The highest fertility in Europe – for how long?

The analysis of fertility change in Albania based on Individual Data

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Introduction

From being one of the most isolated countries of the world, Albania has embarked on a remarkable transition which involves dramatic political and economic change. The new and emerging situation in Albania is bound to have profound impact on society and the behaviour of individuals within it. Our knowledge about demographic behaviour in Albania is limited. Though Falkingham and Gjonca (2001), using census data, provides very useful insights into the fertility transition in Albania from 1950 to 1990, nothing is known about fertility behaviour during the nineties. The introduction of the Albanian Living Standard and Measurement Survey (ALSMS) surveyed in 2002 provides unique information about demographic change. Using this information we analyse fertility behaviour in terms of the quantum and tempo during the period following the collapse of the communist era. We use simple non-parametric survival analysis together with more sophisticated event history models. This preliminary version of the paper demonstrates strong cohort and period effects, but which are quite different depending on birth parity. The Albanian LSMS is a rich data set and we plan to extend the analysis by introducing more comprehensive specifications of fertility behaviour.

Background

The period of communist rule in Albania from 1950 to 1990 was characterised by political and economic stability. However, during this period Albania witnessed a dramatic reduction of fertility (Falkingham & Gjonca, 2001). The decline is clearly illuminated by the age specific period and fertility rates as depicted in Figures 1a and 1b and demonstrates that the reduction in fertility came from all ages and all cohorts. Interestingly, during these decades strong forces were in place that ideally should have kept fertility high. Explicit pro-natalistic policies were implemented, abortion made illegal, restrictions on availability of contraception imposed, and strong financial incentives were introduced to mothers. Albanian society was also dominated by strong cultural and traditional values common of a patriarchal society, with extended family, universal marriage, childbearing only within the marriage and male

dominated society. Given these pro-natalist forces, it is somewhat surprising that level of fertility decreased from 7 to 3 children per woman. The explanation lies with powerful social and economic policies, which includes universal education, also for women, full female employment and successful policies aimed at reducing infant mortality.

Figure 1a: Age specific period fertility rates

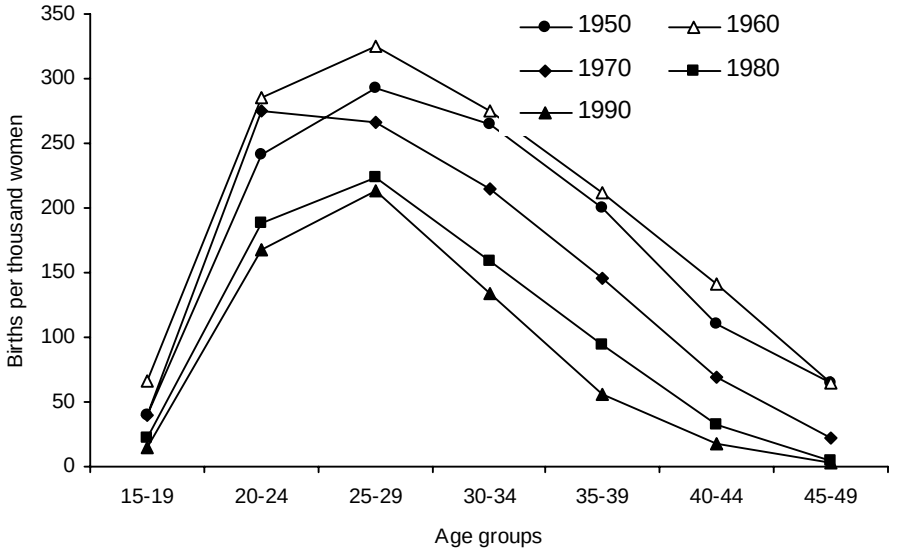
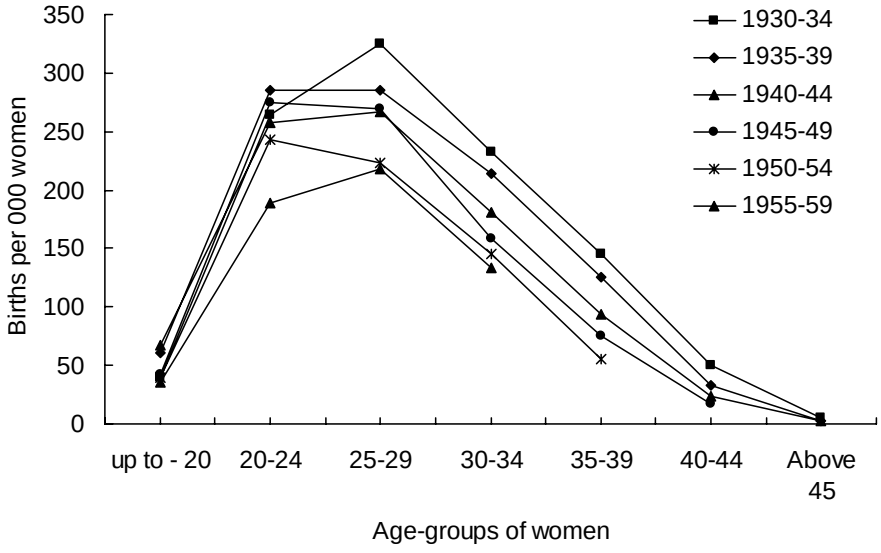


Figure 1b: Age specific cohort fertility rates



After a long and sustained period of economic and political stability, profound changes took place during the nineties following the collapse of communism. By 1992 democracy was installed, and after a dramatic drop in economic activity, the country embarked on a sustained period of high economic growth. Between 1993 and 1996, GDP grew by about 9 percent annually in real terms. The country experienced a dramatic setback in 1997 with the collapse of the pyramid scheme – implying huge losses in terms of households' savings. During this year Albania experienced negative growth of 7 percent, but over the following next three years the economy bounced back to register an average growth rate of 7 percent. In 1999 Albania faced another crisis from the Balkan war. However, the country was able to weather the storm of Kosovo refugees and by the end of the year Albania had regained its economic momentum. Economic growth continued in the following years, reaching a 7.3 percent GDP growth in 2000 and started to decline only in the second half of 2001, reaching 4.7 percent in 2002.

Several structural reforms were introduced after the collapse of communism, including banking, land reforms, and privatization of strategic sectors like telecommunications but also of small and medium enterprises. The reforms also implied important changes to the labour market, first and foremost through higher unemployment rates, especially among women.

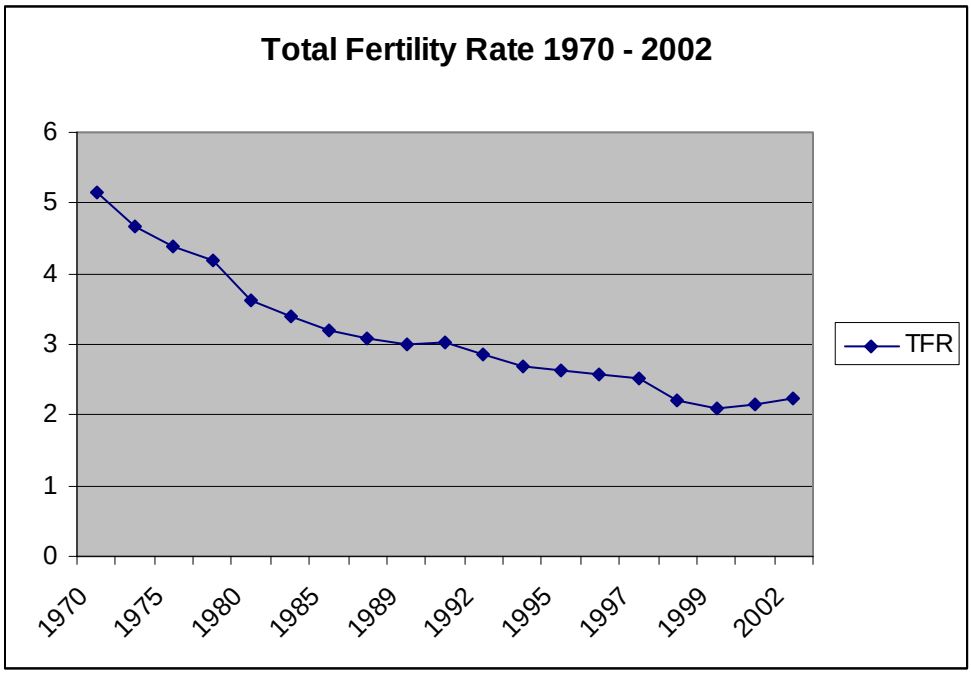
Despite the impressive performance of the economy in recent years Albania remains the poorest country in Europe and is ranked only 65th of 177 countries by the human development indicator of 2002 (Human Development Report 2003). There are features in common with both developing and developed countries. For instance, its total fertility rate of 2.2 and infant mortality rate of 26 per 1,000 live births are comparable with many medium developed countries (Human Development Report 2003 on data of 2002), whereas the high life expectancy at birth (currently 74 years) is comparable with European countries.

Table 1: Vital statistics for Albania

	1980	1990	2000	2003
Total Fertility Rate	3.6	3.0	2.4	2.2
Life expectancy at birth (years)	69.3	72.3	74.0	73.99
Population growth (% annual)	2.0	1.2	0.4	0.6
Total population (mill.)	2.7	3.3	3.1	3.2
Rural population (% of total)	66.3	63.9	58.1	56.2
GDP per capita ($US 1995 prices)	910.0	841.9	1008.0	1190.4
Child labour (% of 10-14 age group)	3.6	1.9	0.3	0.2

Data refer to 2002, last year available (Source: *World Development Indicators* database)

Figure 2: Total Fertility Rates in Albania 1970 - 2002



The economic and social collapse the Albanian society until 1998 was expected to bring fertility further down. During the 1990s there was a sharp increase in unemployment, affecting more than 28% of women and about 20% of men, and an increased income inequality and poverty, with one out of four Albanians living below the poverty line. The only positive note was that education level was kept high, with an increasing proportion of women obtaining university level education. In the period

of economic transition there was also a move from a “traditional” to a more “modern” value orientation with a slight increase in cohabitation, a move from extended to nuclear families and a new openness of the society weakening old taboos such as use of contraception, divorce, cohabitation and childbearing outside marriage. The rapid economic change lead to a dramatic levels of emigration and since 1990 about one fifth of the total population has left the country and is living abroad mainly in Italy or Greece. However, the majority of this migration is seasonal, and remittances are estimated to account for about 13 percent of total income among Albanian households with a higher share for urban households-16 percent against 11 of urban areas (INSTAT, 2002). Despite the economic benefits of remittances, migration also implies high social costs. According to INSTAT 2002 emigration was particularly evident among males, whose population dropped over 20 percent between 1989 and 2001 and as such has deprived the country of the most active labour force.

Data

The Albanian Living Standard Measurement Survey (ALSMS) was implemented in 2002 and surveyed 3544 households providing information on 16634 individuals. It follows the standard format of the LSMS surveys and contains therefore rich information on income and consumption expenditure, but also information on education, employment, and important for this analysis, full information on retrospective fertility histories for all women in the household. The 2002 ALSMS forms the basis for a longitudinal survey, with a subsample of households and individuals re-interviewed in 2003 and 2004 (see Table 2 for details).

The Republic of Albania is geographically divided into 12 Prefectures, which in turn are divided into Districts. These districts are divided into Cities and Communes. The Communes contain all the rural villages and the very small cities, divided into Enumeration Areas (EAs), which formed the basis for the LSMS sampling frame. The sample is drawn from 450 EA, and in each of them eight households was selected. Household membership is defined as not having been away from the household for more than six months. Table 2 gives an overview of the Albanian Survey.

Table 2: Overview of the Albanian Living Standard Measurement Survey

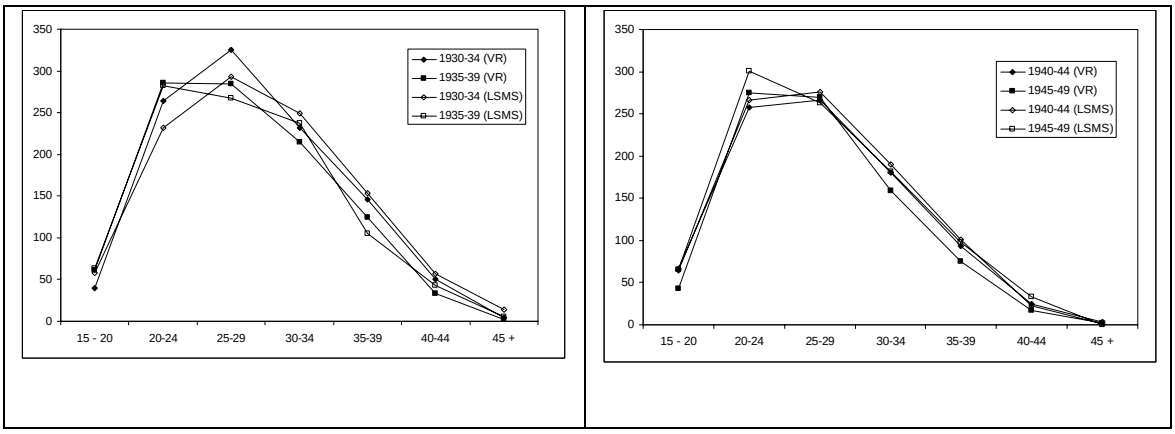
	ALSMS (Albanian Living Standards Measurement Survey)
Target population and sample frame	Private households
Dates of fieldwork	Three waves: Apr-Sep 2002, May-July 2003, May 2004
Panel entry, exit and tracking policy	Unique cross-wave person identifier. New entrants included in sample. All exiting individuals tracked into new households.
Welfare measures available	Income and subjective indicators (all waves); expenditure (wave 1 only);
Sample Size (Panel)	1682 panel households
Sample Size 2002 survey	3544 households

In order to check the accuracy of the fertility information of the LSMS, we compare Cohort Total Fertility rates and Age specific cohort rates from Vital Registration Data and LSMS respectively. Table 3 shows that the survey data produce somewhat higher estimates of total fertility for recent cohorts. But Figure 3 shows very similar shapes for age specific cohorts rates (cohorts born during 1930s and 1940s) from the two data sets.

Table 3: *Cohort fertility rates from both vital registration and LSMS*

Cohorts	1930-34	1935-39	1940-44	1945-49	1950-54	1955-59	1960-64
CFR-VS	5.03	5.03	4.46	4.43	3.60	3.17	2.92
CFR-LSMS	5.28	5.01	4.61	4.71	4.09	3.64	3.27

Figure 3: *Age specific cohort rates from Vital registration data and LSMS*



A strong reduction of cohort fertility is evident from both data sources. It decreased from about 5 children for women born during 1930s to about 3 for those born in the early 1960s. Period fertility measures, estimated for 1980, 1990 and 2000 from LSMS data (Table 4) shows that reduction of fertility continued and it is particularly strong in most recent period, during the 1990s.

Table 4: Period fertility rates 1980, 1990, and 2000.

Age groups	1980	1990	2000
15-19	21.9	15.4	16.5
20-24	188.7	167.1	130.7
25-29	223.2	213.6	158.6
30-34	158.5	133.3	91.1
35-39	93.6	55.7	32.9
40-44	32.8	17.4	6.9
45-49	4.7	2.7	0.6
TFR	3.62	3.03	2.19

Kaplan-Meier estimates

The nature of recent fertility reduction can be better understood using appropriate methodology such as non-parametric Kaplan-Meier estimation and semi-parametric Cox regression. Below follows a set of simple Kaplan Meier estimates for first, second, third and fourth births. Cohort 1 include women born between 1955 and 1964, cohort 2 women born between 1965 and 1975 and cohort 3 women born between 1975 and 1986. Of interest here is to consider to what extent the two

youngest cohorts differ from the older cohort. For the first birth women are defined as becoming at risk of childbearing at age 15. Thus the time scale on the X-axis for first birth starts at age 15, whereas for subsequent births the starting point is defined at the time when the previous birth took place. Figure 4 contains the Kaplan Meier survival estimates for the first birth, Figure 5 the Kaplan Meier hazard estimates of the first birth, Figure 6, 7 and 8 contains the Kaplan Meier survival curve estimates for second, third and fourth birth respectively. Overall the estimates show that there is little difference between cohorts for first birth, whereas there is a distinct difference between the youngest and the two older cohorts in terms of the second birth. As for the higher parities we see strong differences, and shows that the decline in fertility (as reflected in Figure 2) is mainly driven by a decline in higher order births.

Figure 4:

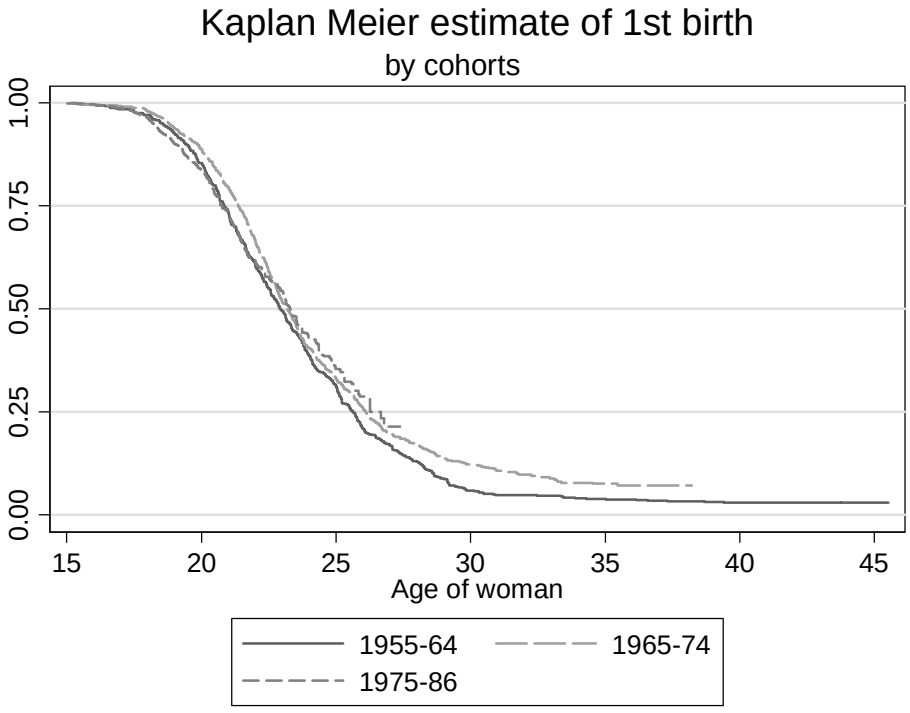
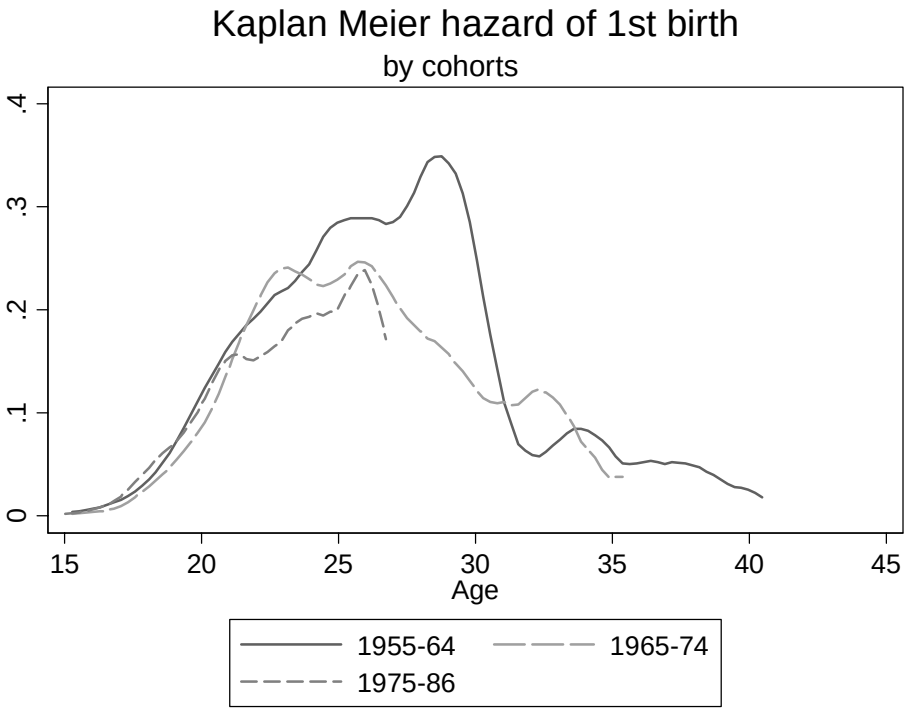


Figure 5:



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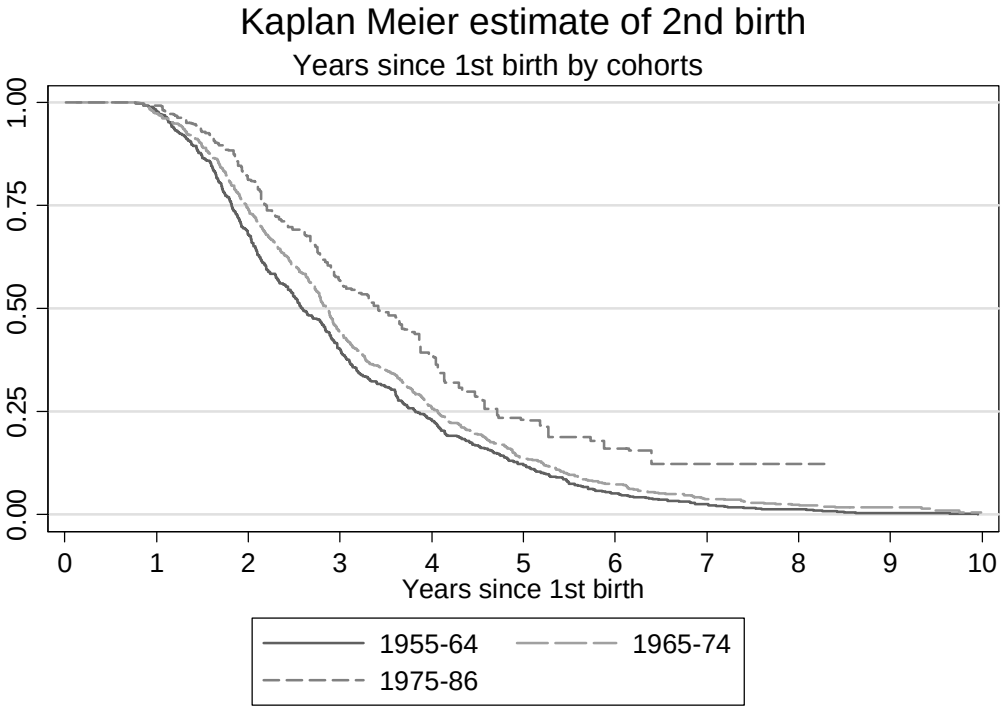


Figure 7:

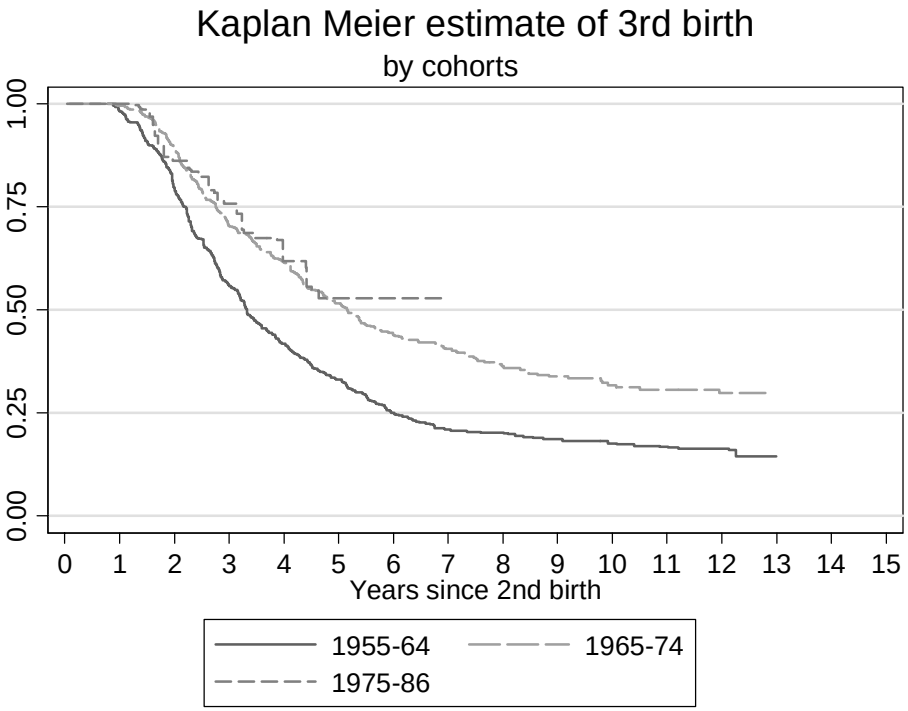
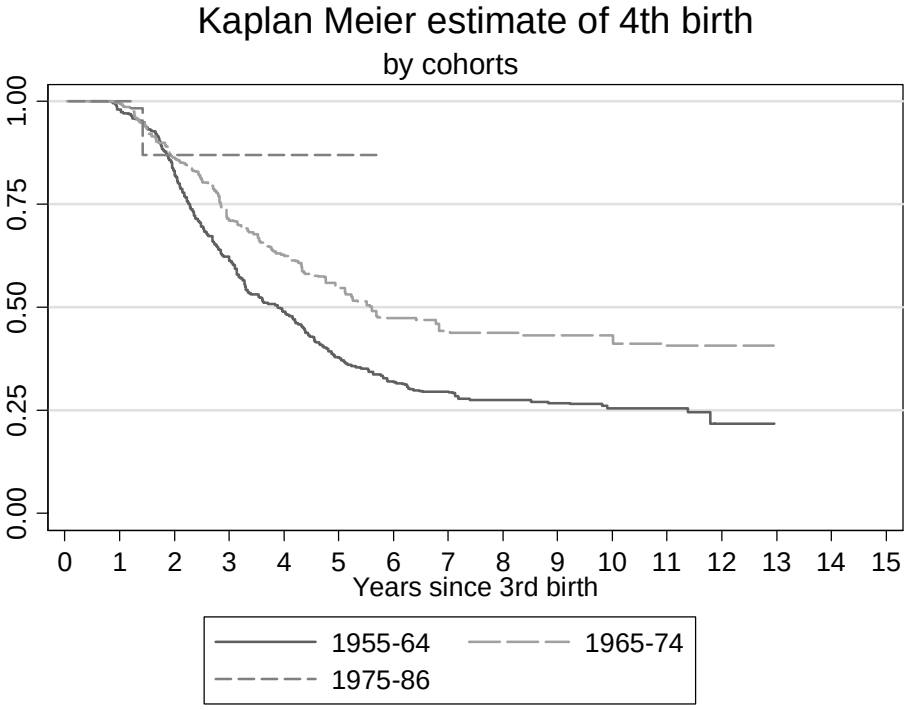


Figure 8:



Semi-parametric analysis

In this section we present the semi-parametric analysis based on the fertility histories derived from the ALSMS survey. The semi-parametric model is essentially a Cox regression for first, second and third births respectively. The model can be presented as follows:

$$h_i(t) = h_0(t)\exp\{\beta_1 x_{i1}(t) + ... + \beta_k x_{ik}(t)\}$$

Here $h_0(t)$ is the baseline hazard and the dependence on age (or time) is left unspecified, whereas the *k* covariates enter linearly[1]. In our estimation we include control for period effects, urban – rural dummy variable, four regions, religion, and education. In addition we control for the age of first birth in the regression for second birth, and the age of second birth in the regression for the third birth. The period effects are defined over the following time points: 1990, 1993, 1996 and 1999, and identifies to what extent there are significant period effect during the transition from communism to a more market driven system during the nineties. The cohorts are now defined over 1930 – 39 (the reference group), 1940 – 49, 1950 – 59, 1960 – 1969, 1970 – 79 and 1980 – 86. The estimates are presented in Table 5.

Not unexpected we find the two youngest cohorts to have a lower hazard ratio for both first and second births. For the third birth - also the older cohorts have a lower hazard ratio. This pattern is also present for higher order births (not shown here) and is consistent with the overall fertility decline of Albania (Figure 2). The period effects show that the likelihood of first birth was higher during the period from 1990 to 1999. This is somewhat surprising as we might expect a delay in family formation as a result of the upheavals taking place during the nineties. The estimates, however, shows the opposite, and suggest that family formation in Albania is still traditional and having (at least) one child is still the norm. Another important factor is that maternity leave increased from 6 to 12 months in 1990. The economic changes during the nineties also implied a reduction in full time employment among women. In other words, women bore the brunt of the massive redundancies that took place at

[1] The Cox regression assumes that the impact of covariates on the hazard is proportional. We test for the proportionality assumption throughout.

the beginning of 1990s, and this might have had a positive impact on entering parenthood. The period effects for second birth are insignificant, whereas we find strong negative effects for third births. Overall the estimates suggest that "traditionalism" or "norms" persist for the onset of family formation, whereas “modernity” and economic constraints impacts the number of children, especially for third births and higher parities.

Table 5:

Cox regression of time until first, second and third births (Hazard ratios)

	First birth		Second birth		Third birth	
Reference: Cohort 1930 - 1939						
Cohort 1940-49	1.363	***	1.139	**	0.957	
Cohort 1950 – 59	1.144	**	1.171	**	0.880	*
Cohort 1960 – 69	0.985		1.115		0.788	**
Cohort 1970 – 79	0.693	***	0.794	**	0.660	***
Cohort 1980 - 86	0.654	***	0.491	**		
Reference: Period before 1990						
Period 1990 - 1993	1.361	***	1.053		0.798	**
Period 1993 - 1996	1.420	***	0.932		0.573	***
Period 1996 - 1999	1.397	***	1.101		0.623	***
Period 1999 - 2002	1.108		0.976		0.692	***
Reference: Urban						
Rural	1.058		1.073	*	1.391	***
Reference: Tirana						
Coastal	1.159	***	1.312	***	1.397	***
Central	1.215	***	1.156	**	1.244	***
Mountains	1.174	***	1.461	***	1.919	***
Reference: Muslim						
Orthodox	0.953		0.919		0.711	***
Catholic	0.905		1.037		1.290	***
Other religions	1.066		1.074		1.008	
Reference: Less than 5 yrs						
Education (yrs) 5 - 8	1.210	**	1.002		0.804	**
Education (yrs) 9 - 11	1.052		0.956		0.751	***
Education (yrs) 12 - 15	0.677	***	0.780	***	0.461	***
Education (yrs) 16 plus	0.428	***	0.660	***	0.289	***
Age of second or third birth			0.965	***	0.921	***

*:10%, ** 5%, ***: 1%

The other background effects are as expected. Rural areas, together with the geographical areas outside Tirana all have higher childbearing. Education has a strong negative impact on all birth parities, but especially on the third birth. Given that there is a continued expansion of education, with more women gaining higher degrees, suggest that this is an important factor in determining future fertility levels in Albania. Religion is not important, which is perhaps not unexpected given that it was abandoned for more than thirty years.

Summary

The results presented are preliminary and further extensions with richer specification will be implemented. However, the estimates reveal interesting patterns of fertility behaviour in a time where Albania faced huge political and economic changes. It seems that "traditionalism" or "norms" persist for the onset of family formation, whereas perhaps "modernity" and economic constraints impacts the number of children.

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