Postponement of age at first birth and total number of children in Europe

Ronald C. Schoenmaeckers
Edith Lodewijckx

Preamble
The analysis is not yet finished and therefore we cannot present a completed paper at this time. The analysis is not yet finished because the work started much later than planned. We could give some 100 plus excuses why the analysis was not started as scheduled. We will not go into this because this is not your concern. However, on the following pages we hope to persuade you that the analysis is well under way and that there are some promising results; the analysis will lead to some serious suggestions for the next round of ‘FFS’ surveys and the results imply, perhaps not surprising, but definitely interesting policy implications. The following pages clearly indicate the steps followed in the analysis and is as such a close outline of how the definite paper will look like. They are probably sufficient to decide whether the analysis should be given explicit attention at the Conference or not. The final version, completed in accordance with the rules set out by the Organising Committee will be submitted by the end of March, beginning of April.

1. Introduction

The starting point of the analysis is the comment of Roland Pressat made at the European Population Conference of 1991 in Paris (Pressat, 1991), where he stated that (European) populations are postponing their first birth to such extent that it can be considered unlikely that any ‘recovery’ of fertility at older ages would fully compensate for the ‘loss’ of the number of children incurred at young age. Somehow this is one way of saying that the low fertility that is observed during the last decades is the direct result of the late start of childbearing[1].
But to what extent must low fertility be considered the direct result of postponing the start of childbearing? Surely other factors must be involved. This paper tries to give an answer to these questions. From the FFS data it can be derived that ‘postponement’ (or the timing of first birth) is definitely not the sole or single most important factor of the ultimate number of children. According to the results, ‘postponement’ must be seen as just one (important) facet of what some researchers[2] like to identify as the ‘second demographic transition’; it can be argued that the ‘postponement’ of childbearing is a behaviour derived from the general desire of couples of only having a limited number of children, 2 and, circumstances permitting 3, but not more. Other factors however that greatly determine the ultimate number of children are the work career and the partnership history.

2. The data set

In studying the level of fertility the female population can be decomposed into two groups: those women with children and those women who remain childless. In the first group a further distinction can be made between those with a number of children below average (less than 2), those with a number of children equal or close to average (2) and those with a number (clearly) above average (3 and more). This is the group here under study and the focus of the analysis is on the subsequent number of children after a

---

[1] The new patterns of fertility and its determinants have already been dealt with in a vast number of papers (xxlit). For a general overview of the phenomenon, see R. Schoenmaeckers & Lodewijckx (1997).

[2] Lesthaeghe & van de Kaa (1986).

women has experienced a first birth[3]. Obviously the ideal data set are women who have completed their birth history. Unfortunately, only some countries in the FFS data set include birth cohorts of women who meet this criterion[4]. It is judged that parity at age 40 would be a fair substitute for completed fertility[5]. It was decided to base the analysis on 4-year birth cohorts. This should guarantee sub-samples of a reasonable size while at the same time ensure that the women in the analysis all have more or less the same 'life line' over time (this can be illustrated by drawing a Lexis diagram). However, because of the variation in the age range and because most surveys have been conducted at different points in time (between 1989 and 1998) it appears impossible to select the same birth cohorts for all countries. The final choice is given in the table below[6].

country (abreviation used in figures)	**birth cohorts**	**availibility of parity at age 40 ***	**number of observations (unweighted)****
region North:			
Finland (Fin)	1945-48	yes	603
Norway (Nor)	1945	yes	534
Sweden	1949	yes	642
region West:			
Austria (Aus)	1952-55	yes	485
Belgium (Bel)	1952-53	age 37	297
France	1950-53	yes	408
Western Germany (WGer)	1952-54	age 37	432
region East ***:			
Bulgaria	1952-56	yes	607
Czech republic	1952-55	yes	
Eastern Germany (EGer)	1952-54	age 37	
Hungary (Hun)	1952-53	yes	
Latvia (Lat)	1951-54	yes	
Lithuania (Lit)	1950-53	yes	
Poland (Pol)	1947-50	yes	
region South:			
Italy (Ita)	1951-54	yes	
Portugal (Por) ***	1950-53	yes	599
Slovenia (Slo) ***	1950-53	yes	
Spain (Spa)	1950-53	yes	441

* Is function of the timing of the survey and the choosen age range.

3 In studying the second group the main focus of the analysis could be the timing of first birth whereby those who remain childless would constitute to be a special subgroup.

4 Of the 19 countries of which data sets are available (former West - and East Germany are treated here as two separate entities), only 10 include women of age 45 and above at time of interview.

5 Of two countries parity at age 40 cannot be calculated (Belgium and Germany) and must be worked with parity at age 37.

6 The regional classification is taken over from Schoenmaeckers and Lodewijckx (1997) and actually stems from the classification used by the Council of Europe, more particularly the statistical publication *Recent demographic developments in Europe*.

** Women with at least 1 live birth.
*** Eventually not included in the analysis (see further below).

3. Pattern of change in age at first birth as observed from survey-data

The figures of series 'A' are a test to check whether the trend of postponing the first birth is present in the all FFS data sets. This is done on the basis of a comparison in the average age at which 20%, 40%, 60% and 80% of women of two different birth cohorts born 10 years apart have a first birth[7].
The trend can easily be distinguished in the data for the countries of the West and the North region. In the West it is clearly present in all countries; this is also true in the North, Norway being somewhat the exception with the 'postponement' only apparent at the 60% mark. In the South region it only clearly appears for Italy. In Portugal and Spain there is only an indication for 'postponement' at the 60% mark; but at the same time both countries indicate a lowering of the average age at the 20% mark (and Portugal also at the 40% mark). Slovenia shows a completely different picture altogether. It should not really come as a surprise that Slovenia shows a picture similar to the one found in all the countries in the East region. Here, there is no indication of postponement of the first birth in the data. In fact, the contrary is true. In nearly all countries there appears a (slight) decrease of the average age at which 20% of all women have experienced their first birth. They —the countries in the East region and Slovenia— also clearly distinguish themselves from the other countries by the fact that 80% of all women have experienced the first birth well before age 30, in most cases before age 28 (former East Germany even before age 26).
Apparently, the data of the countries in the East region —i.e., the 'countries with economies in transition'— do not show any clear indications of a late start in childbearing. The socio-economic circumstances are[8] quite different from those of the other European countries, and there is therefore no reason to expect identical or even similar patterns of childbearing. It was therefore decided to exclude the Eastern European countries, including Slovenia, from the rest of the analysis. For the same reason it was also decided not to include Portugal further in the analysis[9]

4. Age distribution at birth as can be observed up to age 40, by level of education

It is common thinking to associate late childbearing to the new position and role of women in society, and more particularly the fact that many more women have reached better education levels, implying prolonged schooling. As in many other analyses level of education is also used here as a 'main' explanatory variable[10].

---

7 Results are based on life table estimates. For the sake of comparison for all 'younger' birth cohorts the same 'cut-off' point was chosen, i.e. age 30 (age 27 for both Belgium and Germany)

8 Somehow 'were' is of course more appropriate. The FFS-data and more particularly the data of the cohorts born before 1965 do not reflect the present situation that evolved since the breakdown of the communistic regimes.

9 Another argument not to include Portugal in the multivariate analysis below was the very low number of women in the data set with higher educational levels (xx), which will be used as a main explanatory variable. Spain has been retained in the analysis because the similarity between Spain and the countries in the East region is less obvious; furthermore, although also in Spain the available number of observations is an issue of concern, the problem is less severe than in Portugal.

10 In the SRF level of education has been defined in Isced code (International Classification for Education). Isced 0-2 corresponds to the lowest levels while Isced 5-6 correspond to the highest educational levels. Unfortunately, as already shown in other international comparative research, the use of this international classification is not

As a preliminary step to assess the effect of prolonged education on late childbearing the data of the ‘older’ and ‘younger’ birth cohorts already used in the series ‘A’ figures are standardised for level of education. The underlying reasoning is simply that the differences in the age pattern observed between the ‘older’ and ‘younger’ birth cohort should be greatly reduced if the data are not influenced by differences in the distribution by level of education. This is however not what is always observed[11]. The countries with the greatest reduction in the differences are Italy (-63%), Belgium (-59%) and France (-28%). Only for these countries it can be said with some confidence that better educational attainment must to a great extent be responsible for the observed increase of age at first birth (in all countries the pattern is clearly observed in figures ‘A’). But other countries, such as Sweden and Western Germany, present a picture of a ‘reverse’ trend, i.e., of an *increase* in the differences (+6% and +7%, resp.). The conclusion that can be drawn from this straightforward test is that only in a limited number of countries late childbearing is possibly a ‘mechanical’ response to prolonged education, but that, no doubt, there must be other (important? cultural? socio-economic?) factors determining the start of childbearing.

The figures of series ‘B’ are a description of the age distribution at 1st, 2nd and 3rd birth as is observed up to age 40, by level of education. The age distribution is represented by curves and by block diagrams, the latter indicating the ages corresponding to the first and third quartile of all births[12]. Furthermore, both the curves and the diagrams are scaled for the proportion of women with a 1st, 2nd and 3rd birth. The figures permit to observe simultaneously for each country the timing as well as a proxy for the ‘parity progression ratio’ between the first three births, here grossly indicated by the proportion of women with a 1st, 2nd and 3rd birth.

It is no surprise to observe that, in general, women with a higher level of education have their children in general at a later age than women with a lower level of education. On the basis of the diagrams it is also clear that the spread in the timing is smallest for women with the highest educational level. However, a later start does not necessarily imply having ultimately less children. In six countries (Finland, Norway, Belgium, France, Italy, Spain) women with a university degree (or equivalent) have an equal or even higher number of children than women with a diploma of secondary school. (It must be kept in mind that the data are truncated (at age 40). It can be reasonably assumed that the truncation effect is more severe for the categories of higher education, implying that, if anything, the downward bias must be highest.)

The explanation for the higher number of children for women with a higher level of education are of course that in this group also higher parity progression ratios are observed. Belgium and France are good examples in this respect; but at the same time there are also remarkable differences between the two countries.

---

without problems (Beets, 1997; Callens, 1999). It was therefore decided to apply a country-specific classification, based on the observed distribution by level, resulting in the following: level 1 (low, Isced=0,1,2), level 2 (medium, Isced=3), level 3 (high, Isced=4,5,6) in Austria, Belgium, Czech Republic, Finland, France, Eastern Germany, Hungary, Italy, Poland, and Sweden; level 1 (Isced=0,1,2), level 2 (Isced=3,4), level 3 (Isced=5,6) in Bulgaria, Lithuania, Norway, and Slovenia; and finally level 1 (Isced=0,1), level 2 (Isced=2,3), level 3 (Isced=5) in Portugal.

11 In practice the distribution for educational level as observed in the ‘oldest’ cohort was taken as the standard and the actual comparison was based on the sum of the quadratic differences of the proportions with a first birth at each age, calculated up to age 30.

12 Contrary to what could be expected the percentage values do not correspond to life table estimates. The decision to derive the percentage values directly from the births already experienced seemed justified because the women involved are all of age 40 and over (except in the case of Belgium and Western Germany: age 37). Also, the main objective here is not to estimate the average age at which women give birth to their 1st, 2nd and 3rd child. The objective is rather to grossly discertain the differences in the pattern (intensity, timing) between the first three successive births (of rank order 1, 2, and 3) after controlling for level of education. The exercise would have been hampered with the use of life table estimates because of the small numbers of observation involved and because of the fact that the estimates are based on ratios (births over ‘all’ women with no birth, with a 1st birth, with a 2nd birth).

Percentage of women with a 1st, 2nd and 3rd birth and parity progression ratios between first three births, and parity at age 37/40, by level of education, in Belgium and France

	education level 1			education level 2			education level 3		
	1st birth	2nd birth	3rd birth	1st birth	2nd birth	3rd birth	1st birth	2nd birth	3rd birth
					Belgium				
proportion of women	.								
with a birth	899	.698	.252	.876	.660	.186	.925	.813	.300
parity progression ratio	.90	.78	.36	.88	.75	.28	.93	.88	.37
observed parity at age 37	---	1.95	---	---	1.99	---	---	2.10	---
					France				
proportion of women									
with a birth	.926	.721	.505	.934	.679	.292	.875	.713	.350
parity progression ratio	.93	.78	.70	.93	.73	.43	.88	.81	.49
observed parity at age 40	---	2.53	---	---	1.95	---	---	1.96	---

In both countries the highest parity progression ratios from 1st to 2nd birth are found among women with the highest educational level (with the result that in Belgium the *proportion* of women with a third birth is higher among women of educational level 3 than among women of educational level 2). However, in Belgium it is also among these women that childlessness is lowest. This is definitely not true in France. The high parity value at age 40 that is observed in France for women with educational level 3 as compared to those with educational level 2 (1.96 vs. 1.95) is due to the higher parity progression ratios between the higher rank order births. There is also a remarkable difference between Belgium and France when the values of the women with educational level 1 are compared. The much higher parity observed in France is essentially due to a higher parity progression ratio for women with already 2 children (.70 vs. .36). In fact the higher progression to a third birth in France is observed in all categories of education.

Another remarkable feature that can be observed from figures ‘B’ is the pattern that emerges in the Scandinavian countries. Here the pattern of change in the proportions of women with a 1st, 2nd and 3rd birth (and hence also the parity progression ratios) is remarkably similar between the three educational groups, at any rate more so than in the other countries. This is especially the case for Sweden. The result is that in the Scandinavian countries all women have similar total fertility levels, regardless of educational attainment. For example, in Sweden, the difference between the highest and the lowest total number of children observed is only 4%; in France on the other hand it is as high as 23%[13].

Clearly, age at first birth cannot be the sole factor determining the total number of offspring women have.

5. Patterns in timing, proportions of women with a 1st, 2nd and 3rd birth and ‘total fertility’, by level of education

The shortcoming of the series ‘B’ figures is that they only allow an analysis on a per country basis. In the search for a common pattern —‘regional’ (North, West, South) or ‘European’— the data were rearranged, keeping the information to a minimum, so that the results could be presented on a per region

[13] This is not the highest percentage which is recorded for Italy (24%). The other countries show the following differences: Finland (6%), Norway (11%), Austria (11%), Belgium (8%), Western Germany (13%), Spain (16%).

basis. The results are the series 'C' figures.
The results are as before controlled for level of education. The diagrams in light grey indicate the parity value for each level; the diagram in dark grey indicate the country average. The figures also include data on the 1st, 2nd and 3rd birth, but not the entire distribution is shown but only two indicators: timing (white dots) and the proportion of women with a birth (black dots). The 'timing' actually indicates the percentage increase for the average age at birth (calculated as the trimean value[14]) with respect to age 20; for example, a value of 1.25 implies that the average age is situated at around age 25.
As can be expected the figures illustrate the increase of age at start of childbearing by level of education. This increase is, however, far from the same in all countries. The greatest differences between the lowest and highest level of education —more than a 20% increase from level 1 to level 3 as compared to a median value of 19%— are observed in Sweden (21%), Western Germany (22%), and Italy (25%); the smallest differences (less than 15%) are observed in Austria (-0.1%), Belgium (13%), and Spain (6%). Again, this does not indicate any clear regional pattern. A somewhat regional pattern appears when the absolute values are taken into account. The countries in the South region all show a relatively late start at childbearing, especially when compared to those in the North region; somehow the countries in the West occupy an intermediate position. Italy has the highest ages, ranging from age 22.5 to 28.2 for women with a level 1 and a level 3 education, resp. (Spain indicates a somewhat higher starting age of 24.4 years at level 1 but a much lower age of 25.8 years at level 3). In the Scandinavian countries the average age at the start of childbearing is for women with a level 1 education comprised between 21.0 and 21.7 years; for women with a level 3 education between 25.4 and 25.7 years.
The greatest country differences are however observed in the proportions of women with a birth, more particularly with respect to the pattern of differences between the three educational categories.
In the Northern countries the proportion of women with a birth hardly varies between educational categories. Norway and Sweden appear to have the most 'stable' pattern. In Norway 93% of the women, regardless of their level of education, have experienced at least one live birth. (This also makes Norway the country where definite childlessness is lowest.). In Sweden the percentages vary between 88% (education level 1) and 87% (education level 3). Finland is the only Northern country where among women with a level 3 education there appears a small but striking drop in the proportion with a birth: 83%, compared to 87% and 86% in the other categories.
The other countries show more significant differences. Again, the most extreme value is found in Italy, with a drop of 11 percentage points, from 94% for the level 1 education to 83% for the level 3 education. Italy is also the country with very low proportions of women with a third birth in the level 2 and 3 education categories (12% and 11%, resp.); Western Germany comes close with only 13% and 15% of the women having a third birth in educational categories 2 and 3, resp. The most intriguing pattern are the increases in the proportion of women with a birth that can be observed in many countries between women with a level 2 education and those with a level 3 education. In several countries the increase is limited to the 2nd birth order; this is the case for Finland, Norway, and Italy, and Spain. In some countries it is also clearly present for the 3rd birth order: Belgium, France, Spain. In Belgium it is even observed in the proportions for 1st birth.

6. An general pattern between timing of first birth and 'total fertility'

An overall pattern emerges when the 'total fertility' is plotted against the average age at time of first birth while controlling for level of education. The result is shown in Figure 'D'.

---

[14] Trimean = (P25+2xP50+P75)/4, where P25, P50, P75 correspond to the age by which 25%, 50%, and 75% of the births have already occurred (Tukey, 1977).

There is obviously no narrow association between the timing of first birth and the total number of children; this should perhaps not be expected when the variation in the number of children has become quite small (comprised between 2.53 in France, for the group with the lowest level of education, and 1.36 in Western Germany, for the group with the highest level of education). Some pattern does emerge however when the data are controlled for level of education. The variation in the values of the groups with the same educational level are identified in the figure by a rectangle; the 'outlying' values within each educational group are identified by the country they belong to. Clearly, the groups belonging to the lowest educational level have, on average, the lowest mean age at start of childbearing, those with the highest educational level the highest age, and those with a medium level occupy an intermediate position. The outliers within the group educational level 1 are found in the upper part of the rectangular (Norway, France, Spain); the outliers are rather found in the lower part and right angle of the rectangular (Western Germany[15], Italy). When the rectangles are drawn differently, i.e., without including the outliers, it appears that the greatest difference between the three educational levels is not with respect to the total number of children, but to the start of childbearing. The most interesting observation is probably that, in spite of their relative late start at childbearing, women with the highest education appear to have the same number of children overall.

7. Results of a MCA-analysis on 'total' fertility, taking into account 'timing of first birth', 'job history', 'relational history', and 'level of education'

The last step[16] in the analysis is a MCA-analysis, or a multiple classification on the ultimate number of births, here the parity as observed at age 40 (or age 37 in the case of Belgium and Western Germany). The method provides estimates of the categorical effects for a set of independent variables. The focus of interest of this paper is to identify the factors that may influence the ultimate number of children a woman has after having experienced a first birth. Factors that are likely to influence this outcome are: the timing of first birth (at 'young' vs. at 'old' age), the job history (always with a job vs. no job or no continuous job since first birth), the relationship history (experiencing one continuous relationship since first birth vs. experiencing a disruption followed or not by another steady relationship)[17], and level of education (according to the three levels already used in the former paragraphs). A difficulty with the international comparative research is that it is impossible to construct the chosen independent variables identically for all countries[18]. The list of independent variables and the categories as used in each country are given in the

---

15 In fact, Western Germany cannot really be considered to show an extreme low value with respect to to the number of children to the extent that the value correspond to the parity observed at age 37 only (where it is age 40 in all other countries, except for Belgium, also age 37). As can be observed from figure 'D' all educational groups in Western Germany have a relatively high age at first birth (compared to the respective average value in each group). From this it can be assumed that for Western Germany the 'total number of children' must be somehow underestimated, more at any rate than in the other countries.

16 This will in fact constitute the penultimate step in the analysis. MCA has been chosen because of the nature of the dependent variable (ultimate number of children). A weakness of the method is that no significance levels are calculated for the categorical effects. In the final version of the paper the MCA-results will be 'tested' by means of a comparison with the results of a logistical regression analysis (with as dependent variable having a second and a third birth). The MCA-results can be fully accepted provided similar conclusions can be drawn from logistical regression analysis. Preliminary results show that this is indeed the case.

17 For all clarity. 'Relationship' refers to the fact that both partners are living together without any reference to the marital status.

18 This is the case with the construction of the variables on 'job history' and 'relationship history'. Both variables are 'composed' variables based on the information distributed over several variables included in the SRF, each one corresponding to another 'period' in the 'job' or 'relationship history' of the respondent. As can be expected,

table below. The results of the MCA-analysis are presented in the series 'E' figures.

Categories of independent variables as used in MCA-analysis, by country

	region		
	North	West	South
1. timing of first birth:			
3 categories:			
• 1st birth before age 21		all countries	
• 1st birth between ages 21 and 25			
• 1st birth later than age 25			
2. job history* :			
4 categories:			
• always with a job	Fin, Nor, Swe	Aus	
• no job for 1-3 years			
• no job for longer than 3 years			
• never a job			
3 categories:			
• always with a job		Bel, Fra,	Ita, Spa
• no job for longer than 1 year		WGer	
• never a job			
3. relational history* :			
3 categories:			
• one relationship, continuously	Fin, Nor, Swe	Aus, Fra	
• one relationship, but stopped			
• more than 2 relationships			
2 categories:			
• one relationship, continuously		Bel,	Ita, Spa
• other		WGer	
4. level of education;			
3 categories:			
• level 1 education		all countries **	
• level 2 education			
• level 3 education			

* as recorded since first birth

** but distribution individually determined per country (see note xx)

such information is largely affected by 'missing values'. The problem is present in nearly all data files, although not at the same extent which is a clear indication that the interviews were not conducted in the same way, according to the same rules, in all countries. In France, for example, the number of 'periods' is limited to just two; on the other hand, some countries have information over more than 15 (!) 'periods'. The result is that the construction of the two 'composed' variables turned out to be extremely complex and it turned out impossible, because of the differences between the data files, to obtain fully 'standardised' variables.

In the figures are given the ‘adjusted deviations’ and the ‘beta’-values of the MCA-estimation, as well as the ultimate number of births or ‘completed’ fertility. The ‘adjusted deviations’ correspond to the categorical effects of each independent variable while taking into account the effects of the other variables; the ‘beta’-value is a measure for the importance of the overall effect of each independent variable (also while taking into account the presence of the other variables).
It was above already hypothesised that the timing of first birth cannot be the only or most important factor determining the ultimate number of births. This is confirmed by the MCA-results. However, this is not to say that age at first birth would not be an important factor. In six countries (Finland, Norway, Austria, France, Italy and Spain) it appears to be the most important one indeed, with a beta-value of more than 0.20. This does not necessarily imply that also the most important categorical effects are given by the timing of first birth. In fact this is only the case in Austria and Spain (where a ‘young’ start at childbearing would have a positive effect on the ultimate number of births of 0.30 and of 0.91, resp. corresponding in the case of Austria to a 15% increase on the overall average of 1.98 births). In all other countries the most important categorical effect is observed with one of the other variables: ‘relational history’ in the case of Finland, Sweden (although very closely followed by ‘job history’) and Italy; ‘job history’ in the case of Norway, Belgium, France, and Western Germany. In not one single country the most important categorical effect is with ‘level of education’, but in all countries the highest level shows to have a distinctly positive effect on the ultimate number of births (the lowest effect being recorded in Austria: +.07; the highest in Belgium: +.26, immediately followed by Finland and Norway: +.24, and Western Germany: +.21).
Next to ‘timing of first birth’, ‘job history’ appears to be the most important explanatory factor overall. In three countries (Sweden, Belgium, Western Germany) ‘job history’ has a greater beta-value than ‘timing’; in four other ones (Finland, Norway, France and Italy) its overall effect on the number of births is quite similar to the overall effect of the ‘timing at first birth’. In all countries women who have had job interruptions of more than three years or who have not have a job after the birth of the first child, ultimately have more children than those who have had a job throughout. The most important differences between ‘always having had a job’ and ‘never a job’ are found in Norway (-.41 vs. +.49), Belgium (-.18 vs. +.77) and France (-.21 vs. +.64).
In sum, age at start of childbearing definitely is an important factor determining completed fertility. Its impact however is mitigated in the presence of other factors.

8. Conclusions

It would be wrong to consider the postponement of first birth as it is observed in all industrialised countries (the phenomenon is certainly not limited to Europe) as a ‘mechanistic’ reaction to prolonged schooling of women. It is more than that; a late start at childbearing rather appears to be a societal phenomenon to the extent that it occurs among all women (although more so among women with a high level of education). However, this paper does not deal with postponement of first birth *per se* —this would constitute a complementary analysis—, but rather tries to identify which other (socio-economic) factors affect the ultimate number of children women have after already given birth to one child.
One of the most striking results of the analysis we believe is the relative small impact of the relationship history on fertility. It is a known fact that relations have become less stable. Many more marriages end in divorce than before (xxlit.). However, the phenomenon does not appear to have a serious negative effect on the total number of children women have. One explanation of course is that in the present analysis ‘relationship history’ only refers to the partnership history after the woman has experienced her first birth. However, the results clearly show that the end of a stable relationship, which in the majority of cases is due to a separation or divorce (data not shown), and which has not been followed by another relationship (at least not before the woman has reached the age of 37 or 40), does have a serious negative effect

indeed on the total number of children women eventually have. The greatest effects are found in Finland (-.48), France (-.46) and Norway (-.34). In most countries the negative effect due to separation is partly 'compensated' by the positive effect on the number of children from having two or more partnerships[19]. Generally the effect is quite small: in the case of Finland, for example, it is only +.09; in France it is +.17. These results are a confirmation of the general finding that a new partnership leads in some cases to the wish for another child and therefore an extra birth (xxlit.).

As said, from the MCA-analysis it appears that 'partnership history' has only a relatively small effect on the total number of children. One factor primarily responsible for this outcome could be that the analysis has been limited to women who have already experienced a child birth. It is not unlikely that the major impact of 'partnership history' on fertility stems from the behaviour *before* the start of childbearing, i.e., would be the result of the fact that the experience of several partnerships early in life is one of the mechanisms directly responsible for the postponement of first birth.

8.1. With respect to policy implications

Next to 'timing of first birth' the strongest effects are found with the variable 'job history'. Obviously, women who have not worked for longer periods (more than 3 years) or who have not worked at all after the birth of their first child will ultimately have more children than women who have continued to work. In some countries there is a remarkable difference between the extreme categories 'always' and 'never a job' (Norway, Belgium, France). This is undoubtedly a finding that deserves the attention of policy makers.

Policy makers —especially female policy makers— should be pleased with the fact that women attain, on average, higher educational levels than ever before. The drawback of this highly commendable social achievement is higher labour force participation by women. From the results above it can be deduced however that many women feel the need to temporarily (more than 3 years) or even permanently leave the work force in order to have (and raise) more than one child. The latter precision is important. The data do not encompass all women and the research question therefore was not whether working women want to have children or not. The analysis here is based on women with already (at least) one child, in other words on women who have already 'given proof' to want children. The correct interpretation therefore of the results is that women who wish to 'form' a family are hampered in doing so by their job experience; they will limit their family to only one, perhaps two children. To the extent that replacement fertility would be a governmental objective, policy makers should not rely on those women who wish to have children to 'compensate' for those who remain childless (about 10%-12% in the population[20]).

The notion that that women are confronted with the incompatibility between work and the raising of children is not new (xxlit.). But these results not just confirm it. The results also point at the fact that also women with already one child continue to face the dilemma between work and family; they also point at the fact that more flexible work arrangements would at least be a partial answer to the dilemma to the extent that the results clearly indicate that a relatively long job interruption alone —not necessarily to give up one's career altogether— does have a positive effect on the ultimate number of children[21].

[19] This is not the case in Norway, Belgium and Italy. Note however, that for Belgium and Italy the variable 'relationship history' only contains two categories (see table above). The main reason is that in both countries after experiencing a first birth the majority of women have only one continuous relationship.

[20] Including those remaining childless for physiological reasons.

[21] The reasoning above is loosely based on the hypothesis that for most women in the categories 'job interruption for more than 3 years' and 'never with a job' this is the result of their own decision, i.e. that it is not the result of becoming involuntarily jobless or unemployed. Unfortunately this cannot be tested unambiguously with the data (the main reason being that for the last recorded change in job status and when last status is 'no job', the cause for change is not known.

Also the fact that apparently women with higher education have more children is an observation that should be of interest to policy makers. Again, the exact 'mechanism' behind it cannot be ascertained with the data. The observation can come as a surprise because late childbearing can be associated with prolonged schooling (of course the results of the multivariate analysis indicate the 'net' effect of level of education while controlling for the timing of the start of childbearing). The explanation could be that women with higher educational levels are in general better 'prepared' to cope with problems related to late childbearing. It is known that late childbearing increases the risk for medical complications (xxlit.). An earlier analysis on the Belgian FFS data (Lodewijckx & Schoenmaeckers, 1993) has shown that among women who have experienced complications during pregnancy and/or at delivery —due to age at birth or not— less tend to have another pregnancy/birth than women who have not experienced similar problems. The hypothesis would be that women with higher educational levels would be able to better cope with these problems because they are more aware of the likely complications and have a better access to the medical world for assistance.

8.2. With respect to a next round of 'FFS' surveys [22]

This paragraph is actually a series of points of critique on the FFS data, and therefore at the same time suggestions for improvement that could be taken into account at the next 'FFS round'. They can all be derived from the problems encountered in the present analysis. They can be summarised in the following seven points:

- Any international comparative analysis on the basis of the FFS data is made problematic because of the different choices in the age range of respondents (and also because of the broad period of time in which the surveys were organised in each country). The surveys mainly deal with *fertility* behaviour and it should be fully recognised that one major indicator of fertility —and therefore also a major variable of interest for many analyses— is the total number of children women have during their reproductive life span. Especially in view of the recent developments (older age patterns of fertility) it can be argued that the upper age limit would include age 50, or even age 52[23].
- A reasonable number of observations is a concern for any analysis, also when multivariate analysis is applied. Any survey is always a trade-off between the ideal and the obtainable (read: the funds available). In order to arrive at an acceptable compromise the example of Norway or Sweden should be given serious consideration, i.e., instead of interviewing respondents of successive birth cohorts (those born in, for example, 1950, 1951, 1952, ...), the sample could be limited to a selection of birth cohorts, such as: 1950-53, 1960-63, 1970-73, ...
- Any international analysis is hampered when the data collected are not straightforward comparable. 'Level of education' (a main 'predictor' for most analyses) is a clear example of this weakness in the FFS data. The use of an international code of classification is apparently no guarantee for comparability. Because the concept is familiar not sufficient attention is given to its measurement at the time of developing the international questionnaire.
- A crucial issue in any survey is the data quality. Of the FFS can proudly be said that the data include biographies with respect to employment and relationships. But obviously the information has not been collected in the same way in all FFS surveys and at least in some countries the available data are

22 This part is of the paper could possibly be omitted from the final version. We believe however that the next points could be of interest for discussion at the Flagship Conference.

23 The latter can be argued because any analysis on the total number of births will need to be based on several birth cohorts in order to assure an acceptable number of observations (see also next point).

difficult to use. The problem could be related to the training of the interviewers but could also be the result of the questionnaire design.

- Obviously, individual data only give part of the explanation. Individual behaviour is not only determined by individual characteristics but also by environmental or contextual characteristics. The collection of contextual data could be part of the survey operation and the data could be included in so-called standard recode files. In the same line of thinking it could be suggested to whenever possible involve partners from all countries in the interpretation of the results of international comparative research.
- The former point is also an argument to organise surveys more on a regional basis. A clear example is Germany. The country is politically one, but in the framework of a sociological analysis former West- and East Germany need to be treated as two different entities. Although for different reasons, the same can be assumed[24] about Northern and Southern Italy. The Belgian FFS survey (which has in fact been limited to the Flemish region[25]) is a remarkable —albeit involuntary— precursor in this respect.
- All sampling text books recommend, if possible, the construction of self-weighted samples so as to avoid the use of weights in the analysis. The misuse of weights might bias the results. Apparently, in most cases the use of weights cannot be avoided (many FFS data sets include a weight variable), but the researchers really faces a problem when the calculation of the weights is not documented (as in the FFS SRFiles).

Literature (to be completed: xxlit.):

Beets, G. (1992), *Kinderen krijgen in de 20e eeuw*. In: Beets, G., P. Verloove-Vanhorick (1992), Een slimme meid regelt haar zwangerschap op tijd. Amsterdam. Swets & Zeitlinger, 11-20.

Beets, G. (1997) *European variation in education and in birth of the first child: FFS evidence*. Paper presented at the 23e General Population Conference, Beijing, October 1997.

Callens, M. (1999) *The third birth in Europe. A multi-level approach*. CBGS-werkdocument, Brussel, 1999/6, 26pp.

Kaa, D.J. van de (1987) *Europe's second demographic transition*. Population Bulletin, 42, 1, 59pp.

Lesthaeghe, R. & Kaa, D.J. van de (1986) *Twee demografische transities?* In: Kaa, D.J. van de & Lesthaeghe, R. (eds.) Bevolking: groei en krimp. Deventer, Van Loghum Slaterus, pp. 9-24.

Lodewijckx, E. & R.C. Schoenmaeckers (1993) *Changes in fertility as a result of prior pregnancy-related experiences: an exploratory analysis*. Population and Family in the Low Countries, 30: 25-49.

Pressat, R. (1991) *La France/France*. In:Rallu, J. and A. Blum, European Population (1. Country Analysis). EAPS-IUSSP/UIESP-INED. Paris: Editions John Libbey Eurotext.

Schoenmaeckers R., Lodewijckx E. (1999) *Demographic Behaviour in Europe: Some Results from FFS Country Reports and Suggestions for Further Research*. European Journal of Population, 15, 3: 207-240.

Tukey, John W. (1977) *Exploratory Data Analysis*. Reading, Massachusetts: Addison-Wesley.

---

24 Other studies have clearly indicated that Northern and Southern Italy are economically and socially different indeed..

25 This is not entirely true. As is the case in the present analysis, to the original Flemish survey (conducted in 1991) have been added the data of the Dutch speaking community of the Brussels Capital region (which was conducted in 1992/93).