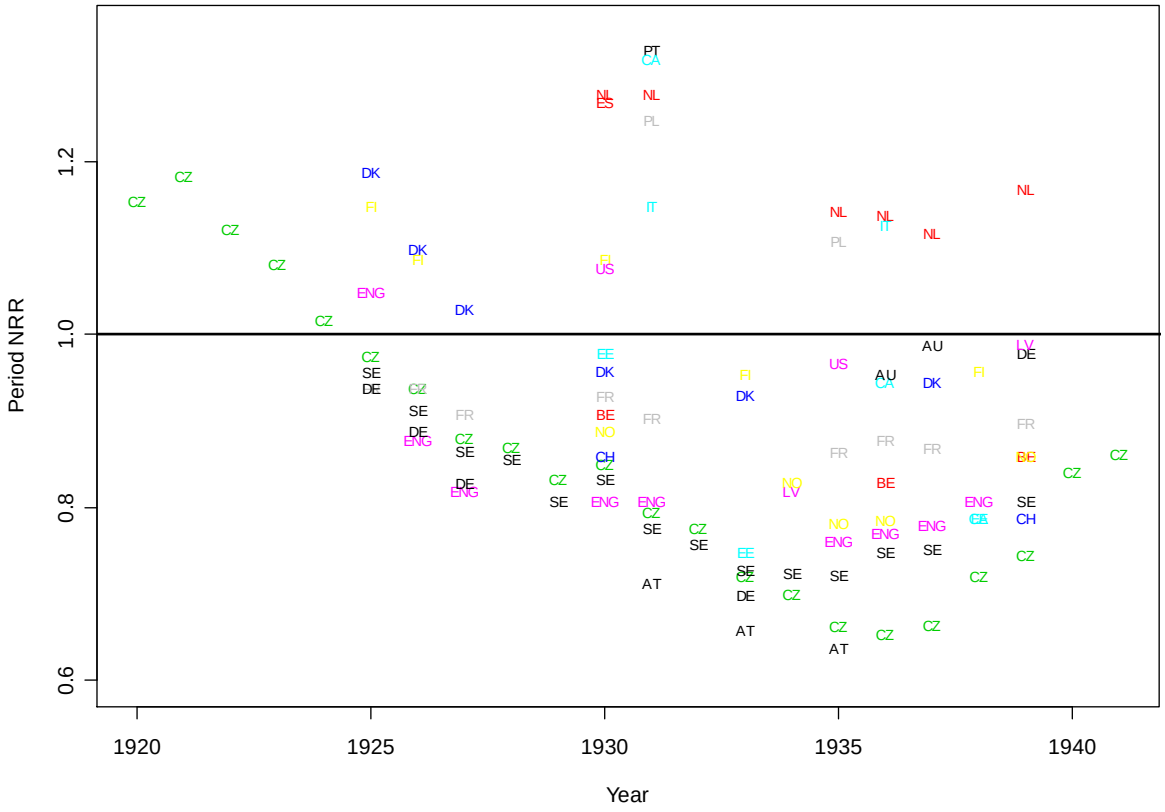
° Source: Chesnais (1992).

[$] Source: Kuczynski (1935); Kirk (1946).

[+] Source: Festy (1979).

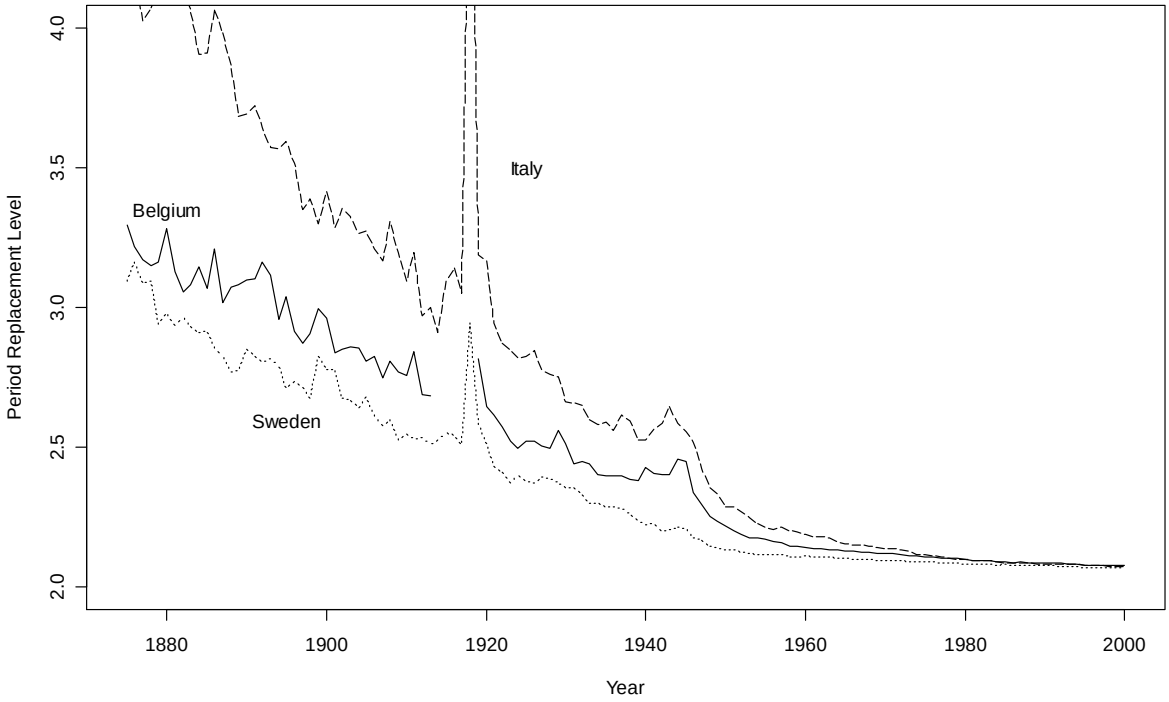
[&] Source: estimate based on Sardon (1991).

Figure 1. Net Reproduction Rates for 18 European countries plus Canada, the USA and Australia, 1920-1941



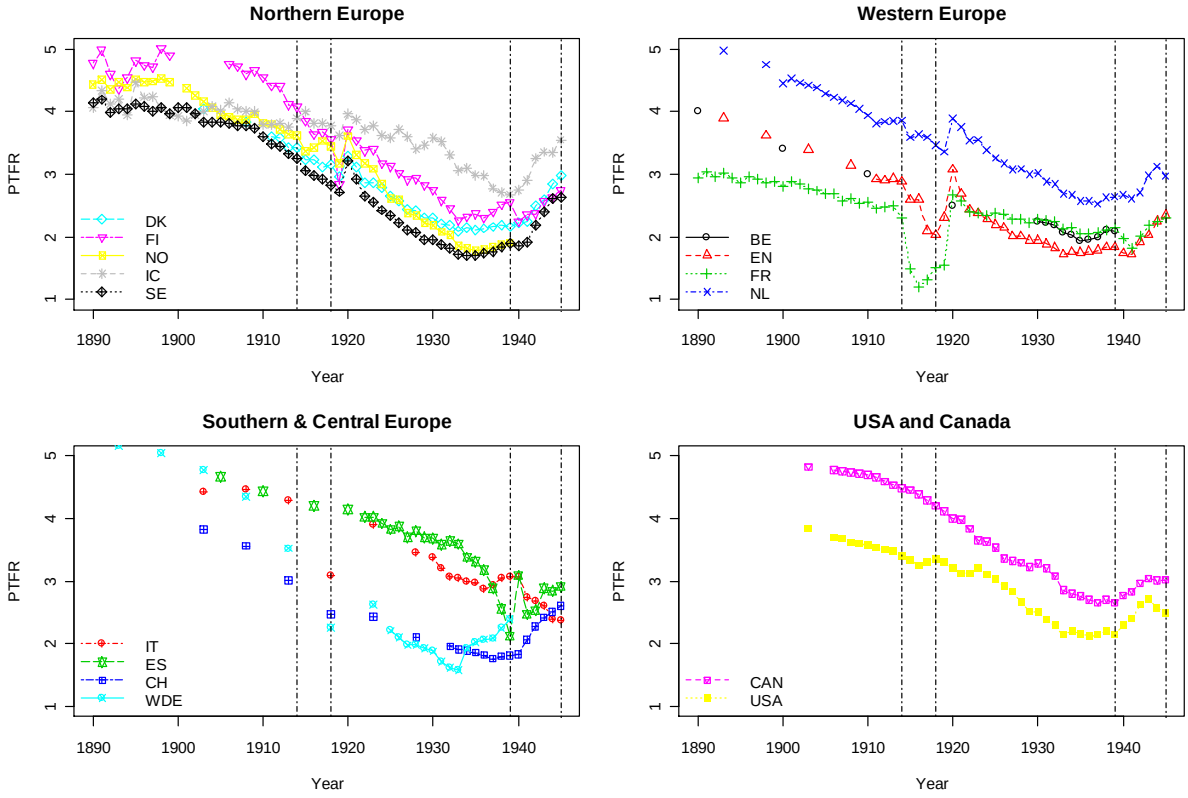
Sources: League of Nations, *Statistical Yearbook* 1930-1938; Kuczynski (1932; 1935); Kirk (1946); CZ series: Czech Statistical Office (CSU); West-European countries 1930-1941: Chesnais (1983; 1992); Australian Bureau of Statistics; Statistics Norway; Statistics Canada

Figure 2. Period level of replacement fertility in Italy, Belgium, and Sweden, 1875-2000



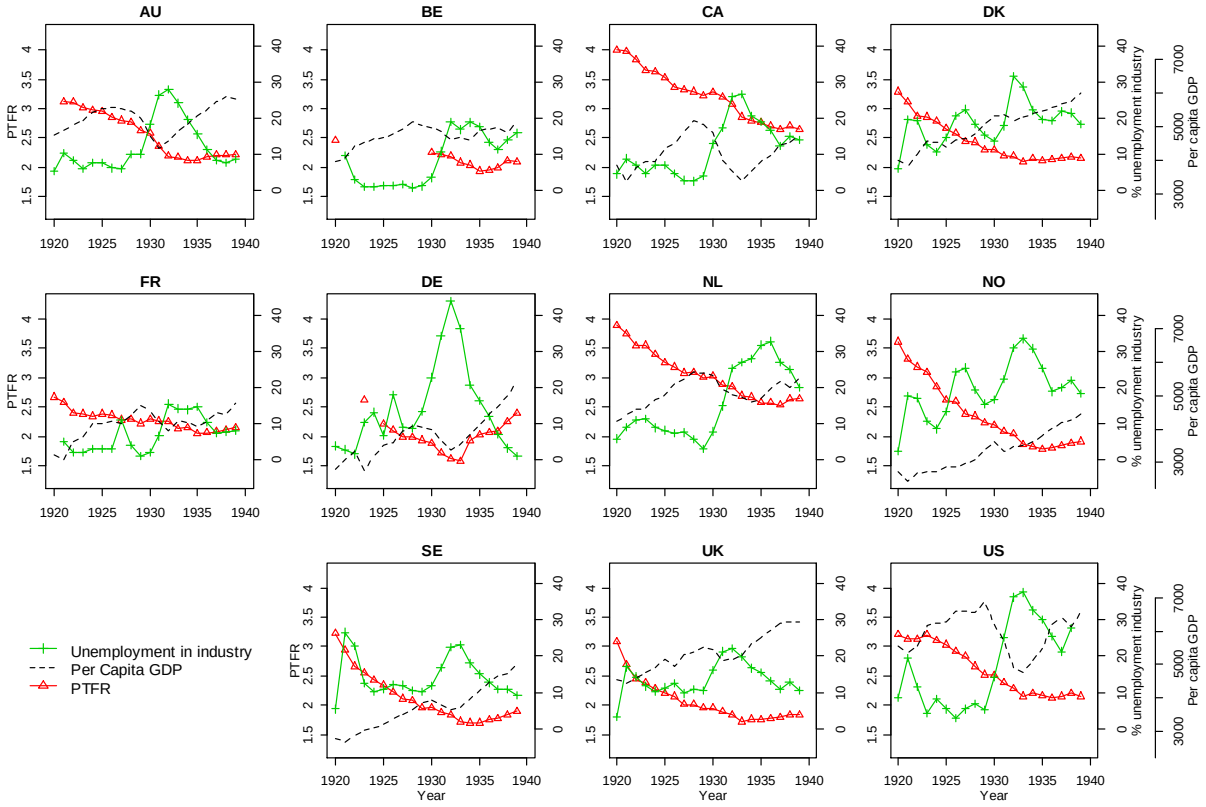
Source: own calculations based on period female life tables, taken from www.mortality.org

Figure 3. Period Total Fertility Rates for a range of European countries plus the USA and Canada, 1890-1945



Sources: Chesnais (1983; 1992); Statistics Iceland; Statistics Denmark; (Belgium) Debuisson et al. (2000); (the Netherlands) van Poppel (2001); Statistics Canada; League of Nations, *Statistical Yearbook* 1930-1938

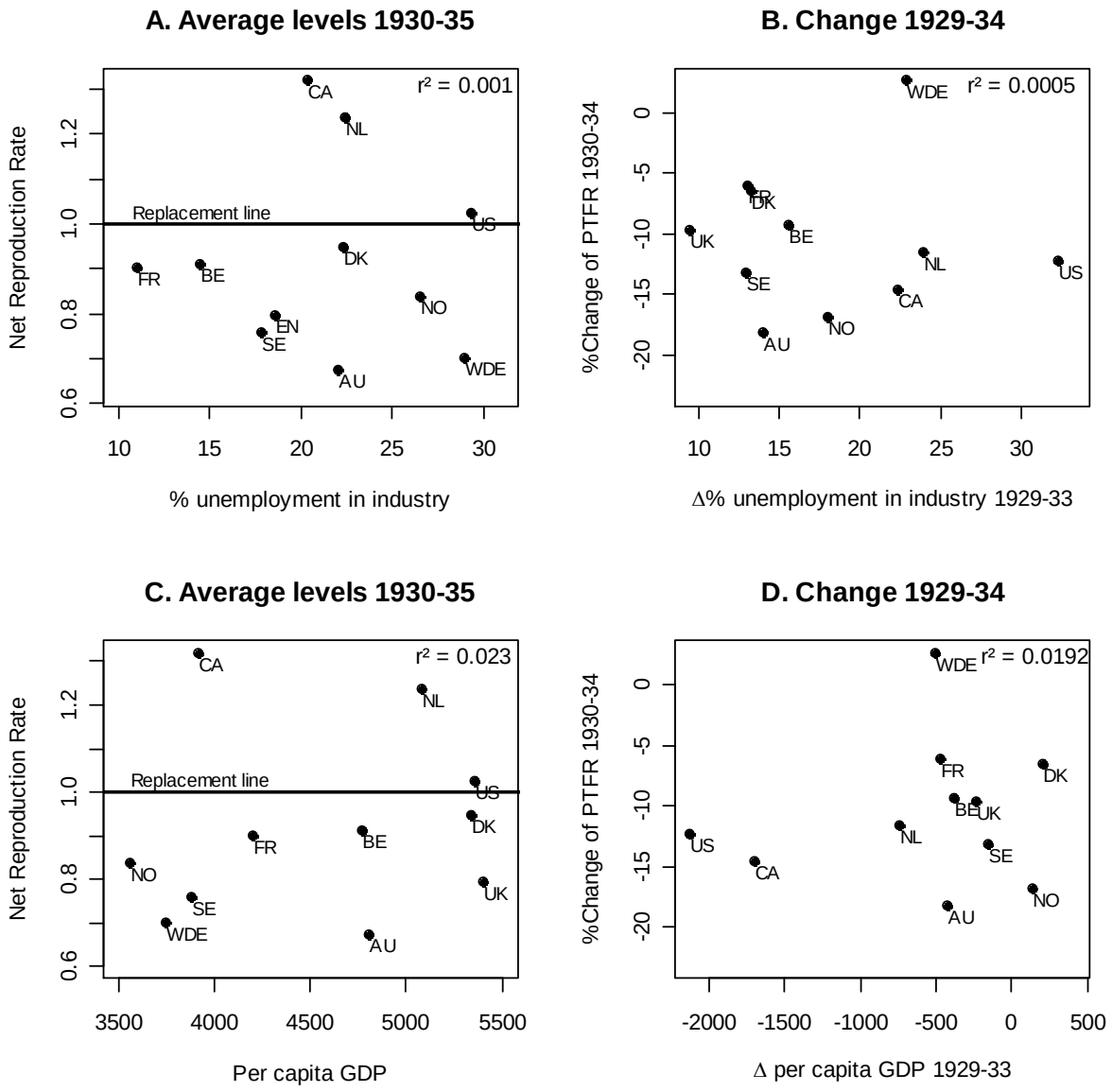
Figure 4. GDP per capita, unemployment in industry, and period total fertility rates in a range of Western countries, 1920-1939 (standardized scales)



Sources:

- Unemployment in industry: Eichengreen and Hatton (1988)
- Per Capita GDP: Maddison (2003)
- PTFR: same as Figure 3.

Figure 5. Net Reproduction Rates by unemployment in industry and GDP per capita (average levels in 1930-35); change in period total fertility rates by change in unemployment and GDP per capita between 1929 and 1934*



* The change in unemployment in industry was calculated as the difference between the unemployment rates in industry in 1933 and 1929 in percentage points (see Eichengreen and Hatton 1988 for sources of unemployment rates); the change in per capita GDP was calculated as the difference between the figures for 1933 and 1929; the change in period total fertility rates was calculated as a relative difference: the absolute difference in total fertility between 1934 and 1930 was divided by the total fertility rate for 1930.

Sources: same as figures 1 (NRR) and 4.

Figure 6. Secularization (as indexed by the percentage of non-Catholic votes in the 1919 elections) and Coale fertility indicators by district in Belgium, 1920-'30