Interuniversity papers in demography

Is low fertility only a temporary phenomenon in the EU?

R. Lesthaeghe

INTERFACE DEMOGRAPHY
VRIJE UNIVERSITEIT BRUSSEL

IPD-Working Paper 1999-1

Paper presented at the seminar on "the lowest low fertility", Max Planck Institute for Demographic Research, Rostock, 10 and 11 December, 1998

Interface Demography, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium
Tel: 32-2-629.20.40 Fax: 32-2-629.24.20 E-mail: esvbalck@vub.ac.be
Website: http://www.vub.ac.be/DEMO
Vakgroep Bevolkingswetenschappen, Universiteit Gent, Sint-Pietersnieuwstraat 49, B-9000 Gent, Belgium
Tel: 32-9-264.42.41 Fax: 32-9-264.42.94 E-mail: John.Lievens@rug.ac.be
Website: http://www.psw.rug.ac.be/dephome/bevowet

Is low fertility only a temporary phenomenon in the EU ?

R. Lesthaeghe

INTERFACE DEMOGRAPHY

VRIJE UNIVERSITEIT BRUSSEL

Pleinlaan 2, B-1050 Brussels

Fax ++32-2-629-2420 e-mail: rlestha@vub.ac.be

1. The question

All demographers know that the reduction in period fertility indicators since the mid 1960s or 1970s is partially caused by a postponement effect. Age-specific period schedules of fertility have been moving toward older ages in all EU-15 countries and in other western nations such as the US, Canada, Australia or New Zealand as well. However, demographers have also been debating - and sometimes quite vigorously - whether this tempo shift is the main culprit of low to very low period fertility. Those who point their finger in this direction also envisage that (1) cohort total fertility of younger generations would come much closer to replacement fertility (i.e. ±2.08 children) than current period rates indicate, and (2) that the mere end of postponement would result in a substantial increase in period total fertility rates (PTFRs). In other words, it is argued that the postponement effect cannot go on for ever, inter alia because of the biological clock, and that from that moment onward major increases in PTFRs should be expected. By the same token, population projections based on current period rates would be too pessimistic and the resulting levels of aging or rises in social expenditure would be overestimated.

In this paper we shall explore to what more precise extent recent and future childbearing postponement would result in depressing total period rates. The calculations are based on (1) an age + parity specific period model hinging on the annual amount of postponement as recently proposed by Bongaarts and Feeney (1998) and (2) on an explicit set of cohort recuperation scenarios as used by Lesthaeghe and Willems for the 1995

Belgian population projections (NIS & Planbureau, 1997). Furthermore, we shall explore various explanatory fertility theories to look for further clues about the possibility of trend reversals in fertility.

2. An application of the Bongaarts-Feeney model

Before going into the technical details of the model, it may be useful to quote these two authors on the nature and relevance of the problem. In their conclusion we find the following paragraph which also addresses the issue of low fertility in Europe (1998:285):

> "In general, tempo distortions exist as long as the timing of childbearing is changing. The issue of whether and to what extent fertility is depressed by tempo effects is a crucial one in many other countries. For example, by the mid-1990s the TFR in virtually every developed country had dropped below the replacement level of 2.1 births per woman and in some cases even below 1.5 (e.g. in Italy, Spain and Germany). If such low levels of fertility are maintained, they will eventually lead to declining population size and extreme population aging. Declining population would be salutory from points of view, but rapid population aging is likely to pose profound social and economic problems".

The passage above states the problem quite clearly. But the authors go on in a more optimistic tone:

> "By extrapolating current low levels of fertility into the future, analysts often unwittingly ignore the fact that these rates are temporarily depressed by a rising age at childbearing. Eventually, the age at childbearing will stop rising and the removal of this fertility-depressing effect might well result in a rise in the TFR, as has in fact happened in the United States in the late 1980s".

The explicit comparison with the US is crucial here, because the American PTFR approaches again 2.0 children in the early 1990s. Can this comparison be extended to the EU and would there be a return to replacement fertility (or close to it) if the fertility-depressing effect of later childbearing would be removed, i.e. when no further tempo shifts would occur?

To answer this question we shall apply the model proposed by these two authors to three EU-countries: one with very low PTFRs since 1985 (Italy), one with moderately low levels since 1975 (Belgium) and one with levels closer to replacement till the early 1990s (France).

The principle of the Bongaarts-Feeney model is simple. If the mean age of mothers at childbearing at any birth order i changes by an annual (or annualized) amount r_i, then the observed number of births of order i ($B_{i,obs}$) will be (1-r_i) times the number of such births had there been no change in their timing. Hence:

$$B_{i,adj} = B_{i,obs}/(1-r_i) \qquad [1]$$

The same principle can be extended to birth order-specific period total fertility rates ($PTFR_i$):

$$PTFR_{i,adj} = PTFR_{i,obs}/(1-r_i) \qquad [2]$$

Summation over all birth orders i then gives an overall $PTFR_{adj.}$, i.e. adjusted for the timing effect:

$$PTFR_{adj} = \sum_{n=1}^{n} PTFR_{i,adj} \qquad [3]$$

In this model we need data for birth order specific $PTFR_i$'s and also for birth order specific mean ages at childbearing, i.e. MAC_i's, from which we calculate the average annual change in tempo by birth order, i.e. $r_i = (MAC_{i,t} - MAC_{i,t-n})/n$. All these can be obtained from period fertility rates that are age and birth order specific, i.e. $f_i(a)$. Such data are not readily made available in published form. The major internationally comparative sources such as the Council of Europe's annual demographic reports or the UN demographic yearbooks only give data for all birth orders combined or for order 1 only (e.g. MAC_1 in the Council of Europe sources). Fortunately, Eurostat demographers have been keeping such birth order specific data for a number of EU-countries and we shall be able to use these for Belgium, Italy and France (courtesy of Mr. G. Cantisani, Eurostat). Birth order specific $PTFR_i$'s for other countries are also reported in W. Bosveld (1996: 190-193) in graphical form, drawing on the same source. Before turning to the results, we also need to point out, as Bongaarts and Feeney do, that the overall mean age at childbearing (MAC) is a weighted sum of birth order specific mean ages at childbearing (MAC_i). The weights w_i are simply the ratios $PTFR_i/PTFR$. Hence:

$$MAC = MAC_1.w_1 + MAC_2.w_2 + \ldots.. MAC_n.w_n \qquad [4]$$

Equation [4] explains why the overall mean age at childbearing may be stable or even declining, when in fact all birth order specific mean ages MAC_i are rising. This would occur if the higher birth order $PTFR_i$-values are rapidly declining, thereby resulting in shrinking values of w_i at these higher orders, and thus in rising values of w_i's for orders 1 and 2. Since low birth orders occur to younger women, MAC_1 and MAC_2 are being given a greater weight and the overall MAC would diminish. In fact, this feature has been witnessed in the US (Bongaarts and Feeney, fig. 4) and also in several EU-countries.

The results of the Bongaarts and Feeney model are brought together for our three countries in Table 1. First we give the values of the birth order specific period total fertility rates for several years ($PTFR_i$ for i = 1,2,3 and 4+). Since they add up to the overall PTFR, we can calculate the weights w_i, which multiplied by the birth order specific period mean ages at childbearing MAC_i will yield the overall MAC (see eqn [4]). For each period we can also obtain the annual increment in the values of MAC_i, and equation [2] will yield the adjusted $PTFR_{i.adj}$. for each birth order. The sum of these will obviously yield the overall adjusted $PTFR_{adj}$. which is to be compared to the recorded overall $PTFR_{obs.}$

During the period 1970-1980, there were relatively minor changes in the various birth order-specific mean ages at childbearing. In Italy, for instance MAC_1 remains constant, while MAC_2 and MAC_3 are even declining. In Belgium, there is a small postponement effect visible in MAC_1 and MAC_2 but MAC_3 and especially MAC_{4+} move in the opposite direction. In France, the postponement effect is more visible in rising values for MAC_1, MAC_2 and MAC_3. Hence, Italy and Belgium have values of r_i for this period that are close to zero or even negative, which means that the reduction in overall period fertility is not primarily due to a postponement effect. In Italy 1980, the $PTFR_{adj} = PTFR_{obs} = 1.64$, which is down from 2.33 in 1970, and in Belgium 1980, the values are respectively 1.67 and 1.70, down from 2.24 in 1970. Obviously, the overall PTFR values in 1970 were still quite high as a result of high $PTFR_i$-values. These came down at all birth orders to a significant degree by 1980. As indicated before, the postponement effect in France is somewhat more visible in the 1970s since the $PTFR_{adj} = 2.03$, which exceeds the $PTFR_{obs} = 1.95$ by a slightly greater amount. From this it is also clear that the $PTFR_{adj}$-values for Italy and Belgium fall short of the replacement level, while this is not the case for France.

During the period 1980-1990 the declines in the $PTFR_i$-values are much smaller in the three countries than during the previous decade, but the postponement effect is much larger. In fact, the values of MAC_1, MAC_2, MAC_3 all rise at average annual increments exceeding 1 month p.a. (from .088 years, i.e. r_3 in Belgium, to .180 years, i.e. r_1 in Italy). The tempo adjusted $PTFR_{adj}$ for the three countries should now significantly exceed the observed period total fertility rate for the end of the 1980s. This is clearly the case: in Italy the adjusted total rate is 1.60 compared to the already very low observed PTFR of 1.33; in Belgium the adjusted rate for 1988 is 1.81 against the observed value of 1.57; and in France, the adjusted rate for 1989 is still very close to replacement level at 2.01 against the observed rate of 1.79. Judging from the Bongaarts and Feeney adjustment procedure, an earlier halt to postponement would have brought French period fertility up to the American level and to replacement, but this would not have been true for Italy and Belgium.

For the period after 1990, we have to rely on the Italian series only till 1995. The birth order specific total rates are still declining in tandem with a marked acceleration of postponement at all orders. For orders 1 through 3, r_i is now in the vicinity of 4 months p.a. Evidently, without such additional postponement, the Italian adjusted PTFR would exceed the observed one to a considerable degree. As expected the figures turn out to be 1.69 for $PTFR_{adj}$ against merely 1.18 for $PTFR_{obs}$ in 1995. But while 1.69 is considerably less alarming than 1.15, the former is merely a hypothetical figure illustrating the impact of postponement in the past. The experience of Belgium and especially Italy are therefore not at all comparable to those of the US and of France till 1990.

There is more to this story. The Bongaarts-Feeney model operates with period data throughout. The values of $PTFR_3$ and $PTFR_4$+ and especially of MAC_3 and MAC_4+ pertain to older cohorts than those at lower birth orders. It may very well be that in a cohort perspective the future values of $PTFR_3$ and $PTFR_4$+ for younger cohorts will not be the same as those used here in a cross-sectional perspective. By the same token, the cohort values for MAC_3 or MAC_4+ that the younger cohorts will display are also likely to differ from the ones used here. Hence, the central issue then becomes whether or not cohorts that are currently in their twenties and have displayed considerable postponement for their first birth orders and for their fertility in general will be able to recuperate at older ages (i.e. mainly past age 30+) what has been lost during the start of their reproductive career. It is therefore essential to (1) turn to a cohort perspective as well, and (2) formulate explicit hypotheses about the degree of recuperation at older ages of postponement induced fertility deficits experienced at younger ages. In the next section, such a procedure will be illustrated with the cohort data for Belgium.

3. Evidence from cohort scenarios

As indicated, a better way to estimate what future PTFRs could be if the postponement trend would come to a halt can be based on explicit assumptions concerning future cohort behaviour. In most EU countries age specific cohort fertility rates clearly display the postponement effect and this trend has been continued for the younger cohorts as well. Up to the point of truncation for each cohort profile one can calculate what the deficit fertility has been relative to the preceeding cohort, and one can make subsequent assumptions as to the degree of recuperation that younger cohorts could have at later ages. Also, such completed fertility schedules for younger cohorts can be fixed in time, thereby simulating the end of further postponement. Such an exercise has been performed for the 1995-population projections in Belgium, and we shall present this example in greater detail.

The observed age specific cohort fertility rates for Belgian females are shown in Figure 1 for the generations born between 1950 and 1970. Obviously, the schedule is almost complete for the oldest cohort born in 1950, but for the youngest one born in 1970 only the start of the schedule is available. For cohorts who have already reached a maximum in the distribution, we have completed the schedule as shown in Figure 2. This completion implies almost a 100% recuperation at older ages of fertility lost at younger ages. For cohorts born in 1965 or earlier, these completed age specific cohort fertility rates were entered cross-sectionally and they will serve as fragments of future PTFRs.

For the cohort born in 1970, two "recuperation scenarios" were envisaged. First, compared to their predecessors born in 1965, the cohort of 1970 would be able to recuperate half of the postponement induced loss that occurred prior to age 28. This would bring their cohort TFR (CTFR) to 1.74. In the second scenario, the recuperation after age 28 is a full 100% and the CTFR would rise to 1.85 children. These scenarios are depicted in Figure 3.

From that point onward, a stop to further postponement was introduced for all cohorts born after 1970 and they were subjected to the 50% or 100% recuperation as previously defined. The implied evolution of the PTFRs is given in Table 2. From this it is clear that the restoration of higher fertility in these two scenarios will take some time. In the 50% recuperation scenario the PTFR would only rise from 1.56 in 1995 to 1.69 in

Table 1: Birth-order specific period total fertility rates ($PTFR_i$), their schare (w_i) in the period total fertility rate ($PTFR_{obs}$), birth-order specific mean ages at childbearing (MAC_i), and period total fertility rates adjusted for tempo shifts ($PTFR_{adj}$); three illustrative EU-countries.

	Birth order = 1			Birth order = 2			Birth order = 3			Birth order = 4+				
	$PTFR_1$	w_1	MAC_1	$PTFR_2$	w_2	MAC_2	$PTFR_3$	w_3	MAC_3	$PTFR_{4+}$	W_{4+}	MAC_{4+}	$PTFR_{obs}$ (all orders)	$PTFR_{adj}$ (all orders)
A. Italy														
1970	.939	.402	24.6	.755	.324	27.8	.370	.159	30.3	.270	.116	33.3	2.33	-
1980	.771	.470	24.6	.581	.354	27.6	.210	.128	30.2	.080	.049	34.0	1.64	1.64
1990	.628	.471	26.4	.466	.349	29.3	.160	.120	31.8	.080	.060	34.7	1.33	1.60
1995	.598	.508	28.0	.424	.360	30.8	.118	.100	33.2	.038	.032	35.1	1.18	1.69
r_i (1970-1980)			.00			-.02			-.01			+.07		
r_i (1980-1990)			+.18			+.17			+.16			+.07		
r_i (1990-1995)			+.32			+.30			+.28			+.08		
B. Belgium														
1970	.93	.415	24.4	.64	.286	27.0	.33	.147	29.5	.34	.152	32.7	2.24	-
1980	.80	.479	24.8	.54	.323	27.1	.21	.126	29.4	.12	.072	31.8	1.67	1.70
1988	.74	.471	26.2	.51	.324	28.1	.21	.134	30.1	.11	.070	30.6	1.57	1.81
r_i (1970-1980)			+.04			+.01			-.01			-.09		
r_i (1980-1988)			+.175			+.125			+.088			-.15		
C. France														
1970	.91	.368	24.0	.72	.291	26.8	.40	.162	29.1	.44	.178	32.6	2.47	-
1980	.82	.420	24.6	.68	.349	27.2	.31	.159	29.2	.14	.072	32.4	1.95	2.03
1989	.77	.430	26.2	.59	.330	28.5	.30	.168	30.4	.13	.073	33.3	1.79	2.01
r_i (1970-1980)			+.06			+.04			+.01			-.02		
r_i (1980-1989)			+.178			+.144			+.133			+.10		

Source: the data were made available by Mr. Gianbattista Cantisani from EUROSTAT demographic data files

Table 2: Evolution of period total fertility rates (PTFR) in Belgian fertility projections according to two scenarios of later age fertility recuperation for the cohort born in 1970 and a stop of further fertility postponement thereafter.

	Scenario 50%	Scenario 100%
1995 (observed)	1.56	1.56
2000	1.66	1.71
2005	1.69	1.78
2010	1.70	1.80
2015	1.71	1.82
2020	1.71	1.83
Ultimately	1.75	1.85

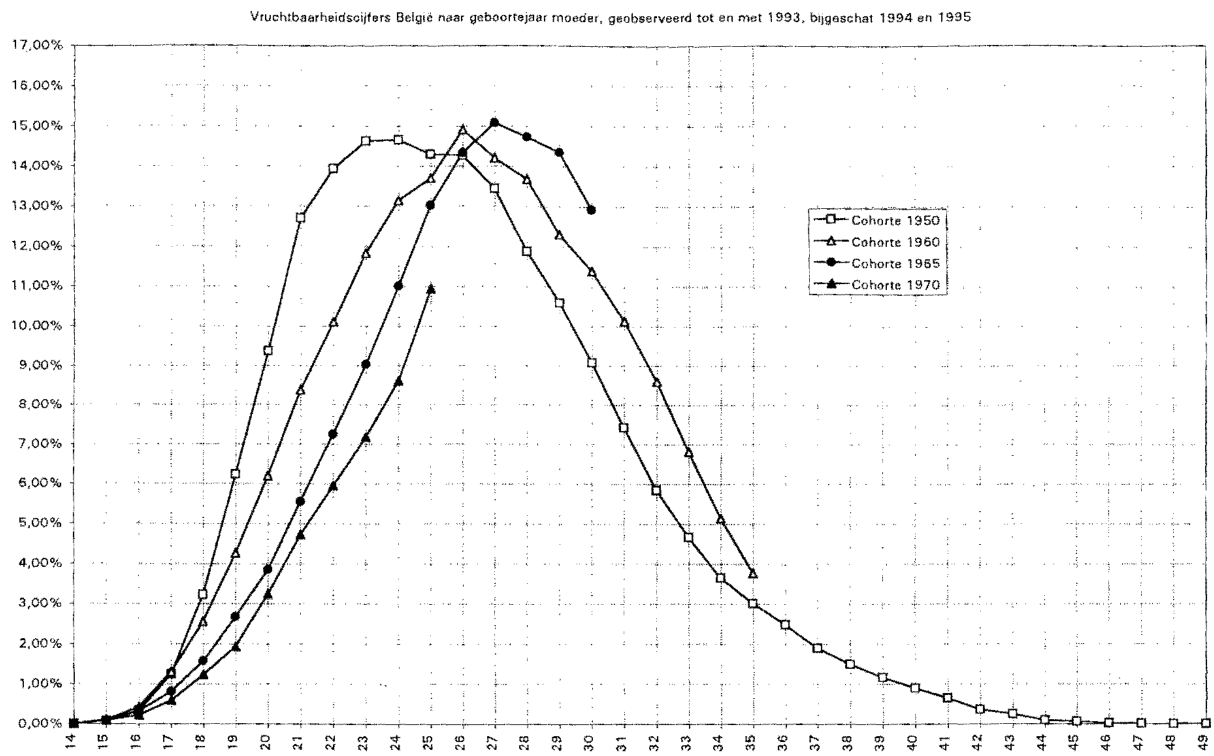

Figure 1 : Age-specific fertility rates for Belgian cohorts born in 1950-1970

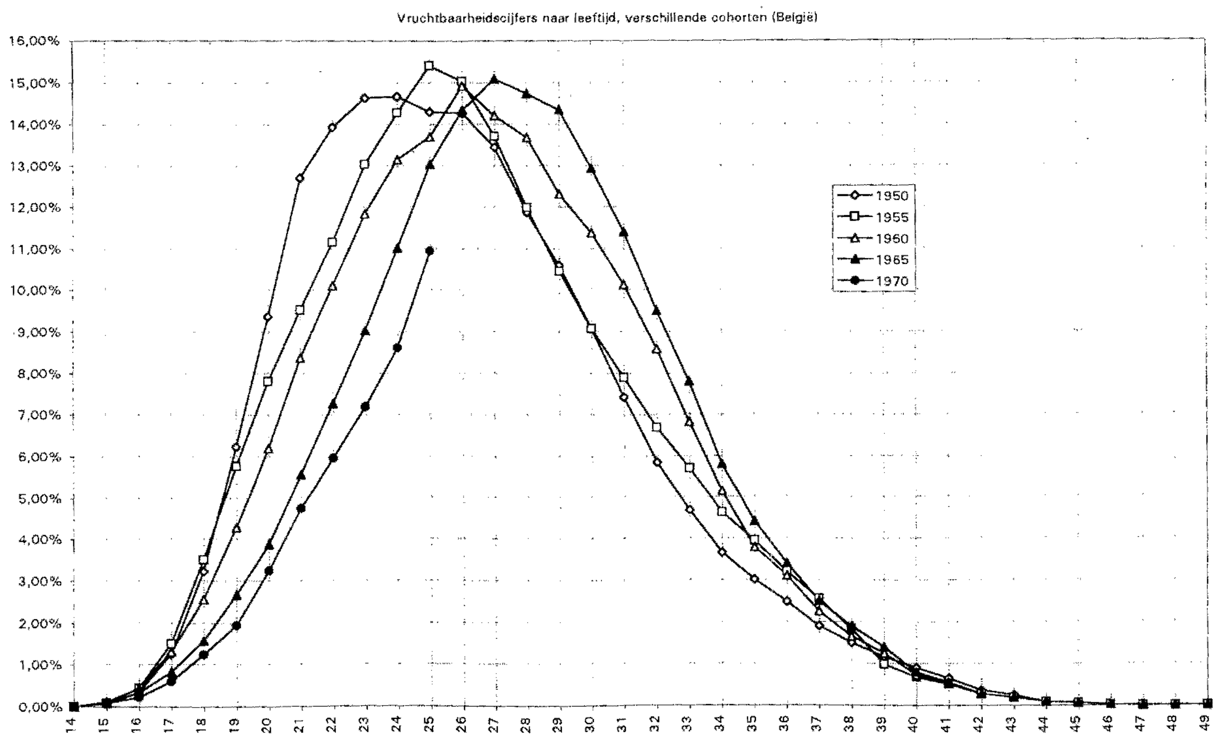

Figure 2 : Age-specific fertility rates for Belgian cohorts; projected schedules for cohorts born prior to 1970.

Source : P. Willems & R. Lesthaeghe in NIS-Planbureau (1997)

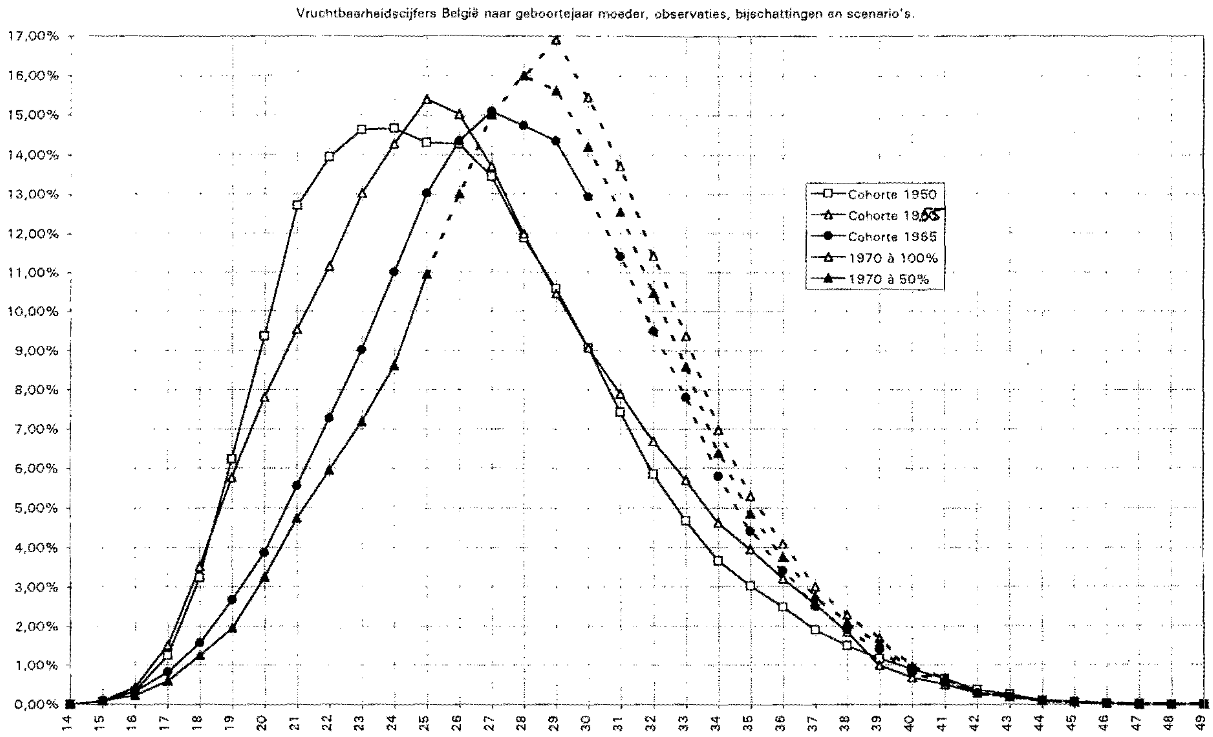

Figure 3 : Age specific fertility rates for Belgian cohorts; projected schedules and two scenarios of recuperation for the cohort born in 1970.

Source : P. Willems & R. Lesthaeghe in NIS-Planbureau (1997)

Table 3: Total fertility estimates for cohorts currently aged 30+ (CTFR) according to two sources, and most recent period total fertility rates (PTFR) in EU-countries.

Country	Cohort of '55 CTFR		Cohort of '60 CTFR		Cohort of '65 CTFR		PTFR 1995 or 96
	CE	ODE	CE	ODE	CE	ODE	
Ireland	3.34	2.68	na	2.40	na	na	1.91
Denmark	1.84	1.84	1.89	1.88	1.88	na	1.81
Finland	1.86	1.90	1.76	1.94	1.35	na	1.76
Luxemburg	1.69	1.69	1.73	1.75	1.77	na	1.76
France	2.13	2.13	2.07	2.09	na	na	1.72
UK	2.02	2.02*	1.97*	1.94*	1.86*	na	1.71
Sweden	1.90	2.03	1.90	2.03	1.90**	na	1.61
Belgium	1.82	1.83	1.81	1.84	1.76**	na	1.55
Netherlands	1.87	1.87	1.87	1.83	1.80	na	1.53
Portugal	na	2.00	na	1.86	na	na	1.44
Austria	1.77	1.76	1.67	1.68	1.57	na	1.42
Greece	1.83	2.00	1.46	1.92	1.24**	na	1.31
Germany	1.62	1.67	1.57	1.63	1.47***	na	1.29
Italy	1.83	1.79	1.69	1.63	1.59***	na	1.22
Spain	1.92	1.90	1.75	1.72	1.46	na	1.15

CE = Council of Europe estimate (source: Council of Europe (1997): Recent demographic developments in Europe - 1997, Strasbourg, Table 3.7)
ODE = Observatoire Démographique Européenne (source: F. Prioux (1998): "L'évolution démographique récente", Population 4:777)
*England & Wales only; **latest cohort = 1962; ***latest cohort = 1963; na = not available.

2005. Only in the full recuperation scenario is there a more sizeable increase. In both instances subreplacement fertility would continue thereafter, unless the quantum of fertility is raised or if there would be a major shift back of the fertility distribution to the younger ages.

The situation in the other EU-countries can be inferred from the cohort data in Table 3. In this table we have presented the completed CTFRs for the generation born in 1955 and various CTFR-estimates for the cohorts of 1960 and 1965. These estimates stem from the Council of Europe (1997) and from the Observatoire Démographique Européenne (1998). We do not possess any more detailed information about the assumptions and methods used by these sources in completing cohort fertility schedules.

The CTFRs for the 1955 cohort already indicate that, even in the absence of further postponement, most national PTFRs in the future could not possibly return to replacement level without major quantum changes or tempo reversals. Only France, Ireland, Sweden and the UK were exceptions. But, judging from the estimated CTFRs for the 1965 cohort, all EU countries would maintain subreplacement fertility even if no further postponement would take place. Now, only Ireland could be the exception. Furthermore, we know that the cohort of 1970 is starting at a slower pace than the 1965 cohort. Much will then depend on their degree of recuperation at older ages. Hence, the CTFRs for the generation born in 1970 are likely to be lower, not higher, than the ones estimated here for the cohort of 1965.

The conclusion is quite clear: a mere stop to further childbearing postponement would, in the large majority of EU countries, fall short of restoring PTFRs at or near replacement level. For this to happen more is needed: a major increase in the quantum of fertility and/or a complete reversal of the trend in the timing of childbearing. The diagnostic given by Bongaarts and Feeney for the US is not readily generalizable to most EU countries.

Finally, it would be very helpful if scenarios for completing fertility schedules for younger and incomplete cohorts were explicitly presented by sources that just publish outcomes. The presumed degree of recuperation at older ages of foregone fertility at younger ages is a crucial element determining the future PTFR trends.

4. What to expect for new cohorts?

So far we know to what levels PTFRs in the EU could eventually be rising if new cohorts were no longer to postpone childbearing and to adopt the fertility rates of the cohort born in 1965. The next issue is to find out whether or not such an evolution is a likely one. In other words , are there any recent economic, social or cultural trends in the EU that would be indicative of either a stop in postponement or a rise in the quantum aspect of fertility?

There are two dominant economic theories of western fertility change: (i) the theory of increased female autonomy, proposed by G. Becker (1981) and neo-classic economists, and (ii) the theory of relative economic deprivation advanced by R. Easterlin (1976) and colleagues (1990, 1991). In both theories rising female schooling and rising female employment play a significant part. In the first theory rising female education leads to increased opportunity costs for women, and therefore to lower fertility and to postponement of marriage and parenthood. In the second theory high and rising consumption aspiration can far better be satisfied in dual earner families, which leads to increased female labour force participation and concommittantly to postponement of parenthood and to lower fertility as well. As we have argued elsewhere (Lesthaeghe, 1998), these two mechanisms may be applicable to different social strata in western societies, but their outcome is similar. Occasionally, other arguments have been advanced, but they equally hinge on female education and earning capacity. V. Oppenheimer (1998), for instance, links increased female education to a prolonged search for a "minimally suitable match", and postponement then stems from a longer search in the marriage market governed by a taste for homogamy.

At present one could argue that the future gains in female education and employment are likely to slow down. The EU-countries could be moving toward the saturation part on a logistic growth curve of these two features. This means that the period of more rapid growth in female education and employment is behind us, and, similarly, that we have also experienced the period of the most rapid rises in mean ages at childbearing in the preceeding years and decades. In the near future smaller increments in female higher education and in female employment in the reproductive age span could bring the EU close to a stop in childbearing postponement. What to think about this argument?

Tables 4 and 5 give the latest female higher education enrolment figures and female activity rates in the EU. The argument above draws support from the enrolment rates: in most EU-countries female higher education participation has caught up with that of men aged 18-22, and in 10 of the 14 countries listed, female higher education enrolment figures now exceed that of men. With respect to labour force activity rates, there is still a longer

Table 4: Higher education enrolment rates, ages 18-22, in EU

	Male	Female	Ratio F/M
Finland 94	61.7	72.3	1.17
France 93	44.2	55.4	1.25
UK 94	46.0	50.8	1.10
Spain 94	42.7	49.8	1.17
Belgium 93	48.9	49.4	1.01
Denmark 94	42.1	48.2	1.14
Sweden 94*	50.8	47.7	.93
Netherlands 93	51.7	46.0	.89
Austria 94	45.3	44.3	.98
Italy 94*	37.8	43.6	1.15
Portugal 93	29.0	39.2	1.35
Greece 94	37.5	38.7	1.03
Germany 94	46.6	38.5	.83
Ireland 94	36.7	37.3	1.02

Source: UNESCO Statistical Yearbook 1997: table 3.2
*ages 19-23; no data for Luxemburg

Table 5: Female labour force activity rates by age (a) and ratio to male activity rates (b); EU 1996

		20-24	25-29	30-34	35-39
A. Northern EU					
Denmark	(a)	76.5	80.1	83.6	87.3
	(b)	.91	.89	.89	.92
Sweden	(a)	60.1	79.1	83.0	86.7
	(b)	.91	.92	.92	.96
Finland	(a)	56.0	75.4	81.8	87.2
	(b)	.79	.86	.87	.93
B. Western EU					
France	(a)	48.6	81.4	80.9	81.9
	(b)	.83	.88	.84	.84
Austria	(a)	71.4	79.7	75.7	75.6
	(b)	.97	.91	.80	.78
Netherlands	(a)	79.0	79.6	71.5	67.9
	(b)	.99	.86	.75	.71
Ireland	(a)	67.4	77.6	65.5	58.9
	(b)	.90	.84	.69	.63
Germany	(a)	67.7	74.0	73.0	74.8
	(b)	.87	.87	.77	.78
UK	(a)	70.3	(72.2)		na
	(b)	.84	(.77)		na
Luxemburg	(a)	60.5	69.0	61.0	57.1
	(b)	.91	.76	.63	.59
C. Southern EU					
Portugal	(a)	57.3	81.2	80.9	80.3
	(b)	.83	.90	.86	.84
Spain	(a)	56.6	73.9	64.5	61.7
	(b)	.90	.84	.68	.64
Italy	(a)	47.9	60.4	61.2	60.2
	(b)	.84	.74	.65	.63

Source: ILO Yearbook of Labour Statistics 1997: table 1A; no data for Belgium and Greece way to go, but nevertheless, female activity rates are close to 90% of male rates or in excess of that percentage in several northern EU-countries. Moreover, percentages above 85 are also being reached prior to age 30 in many more member states.

More problematic for the EU countries with the lowest fertility levels at present is that the stop in childbearing postponement could be further away. Germany has a low female enrolment in higher education and the lowest rates of females to males in this respect. Italy and Spain have higher proportions of young women in advanced education, but they still have room for a considerable increase in female activity rates in the ages between 25 and 40.

Judging from these criteria, the northern EU-countries, which incidentally do not have the lowest PTFRs, are the most advanced on the logistic growth curve of female education and employment. In most western EU-countries there is more room for rising female education and/or labour force participation, and hence the stop to childbearing postponement may be somewhat further away. In the southern EU, and particularly in Spain and Italy, female activity rates are still considerably below those of men in the crucial age groups, and any catching up by women may be associated with further childbearing delays.

To sum up, in most western and southern EU-countries there are still some gaps between economic positions of women and those of men, but if women were to close this gap, there would not be an immediate end to childbearing delays. Only, the latter could occur at a slower pace than generally witnessed in the period 1980-1995. Improvements in child care arrangements and in time use flexibility may alleviate the problem somewhat, but we should bear in mind that progress in this respect has by no means been able to stem the tide in the recent past.

A second set of theories connects changes in family building to changes in value orientations. For a number of western EU-countries consistent statistical associations have been found between value dimensions such as secularization, weaker civil morality, accentuation of individual autonomy, "post-materialism", symmetric gender roles, female emancipation, tolerance for new sexual groups on the one hand, and a preference for cohabitation over marriage, delayed parenthood and lower overall fertility on the other hand (e.g. Lesthaeghe and Meekers, 1986; Lesthaeghe and Moors, 1996). These statistical associations also proved to be robust for controls for socio-economic variables including female labour force participation, type of employment and education. Moreover, several of the value orientations tend to exhibit a cohort layering so that the mechanism of "social metabolism" (Ryder, 1965) may play a role. In this mechanism cohorts with older value systems leave the reproductive age span and they are replaced by younger cohorts with new orientations. Today, the cohorts which were socialized in the 1960s, and who made a clear break in value orientations compared to their predecessors, have now left the reproductive ages. Cohorts socialized in the later 1970s are replacing them, and it may well be that these new cohorts are less "revolutionary" than those with their formative years in the 1960s and early 1970s. There is in fact some statistical evidence in support of this hypothesis. Birth cohorts reaching the age group 20-29 in 1990 in Germany, France, Belgium and the Netherlands, for instance, were only marginally progressing on the Inglehart "post-materialism" scale, on libertarian civil morality, on secularism or on non-traditional family values compared to cohorts reaching this age group in 1980 (Lesthaeghe and Moors, 1995). There was not yet a clear return to older values. In Spain and Italy some catching up was still taking place during the whole of the 1980s, but the loss of momentum in the value changes may also be occurring by now. We have to wait for the next round in the European Values Studies, scheduled for 2000, to get a firmer idea about the developments in these value orientations among the youngest cohorts (i.e. those born around 1975).

The story on the ideational side seems to be that changes were definitely losing momentum by the end of the 1980s, but that it is too early to speak of a genuine trend reversal. Only if this were to happen would we consider a demographic turn around to be a more plausible outcome.

Besides the mechanisms specified in these economic and cultural theories, there are also several other factors which should be taken into consideration. First, the various components of the new patterns of family formation in the EU are not connected in the same way in all countries or regions. For instance, in some parts of the EU the rise in premarital cohabitation has been associated with delayed parenthood, whereas in other parts extramarital births increased almost simultaneously with rising cohabitation. In the northern EU any further increments in premarital cohabitation may not have an impact on the timing of fertility anymore. The western EU, by contrast, is far more heterogeneous in this respect. In France, for instance, the rapid rise in extramarital births seemed indicative of the fact that many cohabitants were not postponing the first birth until the union was converted into a legal marriage. But in the Netherlands, with an equally high incidence of premarital cohabitation, first births tended to occur after legal marriage and late in life. Belgium provides an example with a strong regional contrast. In Flanders cohabitation postpones parenthood quite clearly, and births typically remain within legal marriage, whereas in Wallonia first births occur at younger ages and much more within the context of cohabitation. Overall fertility in the southern part of Belgium is now significantly higher than in the northern part, which is a historical trend reversal. Overall, the general trend in the western EU countries is that parenthood and legal marriage are becoming increasingly disconnected. This acts in favour of less postponement of first births.

But the story for the southern EU may be very different again. These countries still have low levels of premarital cohabitation and any future rises may be associated with further delays in fertility timing. But, there too some heterogeneity with respect to the link between cohabitation and out of wedlock fertility may be in the making. In Spain and especially Portugal extramarital fertility is rising more rapidly than in Italy, which could be indicative of the fact that premarital cohabitation is spreading more quickly on the Iberian peninsula and, furthermore, that this is leading to less postponement of first births. On the whole, however, any catching up in the southern EU of cohabitation is likely to be associated with some further fertility delays, whereas this may no longer be true for the rest of the EU.

Another cause of delayed and foregone fertility is separation (of cohabiting couples) and divorce. The reason for this is not solely an increase in total time spent without partner, but also the increased reluctance to make further strong commitments such as a second marriage or continued childbearing. Hence, more persons spend more time as single divorcees, as single parents, or as post-divorce cohabitants, with or without children from earlier unions. These features are definitely not conducive to a reversal of the trend in fertility timing. However, if separation and divorce rates were to stabilize, the fertility schedules could remain late, but no further postponement would be caused. It should again be noted that the situation in the EU is highly heterogeneous with respect to separation and divorce rates, and that again the southern EU could still witness further fertility postponement or depressing effects stemming from rising union instability.

5. Conclusion

The Bongaarts-Feeney model based on birth order specific period data provides an elegant and useful tool to explain to what extent timing delays in childbearing have depressed total period rates in the past. The data used in their model are all related to what happened in the preceeding period. Therefore the model is not to be recommended as a prospective tool: the adjusted PTFRs are not the levels to be expected in the future given the absence of further delays (unless one could reasonably assume that birth order specific PTFRs are to remain constant as well). For prospective purposes we prefer to work with explicit assumptions concerning cohort behaviour. As shown with a simple example, one can easily model a stop to further postponement from a given cohort onward. Moreover, and this is an essential ingredient, one is also forced to make explicit assumptions about the degree of recuperation, mainly after age 30, of fertility foregone at younger ages. In other words, one needs to say something about both, timing and quantum of fertility. Sources that publish the projected cohort fertility outcomes do not given any further information about the underlying tempo and recuperation assumptions. These published figures lose much of their value as a result of this.

Furthermore, the cohort completion perspective allows for a link between the fertility assumptions and the expected course of relevant explanatory variables. Hence, this perspective invites us to specify what the prospective increments could be, say for the next decade, in key determinants such as female education, female labour force participation, ideational change and patterns of union formation and instability. Since these changes are occurring for successive generations, the explicit demographic cohort perspective with its built in uncertainty seems to be the most straightforward way to address the problem. In short, fertility projections should be based on such scenarios.

The outcome for the EU is that, unlike the US, period total fertility rates are highly likely to remain below the replacement level even if the trend toward childbearing delays were to stop. Even in this eventuality, the subsequent recuperation of fertility foregone prior to age 28-30 by the youngest cohorts (i.e. born after 1970) may not reach a full 100%. However, in the northern and some western EU-countries the economic, cultural and other demographic determinants of past childbearing delays seem to be losing momentum. In these countries a stop to further fertility postponement is more likely. By contrast, in some other western EU-countries and especially in the southern EU there is still more room for larger increments in these explanatory variables, and the end of childbearing postponement could be further away. Not only replacement fertility within the next decade is therefore unlikely, but also the end of very low fertility (PTFR<1.5) in several large EU-populations may not be for the immediate future either.

References

Becker, G. (1981): A treatise on the family, Harvard University Press, Cambridge, Mass.

Bosveld, W. (1996): The ageing of fertility in Europe, Thesis Publishers, Amsterdam.

Bongaarts, J., Feeney, G. (1998): "On the quantum and tempo of fertility", Population and Development Review, 24(2): 271-291.

Council of Europe (1997): Recent demographic developments in Europe, Council of Europe Publishing, Strasbourg.

Easterlin, R. (1976): "The conflict between aspirations and resources", Population and Development Review 2(3): 417-426.

Easterlin, R., Crimmins, E. (1991): "Private materialism, personal self-fulfilment, family life and public interest: the nature, effects and causes of recent changes in the values of American youth", Public Opinion Quarterly, 55: 499-533.

Easterlin, R. Macdonald, C., Macunovich, D.J. (1990): "How have American baby boomers fared? Earnings and economic well-being of young adults, 1964-1987", Journal of Population Economics, 3(4): 277-290.

Lesthaeghe, R., Meekers, D. (1986): "Value changes and the dimensions of familism in the European Community", European Journal of Population, 2: 225-268.

Lesthaeghe, R., Moors, G. (1995): "Is there a new conservatism that will bring back the old family? Ideational trends and the stages of family formation in Germany, France, Belgium and the Netherlands 1981-1990", in EAPS-IUSSP: Evolution or revolution in European Population, Franco Agnelli Publishers, Milano: 225-266.

Lesthaeghe, R. Moors, G. (1996): "Living arrangements, socio-economic position and values among young adults - A pattern description for France, Germany, Belgium and the Netherlands", in D. Coleman (ed): Europe's population in the 1990s, Oxford University Press, Oxford: 163-221.

Lesthaeghe, R. (1998): "On theory development and applications to the study of family formation", Population and Development Review 24(1): 1-14.

Nationaal Instituut voor de Statistiek, Federaal Planbureau (1997): Bevolkingsvooruit-zichten 1995-2050, NIS, Brussels.

Observatoire Démographique Européenne (1998): "Evolution récente de la fécondité en Europe occidentale", L'observatoire démographique européen vous informe, 6 (quoted in: F. Prioux: "L'évolution démographique récente", Population 53(4): 771 & 777).

Oppenheimer, V. (1998): "A theory of marriage timing", American Journal of Sociology, 94: 563-591.

Ryder, N. (1965): "The cohort as a concept in the study of social change", American Sociological Review, 30: 843-861.