THE HIGHEST FERTILITY IN EUROPE – FOR HOW LONG? DETERMINANTS OF FERTILITY CHANGE IN ALBANIA

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ABSTRACT: *Albania's demographic changes have sparked considerable interest in recent years. Much of this attention has arisen due to a general lack of knowledge and to the seemingly paradoxical demographic behaviour of the Albanian population (Gjonça, A. 2001; Gjonça, A. et al. 1997). The country has experienced a high level of life expectancy and relatively high levels of fertility in recent years. While previous research gives some answers to developing trends and patterns of mortality and fertility change, not much is known about fertility behaviour either during the communist period or during the nineties. The post-transition situation is bound to have profound impact on society and the behaviour of individuals within it. Using the 2002 Albanian Living Standard and Measurement Survey (ALSMS) we analyse fertility behaviour in terms of the quantum and tempo. The results from survival analysis techniques suggest that the reduction of fertility is mainly due to social development, with particular emphasis on female education, as well as the improvement of child mortality. The results for the 1990s also reveal some strong period effects mainly influencing higher parities. The persistence of traditional norms and values continue to affect family formation in Albania, while the changes in social and economic circumstances shape childbearing.*

INTRODUCTION

After the collapse of communism in 1990, Albania emerged as one of the most isolated countries of the former Eastern block, and the rest of the World either knew little or nothing about its development. In 1990 the country was rated as the poorest in Europe and continue to be so to date. At the same time there have been surprising achievements regarding its social development and demographic change. Having very limited knowledge, the spectacular improvement of mortality as well as the reduction of fertility has been questioned by a large number of scholars (Watson, P. 1995). The fifty year period under communism saw radical social and economic change in Albania, which affected the whole society and its individuals. This transformation also appeared in the country's demographic change. Mortality decreased significantly with life expectancy at birth increasing from 51.6 years in 1950 to 70.7 years in

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1990. Dramatic fertility reductions also occurred during this period with TFR coming down from 6.1 children per woman in 1950 to 3.0 in 1990. We believe that this work and other recent research on Albania have completed the final jigsaw of the demographic transition of the Balkan countries (Gjonça et al. 1997; Gjonça and Bobak 1997; Gjonça 2001; Falkingham and Gjonça 2001).

Most of the previous work has been based on aggregate data and has focused on describing patterns of demographic change. However, very little is known about the demographic behaviour of Albanians. Though on the basis of census and vital registration data first Falkingham and Gjonça (2001) and later on Gjonça, Aassve and Mencarini (2008) provided very useful insights into the fertility transition in Albania from 1950 to 1990, very little is known about fertility behaviour and the offered explanatory pattern is more suggestive than conclusive. In addition, Albania went through a remarkable transition during the 1990s, which involved dramatic political and economic changes. The emerging new situation in Albania is bound to have profound impact on society and the behaviour of individuals within it. We can observe demographic changes, in particular with regards to migration and fertility. The aim of this paper is to analyse fertility change in Albania until 2002 based on individual data. 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. Fertility histories are constructed and a number of variables are introduced to explain the change. In this paper we use standard survival analysis and event history models. The analyses of this paper demonstrate strong cohort and period effects, which vary a great deal by birth parity. The results shed light on why fertility continues to come down in Albania, supporting the previous research that emphasises social changes in Albania as the most important and significant determinant of fertility transition, with education being the most important variable.

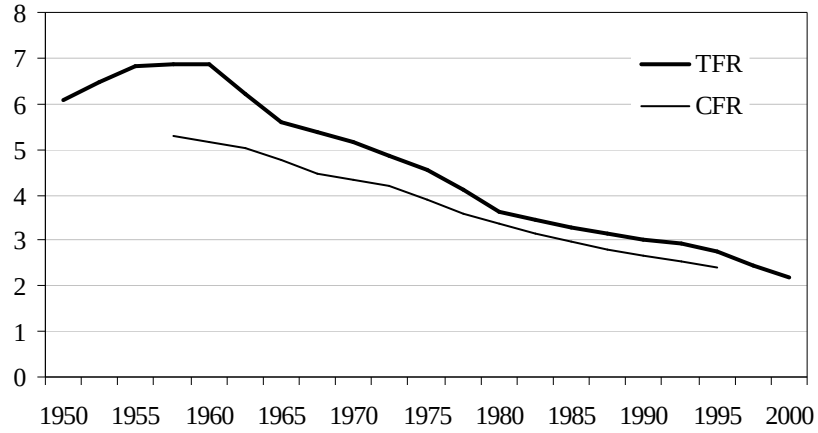
The paper starts with an account of what is known about fertility change in Albania and continues with the description of the data used in this paper (ALSMS). Here we also assess the accuracy of the aggregate data by comparing our results using the Albanian LSMS with those of previous research based on census and vital registration data (Falkingham and Gjonça 2001). It then presents the results of the non-parametric and semi-parametric methods applied to these data. A detailed discussion of these results follows to conclude with considering possible future developments within the European context of delayed or postponed fertility.

FERTILITY CHANGE DURING COMMUNIST ALBANIA, 1950–1990

The period of communist rule in Albania from 1945 to 1990 was characterised by relative political and economic stability. During this 45 year period striking changes in the social sphere were accompanied by a dramatic reduction of fertility (Falkingham & Gjonça, 2001). At the end of the Second World War, Albania had the highest fertility in Europe with an average of about six births per woman. High fertility was reinforced by traditional patriarchal norms. Total fertility rate, which was already high by 1950, reached a peak of almost seven children per woman around 1960. After that a steady decline started in the 1970s, with TFR being reduced to less than four in 1980, and just over three children per woman in 1990 (Figure 1). This rise in period fertility during the 1950s and 1960s mirrors the experience of many European countries at the end of the Second World War. As one of the countries with the highest population losses, it is not surprising that fertility increased in Albania immediately after the War. However, in other European countries post-war baby boom did not start from such a high base. An alternative interpretation of this trend is that it represents a pre-decline rise in fertility of the kind studied by Dyson and Murphy (1985) in which they argue that this has been a widespread characteristic of fertility transitions. It is also important to mention here that infant mortality started declining rapidly in the 1950s. By the-mid 1970s it was almost half of the very high value of 143 deaths per thousand of the 1950s. The effect of infant mortality reduction related to fertility change will also be addressed later in this paper. The 1990s saw a continuous reduction in fertility with both vital statistics data and survey data confirming a TFR of 2.2 children per woman close to the replacement level of 2.1.

The decline in fertility until 1990 came from all ages and all cohorts (Falkingham and Gjonça 2001). Interestingly, during the decades of communist rule strong forces were present that ideally should have kept fertility high. Explicit pro-natalist policies were implemented, abortion was illegal, availability of contraception was restricted, and strong financial incentives were provided to mothers or childbearing. Albanian society was also dominated by strong cultural and traditional values typical of a patriarchal society: extended family, universal marriage, childbearing only within marriage and male dominated society (INSTAT 2004, Gruber, S. and Pichler, R. 2002). Given these pro-natalist forces, it is somewhat surprising that the levels of fertility decreased from 7 to 3 children per woman. Falkingham and Gjonça (2001), and Gjonça, Aassve, and Mencarini (2008) argue that powerful social and economic policies, which include universal education, in particular for women, full female employment and successful policies aimed at reducing infant mortality explain this pattern. While there were no direct population policies, there were other policies in transforming the social sphere that had an implicit effect on fertility in Albania. The investment in education, with a particular focus on the im-

provement of female education was unprecedented historically in Albania. Female literacy improved from 8 percent in 1945 to 92 percent in 1989, and by 2002 illiteracy was under 5 percent among women, similar to the most developed European societies. For the sake of full female employment, government invested in the pre-school education system, creating a system of day-care nursing and kindergartens across the country. This had a double effect. On the one hand it increased female employment (which comprised 47 percent of the total labour force by 1990) as it liberated them from childcare, and on the other hand in conjunction with other measures, it created a significant externality favouring large families.



Source: Authors' calculatios based on data from vital statistics and LSMS 2002.

Figure 1
Period and cohort fertility rates, Albania 1950–2000

THE ANALYSES OF FERTILITY CHANGE IN ALBANIA DURING THE SOCIAL AND ECONOMIC TRANSITION OF THE 1990S

Socio-economic changes in the 1990s

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 established, and after a dramatic economic recession, the country embarked on a period of relatively high economic growth.

Between 1993 and 1996, GDP grew by about 9 percent annually in real terms (World Bank 2004). The country experienced a dramatic setback in 1997 with the collapse of the financial pyramid schemes – and consequent huge losses in terms of households' savings. This also had an effect in the rise of crime, insecurity, lack of governance, and increased unemployment, all of which are expected to have an effect on the level of childbearing. During 1997 Albania experienced a negative growth of 7 percent, but over the following three years the economy bounced back to experience an average growth rate of 7 percent. In 1999 Albania faced another crisis from the Balkan wars. 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 7.3 percent in 2000 and started to decline only in the second half of 2001, reaching 4.7 percent in 2002 (World Bank 2004).

Several structural reforms were introduced after the collapse of communism, including banking, land reforms, the privatization of strategic sectors like telecommunication and the selling of state-owned small and medium enterprises. The reforms also implied important changes in the labour market, first and foremost leading to higher unemployment rates, especially among women.

Despite the improved performance of the economy in recent years Albania remains one of the poorest countries in Europe and is ranked only 73rd of 177 countries by the human development indicator of 2006 (Human Development Report 2006). It has features in common with both developing and developed countries. For instance, its total fertility rate of 2.2 and infant mortality rate of 17 per 1,000 live births are comparable with many medium developed countries (Human Development Report 2006 on data of 2004), whereas the high life expectancy at birth (currently 73.7 years) is comparable with much more developed European countries.

Table 1
Vital statistics for Albania, 1980–2004

	1980	1990	2000	2004
Total fertility rate	3.6	3.0	2.4	2.2
Life expectancy at birth (years)	69.3	72.3	74.0	74.01
Population growth (% annual)	2.0	1.2	0.4	0.58
Total population (mill.)	2.7	3.3	3.1	3.13
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

Note: Data refer to 2004, last year available.
Source: World Development Indicators database.

The dramatic economic and social changes between 1990 and 1998 were expected to bring fertility further down, due to the insecure economic and social environment created. During the 1990s there was a sharp increase in unemployment, affecting more than 28% of women and about 20% of men, and an increase in both income inequality and poverty, with one out of four Albanians living below the poverty line (World Bank 2003). With regards to the social conditions, the only positive change was that the 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" set of values together with a slight increase in cohabitation, a move from extended to nuclear families and a new openness within society weakening old taboos such as use of contraception, divorce, cohabitation and childbearing outside marriage (INSTAT 2005). The rapid economic changes led to massive emigration, and since 1990 about one fourth 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 temporal. 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 by 20 percent between 1989 and 2001 and in this way migration has deprived the country of its most active labour force.

Data description and the quality of data

The Albanian Living Standard Measurement Survey (ALSMS) was conducted in 2002 and it collected data on 3,544 households and 16,634 individuals. It follows the standard format of the LSMS surveys and not only contains rich information on income and consumption expenditure but also on education, employment, and importantly full information on retrospective fertility histories for all women in the household. The 2002 ALSMS forms the basis for a longitudinal survey, with a sub-sample 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 towns, divided into Enumeration Areas (EAs), which formed the basis for the LSMS sampling frame. The sample is drawn from 450 EAs, and in each of them eight households were selected. Household membership is defined as not having been away from the household for more than six months prior to the date of the interview. Table 2 gives an overview of the Albanian Survey. It is

important to mention that during the 1990s there were drastic administrative changes, which were accompanied by large internal migration (INSTAT, 2004). However, since the latest census in 2001, these changes were taken into account, and the survey sample was based on census results.

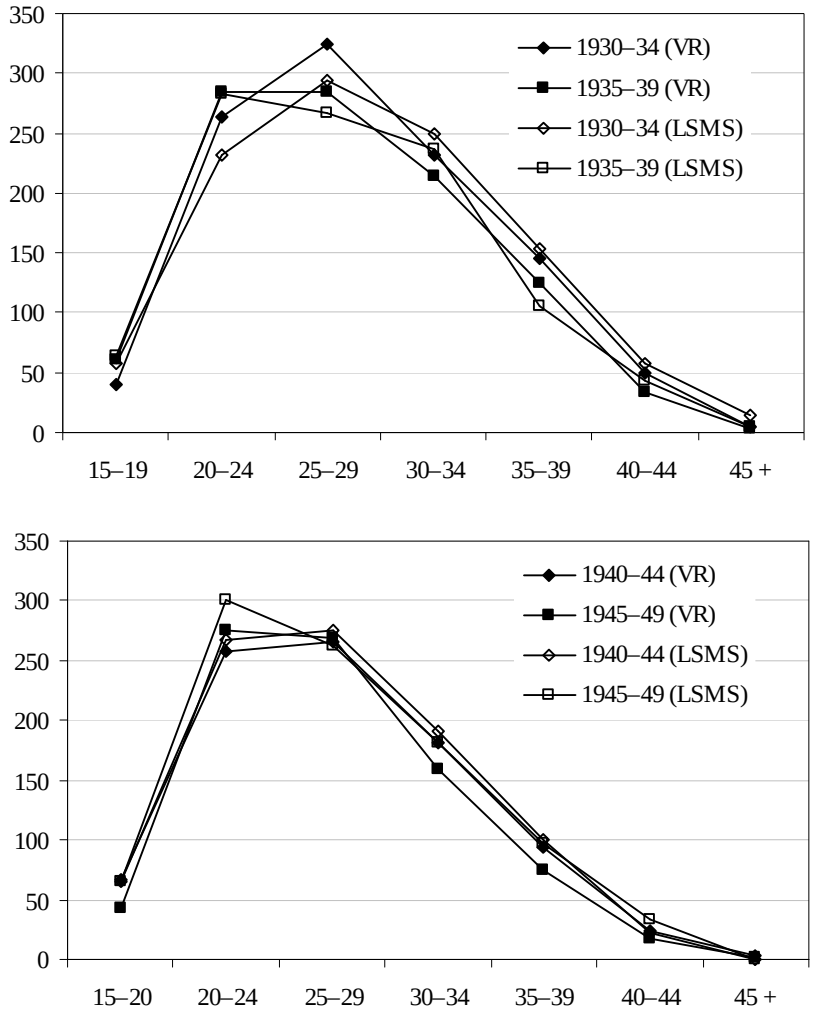
Table 2
Overview of the Albanian living standard measurement survey

	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 identifier of persons. 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

One of the most important issues about the demography of Albania has always been the quality of statistics compiled by the communist administration. While the mortality statistics were found to be accurate (Gjonça 2001), not much work has been done on data related to childbearing. In order to check the accuracy of information on fertility within LSMS and vital statistics, 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. This might be due to the effect of the large-scale emigration of the 1990s. Emigration affected the young ages and in particular the single population, initially men, and in the late 1990s females too. For the younger cohorts of the 1950–54, 1955–59 and 1960–64, the LSMS results might be influenced by emigration, since the enumerator has been affected due to the emigration of the single population. However, Figure 3, which plots the age specific rates for the old cohorts, not affected from emigration, shows very similar shapes for age specific cohorts rates (cohorts born during the 1930s and 1940s) from the two data sets.

Table 3
Cohort total fertility rates from both vital registration and LSMS

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



Source: LSMS data 2002.

Figure 2
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 per woman born during the 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) show that the reduction of fertility continued and it continues to be sharp in the 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

Source: LSMS data 2002.

Methodology

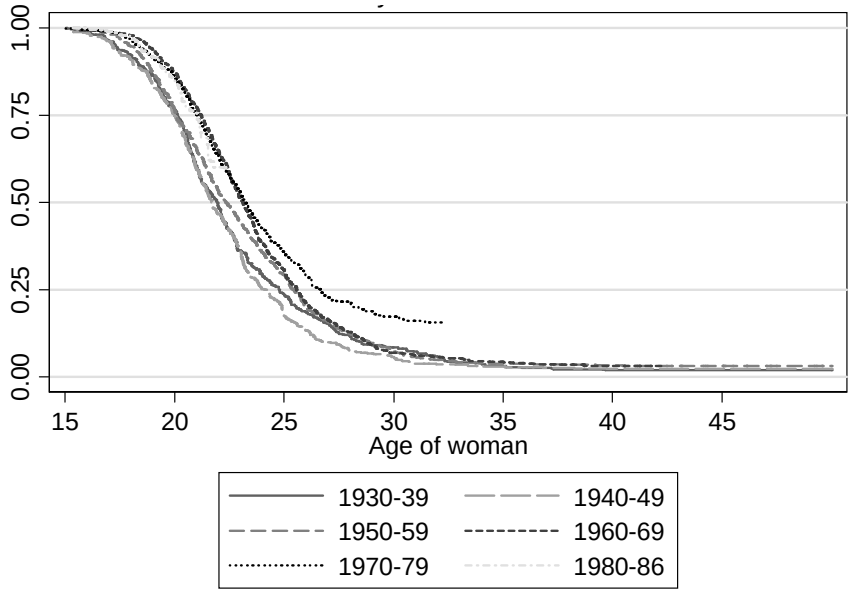
The nature of recent fertility reduction is better understood using appropriate survival analysis techniques such as non-parametric Kaplan-Meier (KM) estimation and semi-parametric Cox regression.[4] In our estimation we include control for cohorts, period effects, child mortality ratio, urban – rural 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 at second birth in the regression for the third birth. The period effect is specific to the nineties, and intends to capture any further fertility decline as a result of the economic and social upheavals during this period.

Results of the Kaplan-Meier estimates

The Kaplan Meier estimates provided for first, second, and third births are estimated for six cohorts. (Women born between 1930 and 1939, 1940 and 1949, 1950 and 1959, 1960 and 1969, 1970 and 1979, 1980 and 1986.) The last

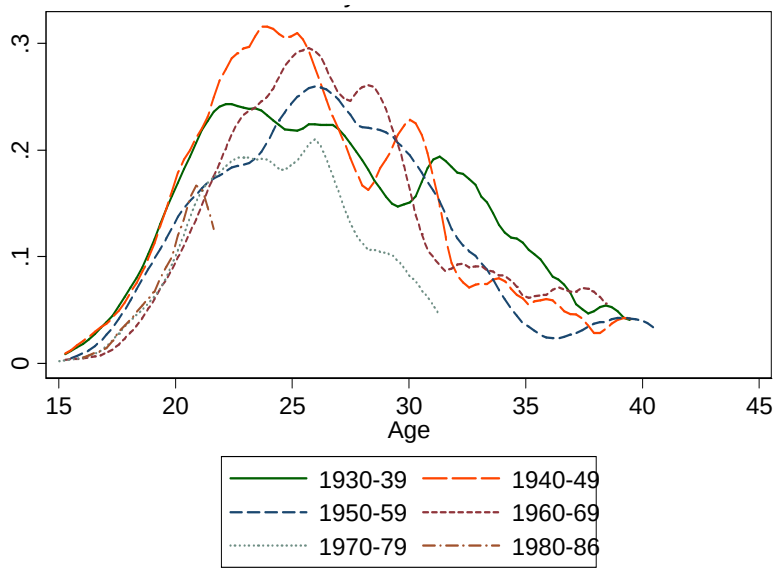
[4] The Cox regression assumes that the impact of covariates on the hazard is proportional. We test for the proportionality assumption throughout.

three cohorts have not completed their reproductive life at the time of the survey. For the first birth the risk of first childbearing is supposed to start 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 3a and 3b present the Kaplan Meier survival estimates for the first birth, whereas Figures 4 and 5 contain the Kaplan Meier survival curves for the second and the third birth respectively. Of particular interest here is the extent to which the two youngest cohorts differ from the older ones. Overall the estimates show that there is little difference between cohorts for the first birth, very little difference for the second one and there is a distinct difference between the youngest and the two older cohorts for the third birth. This indicates that having a first birth is universal in a still traditional society. As for the higher parities we see strong differences, showing that the decline in fertility (as seen in Figure 1 and 2) is mainly driven by a decline in higher order births.



Source: LSMS data 2002.

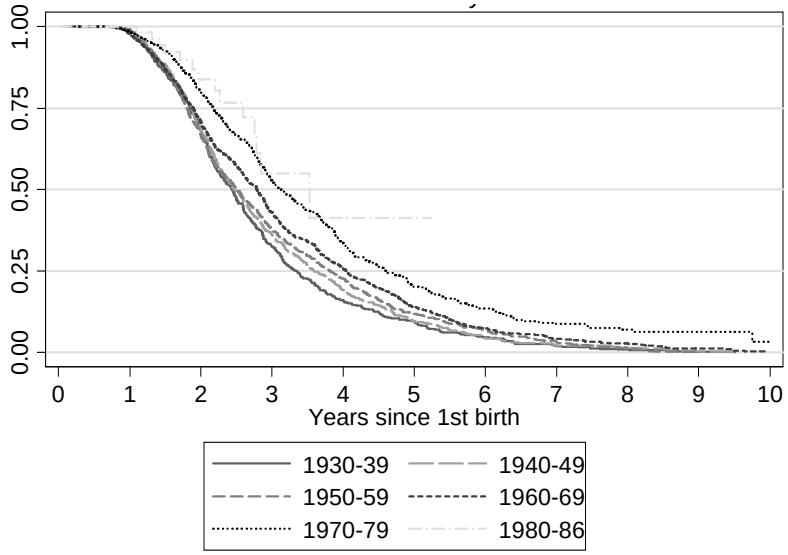
Figure 3a
Kaplan-Meier survival estimates of first birth by cohorts



Source: LSMS data 2002.

Figure 3b

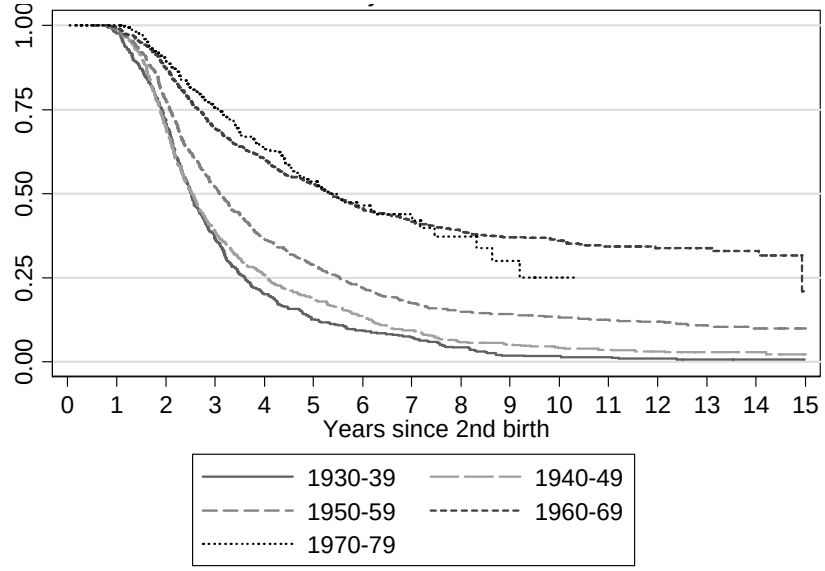
Kaplan-Meier hazard estimates of first birth by cohorts



Source: LSMS data 2002.

Figure 4

Kaplan-Meier survival estimates of second birth by cohorts



Source: LSMS data 2002.

Figure 5
Kaplan-Meier survival estimates of third birth by cohorts

Estimates for the first birth in particular and the other two to a lesser extent, go almost close to zero in the early cohorts. This suggests a very high proportion of women having a first birth. This can be expected to a certain extent if one remembers that the overall level of fertility for these cohorts was very high (Table 3). However, it could also be a result of other factors. First of all surveys where fertility histories are asked tend to under-represent unmarried, divorced, or even childless women. This in particular might be true in the case of Albania, which has been, and to a certain extent still remains, a traditional and patriarchal society. However, these results might also be affected by the fact that marriage was universal in Albania for the period under consideration and in particular the early cohorts, where childbearing outside marriage was almost zero (Falkingham and Gjonça 2001; INSTAT 2005).

Results from the semi-parametric analysis

In this section we present the semi-parametric analysis (Cox regression) based on the fertility histories derived from the Albanian LSMS survey. We have conducted two sets of analyses. The first includes control for cohort effects and uses the full sample of women. The cohorts are defined over the periods of 1930–39, 1940–49, 1950–59, 1960–1969, and 1970–86, the latter one being the reference group. Whereas this analysis provides a good picture of fertility decline across cohorts, it does not inform us about the possible period effect during the nineties. As a result the second analysis is based on a sub-sample of women born after 1959 where a period effect for the nineties is included. In a separate set of analyses we included the period effect and cohort variables in the same model using the whole sample. Though the estimates are qualitatively consistent, this approach is problematic since very few of the oldest cohorts had births during the nineties, for which we included the period effect (these estimates are not presented here). The estimates for the subsample are presented in Tables 5 and 6.

Table 5
Results of Cox regression analysis controlling for cohorts (hazard ratios)

	First birth	Second birth	Third birth
Reference: Cohort 1970–1986			
Cohort 1930–39	1.244**	1.278*	2.159***
Cohort 1940–49	1.278***	1.407**	2.200***
Cohort 1950–59	1.254**	1.442**	1.936***
Cohort 1960–69	1.179*	1.382**	1.391***
Child mortality ratio	2.534***	2.473***	5.374***
Reference: Urban			
Rural	1.060	1.078	1.389***
Reference: Tirana			
Coastal	1.139*	1.328***	1.426***
Central	1.220***	1.163*	1.209*
Mountain	1.172**	1.515***	1.981***
Reference: Muslim			
Orthodox	0.941	0.891	0.683***
Catholic	0.914	1.049	1.349***
Other religions	1.042	1.074	1.014
Reference: Less than 5 yrs			
Education (yrs) 5–8	1.141	1.018	0.846
Education (yrs) 9–11	0.996	0.952	0.742***
Education (yrs) 12–15	0.651***	0.781***	0.457***
Education (yrs) 16 plus	0.418***	0.654***	0.289***
Age at first and second births	N/A	0.972***	0.910***

Note: *:10%, ** 5%, ***: 1%.
Source: LSMS data 2002.

Not unexpectedly we find the oldest cohorts to have higher hazard ratios for first, second and third births. The highest hazard ratios are for the 1940–1949 cohort, which had its peak of childbearing during 1960–1969, the period for which the level of period fertility was the highest in Albania. This is consistent with the overall fertility decline of Albania (Figure 1 and 2). It is quite understandable for the oldest cohorts to have much higher hazard ratios for the second and third births. This is also shown from the Kaplan-Maier estimates which indicate that these cohorts have higher risk of having a 2nd and 3rd birth compared to other cohorts.

One of the main assumptions of the Cox hazard model is the restriction of proportionality. It is clear that the 1960–69 cohort does violate it, and so does education as a variable. In order to overcome the violation of the proportionality assumption, the analyses were also run including interactions. As expected the results did not change qualitatively. The detailed results of these interactions are given in Table 6 and 7.

The Cox proportional hazard model assumes that covariates shift the baseline hazard proportionally. This implies that the effect of the covariates does not change from short durations to long durations, for instance. Testing for the proportionality assumption is straightforward and its remedy (if violated) is also simple. The proportionality assumption is tested for all our estimates, and some violations are found. For the first birth reported in Table 5, we find the cohorts, especially the one of 1960 – 1969, to violate the assumption, as does education and to a lesser extent the child mortality ratio. To correct for the proportionality assumption we split the duration (i.e. time until birth) into segments which are interacted with the variables causing the violation. The violation of the cohort variables in the first birth regression can be traced back to Figure 3b. Here we can see that the hazard rates for the youngest cohorts are lower than those of the older cohorts, which is reflected in the estimates in Table 5. But we can also see that the hazard function of the two youngest cohorts (the reference group in Table 5), peaks and declines much more rapidly than the other older cohorts and this causes the violation of the proportionality assumption.

Table 6
Cox regression controlling for cohorts

	First birth	Second birth	Third birth
Reference: Cohort 1970–1986			
Cohort 1930–39	1.225	1.291**	2.168***
Cohort 1940–49	1.590**	1.405***	2.212***
Cohort 1950–59	1.379*	1.435***	1.951***
Cohort 1960–69	0.78	1.379***	1.395***
Cohort 1930–39 – interaction	1.024	–	–
Cohort 1940–49 – interaction	0.916	–	–
Cohort 1950–59 – interaction	0.898	–	–
Cohort 1960–69 – interaction	1.566**	–	–
Child mortality ratio	2.486***	5.121***	5.401***
Child mortality ratio – interaction	–	0.193***	–
Reference: Urban			
Rural	1.061	1.074	1.390***
Reference: Tirana			
Coastal	1.136*	1.339***	1.426***
Central	1.217***	1.168**	1.210*
Mountain	1.172**	1.535***	1.980***
Reference: Muslim			
Orthodox	0.941	0.887*	0.682***
Catholic	0.917	1.049	1.347***
Other religion	1.038	1.07	1.015
Reference: Less than 5 years			
Education (yrs) 5–8	1.166	0.934	0.841
Education (yrs) 9–11	0.776	0.889	0.739***
Education (yrs) 12–15	0.292***	0.629***	0.457***
Education (yrs) 16 plus	0.050***	0.429***	0.291***
Education 5–8 – interaction	0.963	1.179	–
Education 9–11 – interaction	1.360*	1.161	–
Education 12–15 – interaction	2.468***	1.488***	–
Education 16 plus – interaction	9.391**	2.055***	–
Age at risk of second and third births	–	0.998	0.925***
Age at risk of births – interaction	–	0.956***	0.972*

*Note: * 10%, ** 5%, ***1%. Interactions are created by splitting the duration variable at 4 for the first birth, and 2.5 years for second and third births. More detailed interactions can be constructed by splitting the duration interval into several segments, but did not seem necessary for the variables concerned here.*

Source: LSMS data 2002.

Table 7
Cox regression controlling for period effect

	First birth	Second birth
Reference: Before 1990		
Period effect 1990–2002	1.234*	0.837**
Period effect – interaction	0.779*	–
Child mortality ratio	2.464***	7.343***
Child mortality ratio – interaction		0.081***
Reference: Urban		
Rural	1.083	1.134*
Reference: Tirana		
Coastal	1.061	1.384***
Central	1.187*	1.231*
Mountain	1.06	1.625***
Reference: Muslim		
Orthodox	1.022	0.796*
Catholic	0.948	1.032
Other religion	1.116	0.913
Reference: Less than 8 years		
Education (yrs) 9–11	0.66	1.291
Education (yrs) 12–15	0.243***	1.026
Education (yrs)16 plus	0.079***	0.765
Education 9–11 interaction	3.823***	–
Education 12–15 interaction	7.061***	–
Education 16 plus interaction	13.034***	–
Age at risk of second birth	–	1.021
Age at risk – interaction	–	0.995

*Note: * 10%, ** 5%, ***1%. Interactions are created by splitting the duration variable at 4 for the first birth, and 2.5 years for second and third births. More detailed interactions can be constructed by splitting the duration interval into several segments, but did not seem necessary for the variables concerned here.*

Source: LSMS data 2002.

The pattern for the education variables is somewhat different. Here the hazard function is highest for those with lowest education, as is reported in Table 5. Those with higher education have a lower hazard rate, a natural result of delaying childbearing due to time spent in education. However, as women leave full time education, their rate of childbearing is accelerated compared to those with lower education, and again this tends to violate the proportionality assumption. This pattern is clear from Table 6, where the interactions with duration show a hazard ratio much higher than unity, reflecting the acceleration in childbearing. The effect of education is as expected: those undertaking higher education delay childbearing, but start a recuperation process as they complete their studies. A similar pattern is found for the second birth, whereas the educa-

tion variables do not violate the proportionality assumption in the estimates for the third birth. It is also worth noting that the cohorts do not violate the proportionality assumption for the second and third births.

Table 7 shows some interesting results with respect to the period effect for the first birth. Whereas Table 8 shows no period effect for the first birth, we see that this changes in Table 7 when controlling for duration effects. Compared to women having their first birth before 1990, the hazard rate is slightly higher in the first duration segment, but declines significantly after four years.

The other explanatory effects are as expected. The most important of these for the reduction of fertility is the survival of the previous child. We introduced here a variable that measures the ratio of deceased children to the total number of children for each woman, a variable that was included for all parities. The results show a strong effect of child survival on the level of fertility for each parity. They indicate that the rapid improvement of child mortality in Albania between 1950–2000 (Gjonça, A. 2001) played an important role in reducing the level of fertility. As expected this effect is much stronger for the higher parities.

Rural areas, together with the geographical areas outside Tirana, the capital, all have higher childbearing. Understandably the mountainous area of the country, which is also the least developed region of Albania, has the highest hazard ratios for the higher parities. It confirms the previous analyses that high levels of fertility are to be found in the less developed region of the north east. Education has a strong negative impact on all birth parities, especially on the third birth. This might be due to the fact that no matter how long education is, most Albanian women are having at least one child, as this still remains a universal practice and the norm even after dramatic social changes.

In contrast the effect of other factors, in particular education, becomes stronger at higher parities. Given that there is a continued expansion of education, with more women gaining higher education, it suggests that education is an important factor in determining future fertility levels in Albania. The effects of religion on first and second births are statistically insignificant. This can be related to the fact that the country banned religion for almost 30 years from 1963 to 1991. Thus, the main conclusion here is that, religion is not important. The only significant results are the ones for the third birth. Data shows that the Catholic population, mainly in the northern part of the country, has much higher hazard ratios than the Orthodox Christian and Muslim believers, based in the more developed south and centre of the country.

Table 8 shows the results of the second analysis where we only included women born in 1959 and after. Instead of controlling for cohorts we introduced a binary variable that captures the time period between 1990 and 2002. The great majority of the estimates remain highly similar to previous ones. The estimated period effects are however interesting. Whereas we would expect further fertility decline during the nineties, the period effect shows that there is

no delay in the *onset* of childbearing. Taking into account the fact that first birth remains universal in Albania, fertility decline only materialises through second and especially third births. Albanian society clearly remains a traditional one, despite social and economic changes during the 1990s, there is no postponement of the onset of childbearing (the first birth in our case). As a result strong norms surrounding the timing of marriage and the onset of childbearing remain, whereas the economic hardship associated with the economic and social upheavals reduces fertility through higher parities. This seems to be the easier adaptation to the changes.

Table 8
Results of Cox regression analysis controlling for periods (hazard ratios)

	First birth	Second birth	Third birth
Reference: Before 1990			
Period effect 1990–2002	1.018	0.840**	0.639***
Child mortality ratio	2.371***	2.579***	20.388***
Reference: Urban			
Rural	1.09	1.127*	1.651***
Reference: Tirana			
Coastal	1.057	1.388***	0.953
Central	1.181*	1.238*	0.914
Mountains	1.049	1.610***	1.744***
Reference: Muslim			
Orthodox	1.021	0.791*	0.467***
Catholic	0.941	1	2.009***
Other religion	1.121	0.92	1.44
Reference: Less than 8 yrs			
Education (yrs) 9–11	1.613**	1.427	0.71
Education (yrs) 12–15	1.002	1.135	0.469***
Education (yrs) 16 plus	0.593**	0.827	0.379**
Age at risk of first and second births	N/A	1.018*	0.940***

Note: *:10%, ** 5%, ***: 1%.
Source: LSMS data 2002.

CONCLUSION

Our analysis of the determinants of fertility has revealed highly interesting findings. Firstly they confirm previous research that the dramatic reduction of fertility in Albania came as a result of the reduction of fertility in all cohorts. The youngest cohorts while not delaying the entrance into childbearing (having a first birth is still universal), have reduced the fertility of the second and third

birth. Most importantly the reduction of fertility in the 1990s came mainly from the reduction of the second and mainly the third births.

When the two periods are compared interesting results can be established. First, during the 1990s the period effects concerning the first birth are not significant, while concerning the second and third births the period effects are stronger. The latter has been expected as the reduction in fertility came mainly from the reduction in these two parities. However, the fact that not much is changing with regards to the first birth might be explained by several factors. First, in 1990 maternity leave was expanded from six months to one year. During the early 1990s the collapse of state owned industries generated large redundancy programmes severely affecting the working population, in particular women. These two factors might have supported women's decision for having a first birth, respectively by continuing to have the first birth early and making it universal even in the 1990s. Most importantly there is evidence that with the introduction of the market economy, women in Albania are giving up full employment and in increased proportions they become housewives. The percentage of housewives has increased to 47% for women aged 15 years and over, from a period of full employment before 1990 (INSTAT 2004). The unemployment rate among women is also higher compared to men. Female unemployment rate is 28% as compared to 18.8% for men (INSTAT, 2004). All these factors, combined with the fact that Albanian society still remains traditional, (where having a first birth is the 'norm') can explain why there are no significant period effects for the first birth compared to other parities.

The findings also prove that female education has been one of the most important determinants in bringing fertility down in Albania. In this respect Albania is similar to other East European countries where social changes particularly the ones related to the expansion of female education during the communist period had strong effects in bringing fertility down. Again similar to Eastern European and in contrast to Southern European countries, the economic and social crises of the 1990s affected the timing of birth, but in Albanian only in the cases of second and third births. However, since Albania remains traditional concerning family values, the timing of the first birth was not affected. In this respect we cannot yet talk about a postponement of childbearing in the Albanian case (Kohler, Billari, and Ortega 2002). Given the rapid improvements of mortality mainly affecting infant and child mortality, one expects that this improvement would also have a strong effect in reducing fertility. The results of these analyses confirm yet again the fact that the survival of the previous child has a significant effect in bringing Albanian fertility down, similar to other analysed countries (Palloni and Rafalimanana 1999; van de Walle 1986).

It is clear that Albania still remains a traditional society with regards to family formation and childbearing. Thus, marriage is still universal and cohabitation is almost non-existent. Childbearing outside marriage is insignificant and

stays at a ratio of 0.5% as compared to Greece being at 4.8% (one of the lowest in Europe) and to neighbouring Macedonia having a ratio of 11.2% in 2003 (INSTAT 2005). About 88.1% of 25–29 year old singles and about 37.5% of the married people of this age group still live with their parents. Knowledge of contraception has been increasing but at a slow pace. 90% of Albanian women are aware of at least one modern method of contraception, however, only 8% of married women use modern them (Morris et al. 2005). The traditional methods that brought fertility down during the communist period remain the main ones even today, with 67% of females and 74% of males reporting withdrawal as the main means of contraception. This is in contrast to the fast changes with regards to education, which continues to be high in the agenda of Albanian family. The number of registered students in higher education has increased by a third since 1990. The number of females at the university level has increased from 51% in 1990 to 60% in 1999 (Social Research Centre, INSTAT, 2003).

Albania is facing a contrasting experience; it has a family formation similar to the Southern European countries on the one hand, while on the other hand we can observe such short term effects of social and economic changes which occur in most other Eastern European countries. Interesting patterns of fertility behaviour are happening at a time where Albania faces huge political and economic changes. It seems that "traditionalism" or "norms" persist for the onset of family formation, whereas perhaps "modernity" and economic constraints reduce the number of children.

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