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TRENDS IN ANGOLA'S FERTILITY*

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A. Introduction

In this study we attempt to assess the impact of the civil war on reproductive dynamics in Angola. This goal would be difficult enough for countries with more and much better demographic data, but in the case of a society with such a patchy and unreliable record of demographic trends as Angola this goal is inevitably reduced to a general exploration of possible associations between war and fertility. To highlight possible effects of war and to situate Angola's reproductive trends in a broader picture of regional and sub-continental reproductive dynamics we will draw comparisons, where data allow, with other, more peaceful sub-Saharan countries.

Literature on the impact of war on fertility is relatively scarce. Studies of twentieth-century western societies, most of which were in advanced stages of the demographic transition, documented a sharp decline of fertility during war years with a rebound in post-war periods (Hobcraft, 1996; Rindfuss and Sweet, 1977; Schwartz, 1997). However, in developing countries, that are largely pre-transitional or are in early stages of the transition to lower fertility, the evidence is less clear. For example, studies of fertility in Lebanon did not find any significant impact of the civil war in that country on the tempo of fertility decline (Khlat, Deeb, and Courbage, 1997; Kulczycki and Saxena, 2000). The Iran-Iraq war of the 1980s did not show any effect on Iranian fertility either (Ladier-Fouladi and Hourcade, 1997). In the only recent study dealing with sub-Saharan Africa, Lindstrom and Berhamu (1999) did detect some short-term fluctuations in Ethiopian fertility associated with politico-military instability and famine, but their data did not allow them to assess the long-term impact of war.

B. War in Angola

Many sub-Saharan nations have lived through spells of political and military instability since most of them gained independence in the second half of the twentieth century, but even in the grim sub-Saharan list Angola's case stands out. The war in Angola began long before that country became independent from Portugal in 1975. As early as 1961 the nationalist group known as MPLA launched its attack against the Portuguese military starting what Angolan official historiography will later label "The First War of National Liberation." Soon after the MPLA uprising other nationalist groups joined in the anti-colonial struggle. When the Portuguese colonial regime collapsed and Angola ascended to independence in 1975, MPLA, propped by its ethnic base in and around the capital Luanda and the support of its overseas allies, elbowed its way to monopoly power (MacQueen, 1997). As a result, a bitter civil war erupted, pitting the then "Marxist" MPLA government, strongly supported by the Soviet Union and Cuba, against the U.S.- and South Africa-backed UNITA opposition that has drawn most ethnic support from Angola's central highlands. Up to the moment of this writing the tragedy of civil war in Angola has lingered on with few intermissions despite dramatic political changes that have taken place in the country and in the world around it. A ceasefire brokered by the United Nations in 1991, in the wake of the end of the Cold War, was shattered a year later when UNITA contested the results of the first multiparty presidential and parliamentary election in September 1992. After a bloody outbreak of violence that followed, a shaky peace was reestablished in November 1994 with the signing of the Lusaka Protocol only to degenerate into an all-out (and still continuing) war at the end of 1998 (Pycroft, 1994; Spears, 1999).

The war has taken enormous toll of Angolan people and economy. Hundreds of thousands have been uprooted and forced to flee the fighting. The public health system in much of Angola has been reduced to a shambles, and the population of many parts of the country has come to rely heavily on domestic and especially international non-governmental organizations for the supply of basic food and medical care (Médécins Sans Frontières, 2000; Público, 2000). High levels of child malnutrition and low levels of immunization, even by unenviable sub-Saharan standards, attest to the state of public health in Angola (Agadjanian and Prata, 2000). In another ominous sign of a large-scale and profound health crisis,

Angola experienced a few years ago a severe outbreak of poliomyelitis—a disease about which most of the world has all but forgotten (CDC, 1999).

The magnitude of human and socioeconomic destruction caused directly and indirectly by the civil war looks particularly staggering if we take into account the exceptional agricultural potential of Angola and its unusual mineral wealth—especially in oil and diamonds. From a net exporter of agricultural products Angola turned into a country surviving on food imports and donations. Commercial farming has reverted to subsistence agriculture, and most of the country's fertile land has been left uncultivated. Diamond mining has been largely controlled by the UNITA opposition that has used the proceeds to purchase weapons (Sherman, 2000). Only the revenues from the offshore oil production, being generally shielded from any direct disruption by the hostilities, have saved the country from a complete economic collapse. Moreover, in an ironic twist of global macroeconomics and domestic imbalances, in a country haunted by the spectre of mass starvation (The Economist, 1999) the GDP growth rate, fuelled by the rising prices of crude oil, has been among the highest in the world (The Economist, 2000). This sudden financial windfall, however, will hardly make a difference in living and health conditions of the overwhelming majority of the Angolan population, as the lion's share of the oil sale proceeds and oil exploration bonuses goes to finance the government's war effort, while the spending on health care remains at a meagre three percent of the government's total expenditures (IMF, 1999).

Angola's protracted civil war, endemic poverty, and erratic politics have crippled Angolan researchers' attempts to study their country's social dynamics and problems; they have also deterred foreign scholars from doing so. The overwhelming majority of scholarly publications on contemporary Angola have dealt with—naturally—the war, but with an almost exclusive focus on its political and military aspects. The investigation of social, and especially sociodemographic, aspects of the war has been sketchy and largely limited to Portuguese-language reports that have rarely reached a wider international audience. Yet even before independence the anti-colonial war was claimed to have a profound impact on demographics of at least some parts of Angola, primarily through mass displacements and killings of the civilian population (Pelissier, 1974). This impact could only widen as the anti-colonial struggle gave place to generalized civil war after independence. Ours, therefore, is a modest attempt to start filling a significant void in Angolan studies.

C. Available demographic data

In most sub-Saharan countries available statistics are limited in coverage and dubious in quality: this problem, like many others, is magnified in Angola. The colonial era census and vital registration data are notoriously flawed (Da Costa Carvalho, 1979). Even though it is impossible to fully establish the type and degree of bias, there are reasons to suspect that fertility of the black population was systematically underreported, especially in earlier censuses (Heisel, 1968). In the quarter-century of Angola's independent existence only one national census took place, and even that census, conducted in 1983-85, was limited to accessible government-controlled areas (provinces of Luanda, Cabinda, Zaire, Namibe, and cities of Lubango, Uige, and Negage). A demographic and socioeconomic survey was carried out in 1988 in the relatively safe southern and southwestern parts of Angola, but the demographic module of that survey focused mainly on mortality (Angola, 1990). The four-year-long stretch of relative peace after the signing of the Lusaka accords in 1994 generated a lot of optimism and some sociodemographic studies. Two of those studies produced especially valuable data that we use in our analysis: the Living Standards Measurement Survey (LSMS), a World Bank standard priority model survey conducted in 1995 (see Sousa and others, 1996 for the description of methodology), and the1996 Multiple Indicators Cluster Survey (MICS), commissioned by the UNICEF (INE, 1998). With a sample size of about 5000 households the LSMS covered mainly urban areas in five provinces, whereas the MICS was a nationally representative survey of nearly 4500 households in which 4890 women aged 14 to 49 were interviewed. Both surveys lack the breadth and depth of information that a complete fertility analysis would require.

For example, neither collected nuptiality information; birth history is available only in the MICS and only for the last three births. Nonetheless, these survey data allow for important insights into the dynamics of Angolan fertility.

To better assess Angola's reproductive history and reality we will draw comparisons with five African countries located in different parts of the sub-continent. Four of these countries—Benin, Ghana, Kenya, and Zimbabwe—have enjoyed greater political stability since their independence than has Angola (even though Benin and Ghana have had their share of military coups), whereas one—Mozambique—has gone through a major civil war. These countries are at different stages of the fertility transition: whereas Kenya and Zimbabwe are in the forefront of the fertility decline in the sub-continent, Ghana is somewhat behind, and Mozambique and Benin are considered to be among the laggards (Cohen, 1998; Kirk and Pillet, 1998). For all these countries we use data from the most recent Demographic and Health Surveys (DHS) as well as other data when necessary and available.

D. General sociodemographic profile

Table 1 provides a general sociodemographic portrait of Angola and compares it to those of the selected sub-Saharan nations. Angola stands out as a very sparsely populated country. Coupled with the availability of vast quantities of highly fertile agricultural land, Angola's low population density, other things equal, should not produce any considerable land shortages that, as historical evidence from other parts of the world suggests, may be conducive to fertility reduction through undernutrition-related subfecundity, later marriage, out-migration, or direct fertility control. This logic, however, may not readily apply to a country where agriculture has been all but paralysed by ceaseless warfare in the countryside. Compared to the other countries, Angola has a very high percentage of urban population boosted largely by war-triggered massive population displacement from rural areas: overcrowded urban conditions may encourage fertility limitation. Angola compares favourably with Mozambique and Benin in women's schooling, especially in the proportion of women with secondary or higher levels of education, the group that in various contexts is typically in the vanguard of fertility change (Diamond and others, 1999); yet women in such countries as Zimbabwe, Ghana, or Kenya are generally better educated.

In macroeconomic terms, Angola, despite its unique economic potential, is among the poorer sub-Saharan countries; yet not on a par with the poorest ones such as Mozambique. One, however, needs to exercise caution in interpreting Angola's levels of national income: almost half of it has been spent on weapons and other war-related needs and the other half has been very unevenly distributed. These qualifications may explain why an ostensibly richer Angola has the second highest share of people living in poverty and is very similar to Mozambique, a country much less endowed with resources, on such key public health indicators as life expectancy, infant, childhood and maternal mortality, and sanitation. Angola's life expectancy is among the lowest in sub-Saharan Africa and its infant and child mortality is among the highest—in fact, more than twice as high as in countries with relatively advanced health care systems such as Zimbabwe and Kenya.

Maternal mortality ratio (the number of maternal deaths per 100,000 live births in a given year), another indicator of health care in general and of reproductive health in particular, also puts Angola at the bottom of the sub-Saharan list. Not surprisingly by now, Angola trails all the other selected countries in the proportion of population with access to proper sanitation (availability of safe excreta disposal facilities) and along with Mozambique has the lowest percentage of people with access to safe water supply.

E. Age-specific fertility

We start our examination of Angolan fertility with age-specific fertility. Figure I shows changes in age-specific fertility rates (ASFRs) in Angola between 1940 and 1996.[1] The data point to a considerable rise in Angolan fertility between 1960 and the mid-1980s. Although a pre-decline rise of fertility has been a common occurrence historically (Dyson and Murphy, 1985) and some increase in fertility was probably taking place after World War II in several sub-Saharan societies (Foote and others, 1993; Romaniuk, 1980) the apparent jump in Angolan fertility seems too large to be attributed just to improved nutrition and reproductive health and a gradual erosion of traditional methods of fertility regulation, and is likely inflated due the already mentioned underreporting of blacks' fertility in colonial censuses; it may also reflect to some extent the selective coverage of the 1983-85 census. In any case, even though the increase can be seen in all ages (with the exception of the latest stages of the reproductive span), the overall pattern of age distribution of childbearing have not changed much: in the mid-1990 as in 1940 fertility peaked in the age range 20 to 29. If we are to believe the data, little change occurred between the early/mid-1980s and the mid-1990s, as age-specific fertility remained well above the colonial-time levels for all but the youngest oldest age groups. Yet we can notice an overall shift of reproductive activity to older ages, and especially an appreciable decline of fertility levels in the two youngest age groups.

Considering the limited coverage of the 1983-85 census, it is difficult to assert whether the recent trends presented in figure I are a sign or at least a precursor of a sustained reduction of fertility in Angola or whether and how they reflect the politico-military experience of the nation. When we compare the 1996 estimates of age-specific fertility in Angola with recent estimates from other countries (figure II), the shapes of the distributions are generally similar, but the high levels of Angolan fertility, especially in the peak reproductive ages of 20-29, stand out in comparison not only with forerunners of the fertility transition but even with such generally pre-transitional societies as Benin and Mozambique. Assuming that the MICS data do not grossly overestimate the country's fertility, we find no support for a possible expectation that war might have lastingly depressed fertility.

F. Total fertility

Figure III compares recent trends in total fertility rates (TFRs) in Angola and the other five countries. The TFR is calculated as the sum of the age-specific rates through all ages of reproductive span and indicates the total number of children a woman would have during her reproductive life if she were to follow the current age-specific schedule of childbearing. Although the TFR, like age-specific rates from which it is computed, is a period (synthetic cohort) measure that does allow one to follow fertility of real age cohorts, a comparison of TFRs for different societies at different points in time may shed some light on dynamics of reproductive changes.

Angola's total fertility is the highest among the countries compared; yet it has been on decline as in all the other countries (with an inexplicable, even if moderate, increase in Benin in the mid-1990s). The Angolan data suggest that the country's TFR peaked in the mid-1980s, when the war was in a medium-intensity guerrilla stage, and then declined in the mid-1990s to the level still slightly superior of the early-1970s levels. Although these trends seem generally plausible, the reservations about the exact magnitudes of total fertility caused by the quality and limitations of Angolan data remain.

Even in countries that have not fully embarked on the path of fertility transition, fertility levels tend to vary across major sociodemographic categories. Table 2 summarizes the differences in total fertility by women's average educational level and area of residence computed from the 1996 MICS and obtained from the most recent DHS of selected sub-Saharan countries. One would expect a strong negative correlation between schooling and fertility: at each higher level of education fertility should be lower. Such a strong correlation is present in all countries but Angola. Although Angolan women with

secondary or higher levels of education have the lowest total fertility, the TFR for women with primary education is in fact higher than that for women with no education at all. This pattern is not uncommon in developing countries, especially in sub-Saharan Africa (Jejeebhoy, 1995), and reflects the very early stage of the fertility transition, when the erosion of traditional child-spacing practices such as prolonged postpartum abstinence and prolonged breastfeeding associated with education is not adequately compensated for by contraceptive use. Even though the differentials between uneducated women and those with secondary or higher levels of education are in the universal direction, the gap between the two groups is noticeably smaller in Angola than in any other country on our list, underscoring again the largely pre-transitional nature of Angolan society. The urban vs. rural comparison invites the same conclusion, as urban and rural areas in Angola display very similar levels of fertility, unlike the pronounced urban-rural differentials in the other countries. Thus, at the aggregate level there is no evidence that urban conditions—however worsened overcrowding, mass unemployment, dilapidating and insufficient housing, and chronic shortages of food and other consumer items—have pushed Angolan urban fertility down.

G. Age at start of childbearing and adolescent fertility

One typical feature of the fertility transition is postponement of childbearing. Figure 4 depicts median ages at first birth in Angola and in the comparison countries—for all women and for specific age cohorts—obtained from the most recent surveys. Despite what earlier appeared to be a decrease of fertility rates among youngest women between the mid-1980s and mid-1990s (Figure 1), Angolan women tend to start childbearing earlier than women of any other included countries, and this holds for all age cohorts with the exception of the oldest women (over forty). Yet even among older women Angola's figures are among the lowest. Also notably, age at first birth in Angola diminishes consistently from the older age groups to the younger ones. This is also generally the case of Mozambique, but in the other four countries the age at first birth tends to rise, especially in the youngest cohort, which is congruent with the notion of the fertility transition. Hence on this indicator Angola too shows no sign of a sustained fertility decline: in fact the Angolan trend directly contradicts an expectation that war might have hastened fertility reduction through a later start of childbearing. In fact, the war impact may have been exactly the opposite: although quantifiable data are lacking, there is abundant evidence of widespread rape and sexual enslavement of young girls, especially by UNITA soldiers (Human Rights Watch, 1999, pp. 52-54). It is also plausible to suggest that because of war-induced hardships families may try to marry off girls earlier in order to alleviate the household's economic burden.

The trends highlighted in figure IV also suggest a high level of adolescent childbearing in today's Angola. Indeed, as table 3 shows, Angola along with Mozambique has the highest levels of adolescent fertility. The pressure on women to start childbearing early is traditionally common in sub-Saharan societies (Bledsoe and Cohen, 1993) and the Angolan data provide no hint that this pressure is easing. Remarkably, Angola is the only country on our list where the levels of adolescent fertility in urban areas are slightly higher than in rural areas: in all other countries the reverse is true (with a wide gap, in most of them), which is again compatible with the "normal" expectation that young women are more likely to postpone childbearing (mainly through contraception and abortion) in urban areas than in rural areas. Unfortunately, because recent Angolan data lack information on age at entry into first marriage, we are not able to assess the magnitude of out-of-wedlock adolescent fertility, which has been seen as a growing problem in various parts of sub-Saharan Africa (Garenne and others, 2000).

H. Fertility intentions

Although stated fertility intentions and preferences should not be seen as accurate predictors of reproductive outcomes, such statements can serve as approximate gauges of a society's reproductive climate and of its future fertility. The intention to have no more children is arguably the least biased

measure of desired fertility; yet even this measure is imperfect. Table 4 presents the intention to cease childbearing in Angola and the other countries by area of residence and by number of living children. The overall proportion of women who said that they did not want to have more children places Angola in the middle of our list but much closer to countries where fertility changes have been less advanced. Thus less than a quarter of MICS respondents wanted to stop childbearing—considerably fewer than in Kenya, Zimbabwe, or Ghana, as many as in Benin and somewhat more than in Mozambique. As in the majority of the countries included in the comparison, Angolan urban women are somewhat more likely to want to end procreation than rural women, but the urban-rural difference is minute. When we break the samples by the number of living children, the pattern becomes more complex. Angolan women with no or one child display an unusually high proclivity toward having no more children. The share of childless women intending not to have children is particularly suspect and may be an artefact of the data collection process.[2] As in all the countries, in Angola the share of potential stoppers rises with each additional child. However, the Angolan pattern, especially among higher-parity women, is more similar to those in the three demographically more advanced countries than to those in Benin and Mozambique, whose fertility levels are close to Angola's.[3] Yet, given the nature of the variable, this pattern alone is not sufficient to claim that the war has precipitated the rise of antinatalism in Angolan society.

I. Contraceptive use

Fertility decline is usually associated with contraceptive uptake. The use of modern contraception is particularly indicative of reproductive changes underway in society. Sub-Saharan Africa trails most other parts of the world in contraceptive use, but in some countries, such as Zimbabwe and Kenya, contraceptive prevalence has reached fairly high levels, contributing to the fertility decline recorded there (Cohen, 1998). In Angola the national family planning program started as part of the maternal and child health services in the mid-1980s with the main objective to improve the health and well-being of mothers through child spacing (Carvalho and others, 1996). Since the program's inception family planning services have been offered free of charge through state-run clinics. The program has been plagued by shortages of properly trained health workers, limited choices of available contraceptives, and frequent interruptions in their supply. The Ministry of Health's family planning education programs usually target only women who seek the services, leaving the general public largely uninformed about benefits and potential side-effects of contraceptives. Private alternatives to state clinic-based family planning services are limited and expensive. However, because of the weakness of the state-run family planning systems and the absence of a community-based distribution networks, users increasingly have to rely on private providers whose services are poorly regulated and prices are often exorbitant.

Reflecting the state of the national family planning system, Angola's levels of contraceptive use are among the lowest in sub-Saharan Africa, especially in comparison with such contraceptive leaders as Zimbabwe and Kenya (table 5). At the same time, Angola's prevalence of modern contraceptives does not differ much from that in Mozambique and Benin. As in all the included countries, Angolan women's educational level displays an unequivocal positive association with contraceptive use; as in most countries the jump in contraceptive prevalence is particularly impressive between women with primary education only and those with the secondary or higher educational level.

As it is generally the case, contraceptive prevalence is higher in urban areas than in rural areas, and in Angola the gap between the two parts of the country is the second widest after Mozambique. Notably, in both Lusophone nations the urban-rural differences are inflated by a very high contraceptive prevalence in their capital cities. Although this pattern is not atypical for sub-Saharan Africa as a whole, in Mozambique and especially in Angola it also reflects the war-induced distortion of the health and family planning systems in favour of safer and better infrastructured capitals. In sum, however, the urban-rural differences in contraceptive use stand in sharp contrast with the proximity of urban and rural fertility level

(Table 2), which suggests that the contraceptive advantage of urban areas is yet to translate into tangible fertility differences.

J. War-related variations in Angolan fertility

Although Angola has been in a state of war for generations, the intensity of hostilities varied over time. As outlined above, only in recent years Angola lived through a relative peace in 1991-1992, then a major outbreak of hostilities that started after the 1992 elections, lasted through 1993 and continued, albeit at a much lower scale, until the fall of 1994. The newly found calm began to take root in the following four years only to be upset again in December 1998.

There is, however, another dimension of the unevenness of the war impact—a regional one. The hostilities, especially those in 1992-94, did not equally affect all parts of the country. In some regions of the country, both rural and urban, the imprint of the war has been particularly strong and destructive. Other parts of Angola remained relatively free of massive warfare even as the hostilities peaked in the end of 1992 and 1993, and were therefore affected by war mainly indirectly, through the overall decay of their economic and social infrastructure and general impoverishment of their population.

In this section of the paper we analyze these temporal and regional variations in Angolan fertility using the 1996 MICS data. To reflect the regional unevenness of the impact of war we subdivide Angola into two groups of regions—one that has been more affected by civil war, especially by its 1992-94 round, and the other where the effects of the war have generally not been as devastating. The lighter-impact zones include, using the MICS classification, the country's Capital, Southern, and Western regions that form a contiguous area in the western part of the country (reflecting the government's greater control in the coastal and adjacent areas); the heavier-impact regions of Angola are the Northern, Eastern, and South-Central regions. Although these two broadly defined zones of Angola are different ethnoculturally and socioeconomically, these differences are not systematic. The only thing that may confound our comparisons is that urban part of the Capital region, which largely correspond to Angola's capital Luanda (and for shortness will be referred to as Luanda hereafter), by far the largest and most modernized urban area, falls into the urban areas of the lesser-impact regions; to eliminate a possible bias we treat Luanda as a separate category. To capture interactions of the region-area of war impact with period and socioeconomic characteristics we include corresponding interaction terms in our models.

Our analytical strategy and tools are as follows. We first examine trends in fertility by region-area of war impact in four years prior to the survey, that encompass both a period of heightened hostilities in 1993-94 and the periods of relative interbellum peacefulness that preceded and followed it. To do so we look at probabilities of a birth in any given twelve-month period since August 1992. We restrict this analysis to MICS respondents who were nineteen and older at the interview and therefore at least fifteen (the conventional threshold in fertility analysis) in 1992. From this subsample we create a person-years matrix and employ discrete-time logistic regression to estimate the probability of any birth regardless of birth order in a given year; at this point, we do not include any other covariates. The reference twelve-month period is the period starting in August 1993 and ending in July 1994, which in terms of the period of conception roughly corresponds to the time when the effects of the resumption of hostilities could be most felt. The other three periods are August 1992-July 1993, August 1994-July 1995, and August 1995-July 1996 (the births that occurred in the few months between August 1996 and the time of the survey are excluded). Because women had different numbers of births during that period, we adjust standard errors for the within-woman clustering of births.

After exploring these trends, we use the same statistical tool to examine interactions between period and region-area of war impact, and between period and selected socioeconomic characteristics, while controlling for sociodemographic differences. The full model can be expressed as follows:

$$ln\ (P_{ij}/1\text{-}P_{ij}) = \beta_{0ij}+\Sigma\beta_k X_{kij}+\Sigma\beta_l X_{lij}+\Sigma\beta_{kl} X_{kij} X_{lij}+ \Sigma\beta_m X_{mij}+\sigma_j+\gamma_{ij},$$

where P_{ij} is the probability of having a birth for woman j in year I, X_{kij} are dummy variables for period, X_{lij} are other predictors of interest (region-area of war impact or socioeconomic characteristics), $X_{kij}X_{lij}$ are interactions between the two types of predictors, X_{mij} are sociodemographic control variables, β_k, β_l, β_{kl}, and β_m are corresponding parameter estimates, and σ_j and γ_{ij} are between-women and within-woman variances, respectively.

We start by looking at trends in fertility in four year-long periods before the MICS. Figures 5 and 6 depict the trends in odds ratios of births relative to August 1993-July 1994. These trends are estimated from separate models for the country as a whole and for its parts, and each model includes period as the only predictor. As the first graph (figure V) suggests, the reference year, when most of the impact of the 1992-94 war is to be expected, indeed has the lowest probability of birth. For the entire sample, the probability in the pre-war year (which itself, as the reader should be reminded, covered the last half of a brief respite after the previous—more prolonged but less intensive—spell of civil war) is significantly higher, then slightly rises after the worst of the 1992-94 war is over, and rises further to exceed the prewar level and become again significantly different from that in the peak war year in the period of restored peace (roughly approximated by the twelve-months period starting in August 1995). Yet this figure also shows that this trend was not uniform in the more and less-affected parts of Angola. In fact, between the two groups of regions the "trend" is only present in the one of greater-impact where the annual oscillations of fertility are much more pronounced than in the country as a whole. In contrast, less-affected regions show a smaller and less consistent variation in odds ratios. These patterns conform to our expectations, inviting a logical conclusion that the greater the impact of war, the more pronounced the variation in fertility—from a drop at the war's height to a rebound after its end. This conclusion, however, tells only part of the story. This same graph depicts the trend in Luanda, a part of the less-affected region, which saw virtually no violence aside from the anti-opposition pogroms in the immediate wake of the September 1992 elections. This "lightest"-impact part of the country reveals practically the same trend as the most heavily affected zones. In fact, a recovery of fertility "lost" to the war seems to start in Luanda earlier, before the war is "officially" over but after the government halted the opposition's advancement and it became evident that the capital city would not be sucked into hostilities directly. Denizens of capital cities, who in sub-Saharan nations are usually most urbanized and best educated, often stand out demographically even in more peaceful places than Angola (Foote, Hill, and Martin 1993; Shapiro and Tambashe forthcoming). The Angolan case also suggests that capital city dwellers are much more sensitive to the indirect impact of war than those of other relatively unaffected parts of the country.

Figure VI adds more nuances to fertility trends by dissecting the sample according to area of residence within the zone of war impact. Supporting our conceptualization, both rural and urban areas of more-affected regions show similar patterns but in the urban areas of that part of the country the post-war rebound was particularly manifest. Unlike the previous and the subsequent rounds of civil war, the 1992-4 war saw violent and often prolonged combats in some urban areas of more-affected regions. Although the rural areas of those regions still bore the brunt of deaths and destruction, this "unusual" shock endured by its urban population, probably coupled with a better ability to regulate fertility, is probably responsible for the detected pattern. In less-affected regions there seem to be a greater divergence between the rural and urban areas: as we anticipated, the former, statistically speaking, did not "notice" the 1992-4 war (in fact, the odds ratio was the highest—not significantly—in the peak year of war), while urban areas appear to follow the overall trend, albeit with a much less clear and forceful pattern: the odds of having a birth show a slight rise in 1994-5 and then a decline below the war levels in the following year.

K. Examining interaction effects

Table 6 summarizes the tests of a fuller range of factors that may affect fertility. These tests use the same person-year matrix and the same statistical technique as above but we now fit models that include a set of additional predictors and selected interaction terms. These predictors are parity at the beginning of period, age, age squared, and sex of household head (which in practice corresponds to whether a permanent male partner is present or not) and two socioeconomic variables in which we are particularly interested—education (formulated as a trichotomy) and material status, approximated, however coarsely, by radio ownership. Some distortion in our results can be caused by a possibility that respondents' household characteristics such as sex of household head or radio ownership changed over time, but we considering the short temporal span, we reckon this should not be a serious issue.

Model 1, in addition to these predictors, includes region-area of residence expressed as a set of dummy variables: rural areas of greater impact, urban areas of greater impact, rural areas of lesser impact urban areas of lesser impact excluding Luanda, and Luanda; greater-impact rural areas—the part of the country most brutally battered by civil war—is the reference category. Model 2 adds interactions between these five parts of the country and period. Finally, Model 3 tests for interactions between period and the socioeconomic variables—education and material status. In both models with interaction effects only statistically significant interaction terms are included. As previously, in all three models we control for the random effects caused by within-woman variation of births.

Model 1, which includes only the main effects, generally replicates the pattern of temporal variations obtained from the baseline model and depicted in Figure 5—the U-shaped curve of birth probability that dips significantly from 1992-3 to 1993-4, rises—non-significantly—in the following twelve months, and then rises further—and significantly—in the following period. In comparison, variations among different parts of the country appear minimal: although all the region-areas included in the model appear to have lower odds of birth than more-affected rural areas, only Luanda's estimate is significantly different from zero. Between the two socioeconomic variables of interest—household's material status and woman's education—the former has no significant effect on the probability of birth, whereas in the latter only some primary (1 to 4 years) education has an impact relative to no education at all. Notably, this impact is positive, as it is often the case of pretransitional and early-transitional societies, especially in the sub-Sahara, where primary education is associated more with the abandonment of traditional birth-spacing practices than with increased willingness or ability to control fertility (Jejeebhoy, 1995; Mboup and Saha, 1998).

In Model 2 we add interactions between period and region-area of war impact. None of the interaction terms for Luanda proves significant and we exclude them from the model, concluding that Luanda remains different regardless of the ebb and flow of the war. For the same reason interactions between period and urban areas of greater impact are also omitted: differences in odds of birth between urban and rural areas of the most affected part of the country remain negligible throughout the years under observation. Not so in the case of urban and, especially, rural areas of less-affected regions. Although the main effect of living in a lighter-impact urban area remains statistically non-significant, its interaction with year 1995-6, the last period under observation, significantly depresses the probability of birth. The interaction effects of living in a less-affected rural area is in the same direction but is much more pronounced: while the statistically significant main effect is positive, the effects of all three interaction terms are significantly negative. Although the magnitude of the interaction term for the last included year is largest, all three interaction effects are large enough to fully erase the main effect. Since the main effect estimate now refers to the differences between less-affected rural areas and more-affected rural areas in year 1993-4, we can conclude that the relative excess of births during the peak of hostilities in the former reverses into a relative shortage once peacefulness is reestablished. Interestingly, for residents of less-affected urban areas, the largely indirect effect of war was sufficiently strong to keep

their fertility at levels indistinguishable from those registered in the hardest pummeled areas of the countryside, in all but the last year, when the calm finally settled and fertility in more-affected rural areas shot up in a rebound from the wartime depression. In sum, the results generally follow the pattern elicited in figure V confirming our expectations regarding fertility dynamics in more-affected vs. less-affected parts of Angola.

The main effect of period, which now corresponds to the effect in more-affected rural areas, shows, quite expectedly, a sharper contrast between the years surrounding that of extreme fighting. In contrast to the main-effect-only models, now even the 1994-5 period is significantly (even if marginally) different from the reference year, stressing the strength of the shock caused in that part of the country by the ferocious fighting that followed the collapse of the 1992 election. Finally, when we assess the interaction terms from the standpoint of temporal variations, the results illustrate the decrease in these variations in less-affected regions, and especially in their rural parts, which again conforms to our conceptual reasoning.

In the last test of probability of birth we explore interactions between period and the two socioeconomic variables—education and material status (radio ownership). In the previous two tests (Models 1 and 2) the effects of these variables were very similarly trivial. The inclusion of interactions with period (Model 3) radically changes the picture. Whereas the positive effect of primary education persists without any significant interaction with period (these interaction terms are therefore excluded), education beyond the fourth grade now shows considerable variation. The main effect of this schooling level is now negative (albeit only marginally significant), but the effects of its interaction with period are positive and significant. It is the fertility of this segment of the population, therefore, that proves most sensitive to changes in the politico-military situation, as better-educated women are most likely to halt childbearing when war flares up. Although, the reason why the 1994-5 interaction effect is largely than that of 1995-6 is not clear, the general pattern buttresses our assumption that better-educated people are both more likely to opt for avoiding births during the times of trouble and better able to pursue this option.

The estimates for material status show a similar trend (even if not as forcefully), which helps us understand why its effect was next to nil in the main-effect-only test. Women in radio-owning households were less likely to have a birth during the peak of violence, but the positive effects in the subsequent years completely effaces this difference. Thus, even through such an imperfect proxy as radio ownership, material status conveys the same pattern of association with war as education, which should have a similar substantive explanation.

Mirroring the above trends, the main effects of period, potent throughout the previous tests, now disappear: the estimates for these effects now correspond to the least educated and poorest women, whose fertility behavior show least variation in response to the military conditions. As our preliminary tests indicated (not shown), schooling plays the most important role in shaping this pattern of association.

L. Conclusions

The available demographic information on Angola paints a picture of a largely pre-transitional society. Recent data allude to a possibility of some fertility decrease and a shift of reproduction to older ages, which commonly characterizes fertility decline, but the limitations of these data, especially of the 1983-85 census, cast doubts on such a possibility. Although it is difficult to establish a direct causal link between the war and fertility in Angola, the data offer no evidence that the war might have accelerated fertility decline. Angola's relatively high levels of urbanization and female literacy, which in combination with higher standards of living and a vigorous family planning program could have fostered reproductive changes (Entwisle and Mason, 1985), do not seem to have played any appreciable role in the

war-torn society. In fact, it seems more plausible to argue that war has slowed down and even halted long-term fertility changes in Angola—by keeping childhood mortality high, crippling the government's efforts to expand family planning and maternal and child health care, restricting couples' access to contraceptive information and services, and possibly by causing mass social and marital disruptions that in turn might lead to an earlier start of childbearing.

In the last part of our analysis we focused on differences in fertility between periods of intensive warfare and of relative peacefulness as well as between urban and rural areas and between parts of the country with heavier and lighter impact of war, even though the data did not allow us to conduct a more specific analysis of proximate determinants of fertility.

The limitations of the data also prevented us from devising a more thorough taxonomy of the impact of war in Angola and directly analyze proximate determinants of fertility; nonetheless the data have proved sufficient for meaningful and informative analyses of fertility trends. First, as we expected, we saw a clear dip in the probability of birth as the war intensified and a subsequent rebound after the worst of fighting was over. Yet these trends were fully present in regions affected by war most directly and, notably, in the capital city, where the impact of the war was perhaps least direct but advanced urbanization made residents more responsive to changes in the politico-military macroclimate and related microeconomic hardships, and, at the same time, better able to control their fertility. This similar fertility reaction in such dissimilar settings was probably achieved through very different mechanisms—a largely unintentional reduction of fertility in a pretransitional population due to social disruptions directly caused by the fighting (more-affected regions) and intentional fertility regulation in a less directly affected yet demographically more advanced population (the capital city). Although with the data at hand we were unable to test this supposition directly, the fertility outcomes that we observed and the general knowledge of how war affects society seem both to lend it credence.

A dissection of the more-affected regions into rural and urban areas produced but a minimal period variation; the rural-urban differences within the less-affected regions were not large either. Fertility in less-affected rural areas remained particularly insensitive to war—not so much, we would surmise, because the conflict there passed unnoticed but because its impact was not strong enough to trigger any adjustment through fertility in a pretransitional setting. Less-affected urban areas outside Luanda showed somewhat more variation than the countryside but at least in statistical terms, did not produce any convincing pattern of fertility adjustment either.

As we also discovered, the period variations in fertility were largely concentrated among certain socioeconomic segments of Angolan population: more educated and more affluent people were more likely (and presumably better capable) to regulate their fertility in response to war, regardless of which part of the country they lived.

Irrespective of the educational level or material status, however, recent fertility of the most modernized segment of Angolan society—Luanda residents—stood out of line with other less-affected affected areas, and with the rest of the country, for that matter. The probability of birth in the capital was also consistently lower than elsewhere throughout the span of observation. Yet at the same time, as we noted, fertility of Luandans oscillated almost as much as that of most directly and heavily affected parts of the country, thus adding another important nuance to the unevenness of the impact of war.

When it came to lifetime fertility, however, Luandans were no different from the rest, suggesting that the uniqueness of its fertility pattern is a relatively recent phenomenon. In general, contrary to a possible expectation, the period- and area-related variations in fertility that we detected during the four-year span examined did not seem to produce any long-term differences in lifetime fertility—either across region-areas of war impact or across different socioeconomic groups.

Finally, our tests of fertility preferences have also shown some, even though moderate, differences. In normal, (i.e., peaceful) developing settings residents of urban areas tend to be less pronatalist than those of rural areas. However, our results indicate that only the capital city's residents clearly followed the rule. As to the rest of Angola, we found that war significantly divided the otherwise fairly homogenous Angolan countryside, with dwellers of more stressed, greater-impact areas showing less pronatalism than those of areas where the war did not leave as devastating a scar. Yet, to understand more fully the complexity underlying this trend, it must be interpreted in conjunction with the earlier observation of much more pronounced war-related fertility fluctuations in more-affected parts of the countryside. Synthesizing the two findings, we can conclude that women in more-affected rural areas are more likely to forgo childbearing at the peak of war, more likely to make up for that loss after war ends, but probably because of vivid memories of war and a sharpened perception of the possibility of its return, are, other things equal, less likely to wish to continue reproduction, at least for the time being.

Of course, the cross-sectional analysis of fertility desires and intentions does not enable any sound predictions of future fertility trends. In general, with the data at our disposal any attempt to extrapolate the discovered differences into the future would be highly speculative, especially because the politico-military situation in Angola remains so volatile and the current round of war that started in December of 1998 may be the most disastrous ever and may further complicate the country's demographic maze. In other similar settings, war-related short-term swings in fertility are easily detectable, but long-term effects of war- or crisis-induced distress are more problematic to establish (Lindstrom and Berhanu, 1999; National Research Council, 1993). Yet even though we have no reason to think that the protracted war has caused any lasting and irreversible changes in Angolan fertility, it does seem plausible to conclude that at least the short-term impact of war on reproductive regimes has varied between more and less-affected parts of the country as well as across different socioeconomic segments of society, and that these variations are likely to mark the course of the future demographic transition. A war so total and devastating as in Angola induces fundamental and multifaceted changes in a population and must imprint not only its current demographic behavior and structure but also its future demographic trends.

When debating how Angola's civil war may have influenced its people's demographic behaviour, and reproductive behaviour in particular, one should not forget one indirect yet quite important way in which this influence may have been exerted. We already mentioned the paradoxical contrast between Angola's mineral wealth and agricultural potential and the squalor in which most Angolans live. The war has not only consumed a huge share of Angola's oil and diamond revenues; it has also undermined the foundations of institutional legitimacy of Angolan civil society. Angola's ruling elite has been accused of using the war as an excuse to systematically circumvent the law, to plunder the country's wealth and to rob its people of the most elementary—food, medicine, and education—and to suppress any criticism of mismanagement and corruption (Human Rights Watch, 1999; The New York Times, 2000). Roots of the dismal state of Angola's health care system, and specifically of its reproductive health services, therefore, must be sought in this top-down lawlessness and unaccountability as much as in the destruction directly caused by the fighting.

Notes

[1] ASFRs for 1940, 1950, and 1960 censuses were computed using Brass multipliers, and for the 1983-85 census using P/F ratios. For 1996 ASFRs were computed from the MICS data by dividing the number of live births in the 12 months preceding the survey by the number of women in each age group.

[2] It is likely, for example, that many of these respondents, unmarried adolescents, misunderstood the question on life-long reproductive plans as referring to short-term fertility intentions.

[3] Because of a lower proportion of higher-parity women in the MICS, the overall share of Angolan potential stoppers is closer to those in the Benin and Mozambique DHS.

Table 1. Selected demographic and socioeconomic indicators

	Angola	*Benin*	*Ghana*	*Kenya*	*Mozambique*	*Zimbabwe*
Population, millions (1998)	12	6	19	29	16	12
Population density (persons/km^2)	9	50	80	50	20	30
Average population growth, 1980-1998 (%)	2.9	2.8	2.6	2.4	2.0	1.9
Urban population, 1998 (%)	33	41	37	31	29	34
Population below the poverty line (%)	61	33	31	42	69	26
GNP per capita (US Dollars, 1998)	380	380	390	350	210	620
Women's education, (women aged 15-49, %)						
No education	35	71	29	12	43	11
primary	43	20	18	59	53	47
secondary or higher	22	9	53	29	4	42
Life expectancy at birth [Male - Female] (years)	45 - 48	52 - 55	58 - 62	50 - 52	44 - 47	55 - 57
Infant mortality (per 1,000 live births)	124	87	65	76	134	56
Under-five mortality (per 1,000 live births)	209	140	96	124	213	86
Maternal mortality ratio (per 100,000 births)	1,500	500	210	590	1,500	280
Population (%) with access to:						
sanitation	16	20	42	77	21	66
safe water	32	50	56	53	32	77
formal health care	24	42	25	n/a	30	n/a

Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Relatório do Desenvolvimento Humano; Sousa et al. Perfil da pobreza em Angola; The World Bank 2000, World Development Indicators; Zimbabwe Demographic and Health Survey, 1994.*

Table 2. Recent total fertility rates (TFRs) by womens' education and area of residence

	Angola (1996)	*Benin (1996)*	*Ghana (1998)*	*Kenya (1998)*	*Mozambique (1997)*	*Zimbabwe (1994)*
Education						
none	6.9	7.0	5.8	5.8	5.8	5.2
primary	7.3	5.0	4.9	5.2	5.7	4.7
secondary +	5.8	3.2	2.8	3.5	3.7	3.3
Residence						
urban	6.8	5.2	3.0	3.1	5.1	3.1
rural	7.0	7.0	5.4	5.2	5.8	4.9
Country total	6.9	6.3	4.6	4.7	5.6	4.3

Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1993; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994.*

Table 3. Adolescent fertility: percentage of adolescents who have begun childbearing

	Angola (1996)	*Benin (1996)*	*Ghana (1998)*	*Kenya (1998)*	*Mozambique (1997)*	*Zimbabwe (1994)*
Age						
15	8.0	2.7	1.6	3.3	7.5	2.9
16	20.7	7.4	5.8	6.0	19.6	9.7
17	30.6	22.4	13.9	19.6	43.5	16.2
18	39.7	35.3	21.1	30.1	63.0	31.1
19	62.9	56.1	31.7	44.9	66.7	44.1
Residence						
urban	33.9	18.7	8.5	17.5	30.6	15.2
rural	32.8	32.5	17.4	21.8	43.6	21.6
Total	33.3	26.0	14.1	20.9	40.0	19.7

Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994 .*

Table 4. Percentage of women who want no more children by number of living children and area of residence.

	Number of living children							*Area of Residence*		*Total*
	0	*1*	*2*	*3*	*4*	*5*	*6+*	*urban*	*rural*	
Angola (1996)	7.7	9.3	14.1	20.0	38.9	60.9	77.3	24.2	22.0	23.2
Benin (1996)	1.0	1.3	5.3	14.5	25.1	38.5	58.6	27.1	20.8	23.0
Ghana (1998)	0.8	2.3	16.1	36.1	53.2	64.3	78.4	36.8	34.2	35.0
Kenya (1998)	1.7	8.1	33.9	51.8	72.2	78.4	88.8	49.0	54.4	53.3
Mozambique (1997)	1.0	2.1	6.7	14.7	19.9	38.3	55.5	24.3	15.1	16.9
Zimbabwe (1994)	2.5	5.5	19.5	31.4	50.8	61.4	80.3	39.9	37.3	38.0

Sources: Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1993; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994.

Table 5. Current use of contraception by area of residence and education

	Angola (1996)	*Benin (1996)*	*Ghana (1998)*	*Kenya (1998)*	*Mozambique (1997)*	*Zimbabwe (1994)*
All methods	8.2	16.4	22.0	39.0	5.6	48.1
urban	13.4	19.0	30.4	49.6	17.7	57.6
rural	4.2	15.0	18.1	36.2	2.7	44.2
Modern methods	4.2	3.4	13.3	31.5	5.1	42.2
urban	15.0	5.8	17.4	41.0	16.6	53.9
rural	1.9	2.1	11.4	29.0	2.3	37.3
no education	2.3	2.1	8.9	16.1	2.5	25.9
primary	7.2	7.0	12.9	21.8	6.3	38.9
secondary +	28.5	11.1	20.3	46.3	27.1	54.7
Capital/largest city						
All methods	33.0	27.6	32.2	56.3	30.3	61.6
Modern methods	27.5	4.9	17.4	46.8	28.5	57.7

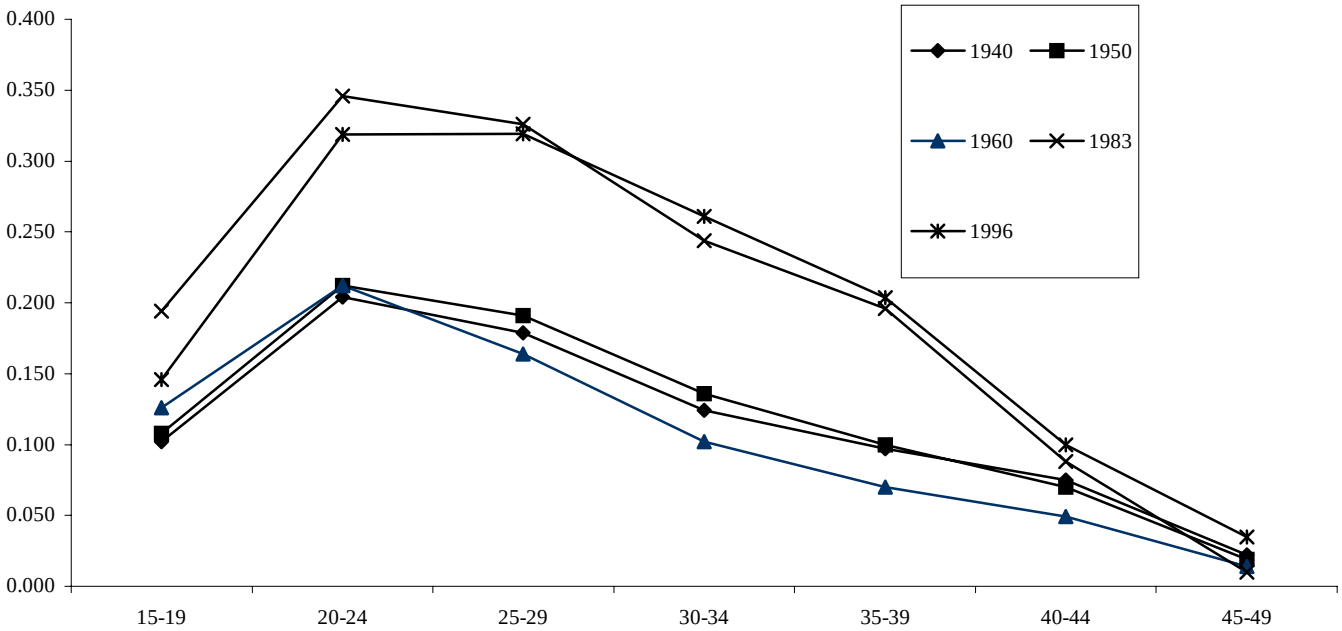
Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994 .*

TABLE 6. ODDS RATIOS OF HAVING A BIRTH, MAIN EFFECTS AND SELECTED INTERACTIONS, WOMEN AGED 19 AND OVER, ANGOLA MICS, 1996.

Predictor	*Model 1*	*Model 2*	*Model 3*
Period			
August 92 - July 93	1.24*	1.42**	1.01
[August 93 - July 94]	1.00	1.00	1.00
August 92 - July 93	1.12	1.25+	0.86
August 92 - July 93	1.44**	1.87**	1.09
Region-area of war impact			
[More-affected rural]	1.00	1.00	1.00
Less-affected urb. excl. Luanda	0.93	1.11	0.93
Urban of greater impact	0.91	0.91	0.91
Rural of lesser impact	0.97	1.44**	0.97
Luanda	0.79*	0.79*	0.79*
Education			
[None]	1.00	1.00	1.00
Some primary (1 to 4 years)	1.21*	1.21*	1.21*
Secondary or higher (5 or more ys.)	1.11	1.11	0.73+
Household ownership of radio			
[No]	1.00	1.00	1.00
Yes	1.01	1.01	0.75+
Interactions			
Less-affected urb. excl. Luanda * 8/92-7/93	--	0.90	--
Less-affected urb. excl. Luanda * 8/94-7/95	--	1.24	--
Less-affected urb. excl. Luanda * 8/95-7/96	--	0.43**	--
Less-affected rural * 8/92-7/93	--	0.65*	--
Less-affected rural * 8/94-7/95	--	0.64*	--
Less-affected rural * 8/95-7/96	--	0.51**	--
5+ years of school * 8/92-7/93	--	--	1.55+
5+ years of school * 8/94-7/95	--	--	1.90**
5+ years of school * 8/95-7/96	--	--	1.68*
Radio * 8/92-7/93	--	--	1.38
Radio * 8/94-7/95	--	--	1.42+
Radio * 8/95-7/96	--	--	1.58*
Parity at start of period	1.09**	1.09**	1.09**
Age	1.42**	1.42**	1.42**
Age squared	0.99**	0.99**	0.99**
Sex of household head			
[Male]	1.00	1.00	1.00
Female	0.75**	0.74**	0.75**
Log-Likelihood	-2818	-2808	-2810
Number of cases	11008	11008	11008

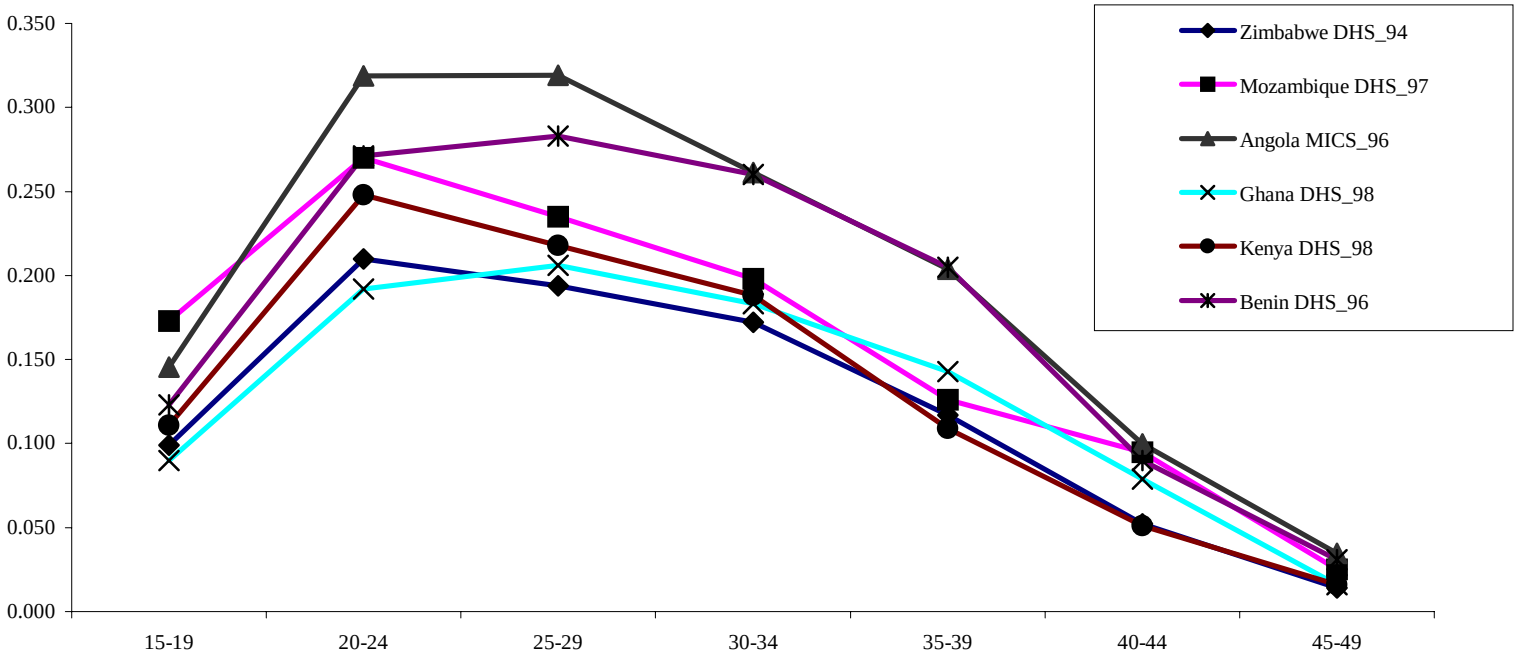
Note: Reference categories in brackets; -- not applicable; Significant at $p<0.1$ +; $p< 0.05$ *; $p<0.01$ **.

Figure I. Trends in age-specific fertility rates, Angola 1940-1996



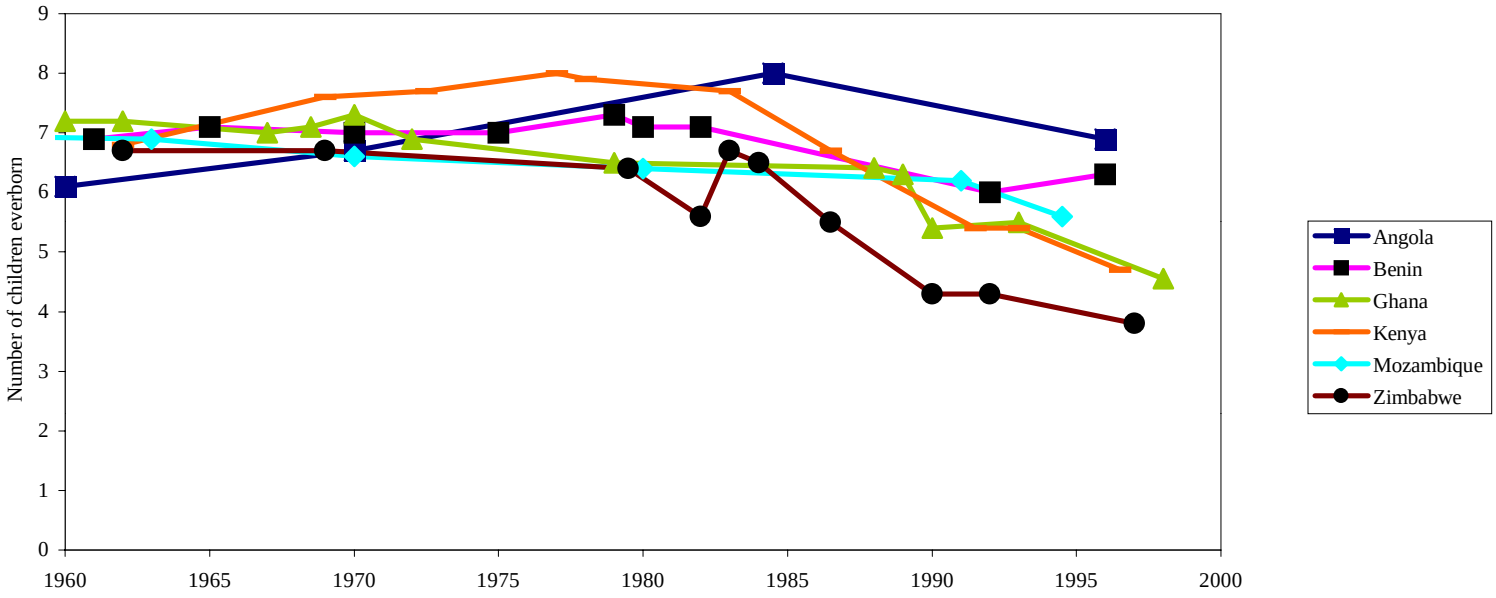
Sources: Lopez-Escartin, N. *Données de base sur la population: Angola.* Centre Français sur la Population et Développement (CEPED) Working Paper Paris (1992).; *Angola: Inqı Múltiplos* : *Demografia, água e saneamento, saúde materno infantil, nutrição, vacinação, fecundidade, mortalidade* . Instituto Nacional de Estatística (INE-GMCVP) – UNICEF: (1998)

Figure II. Age-specific fertility rates for selected countries



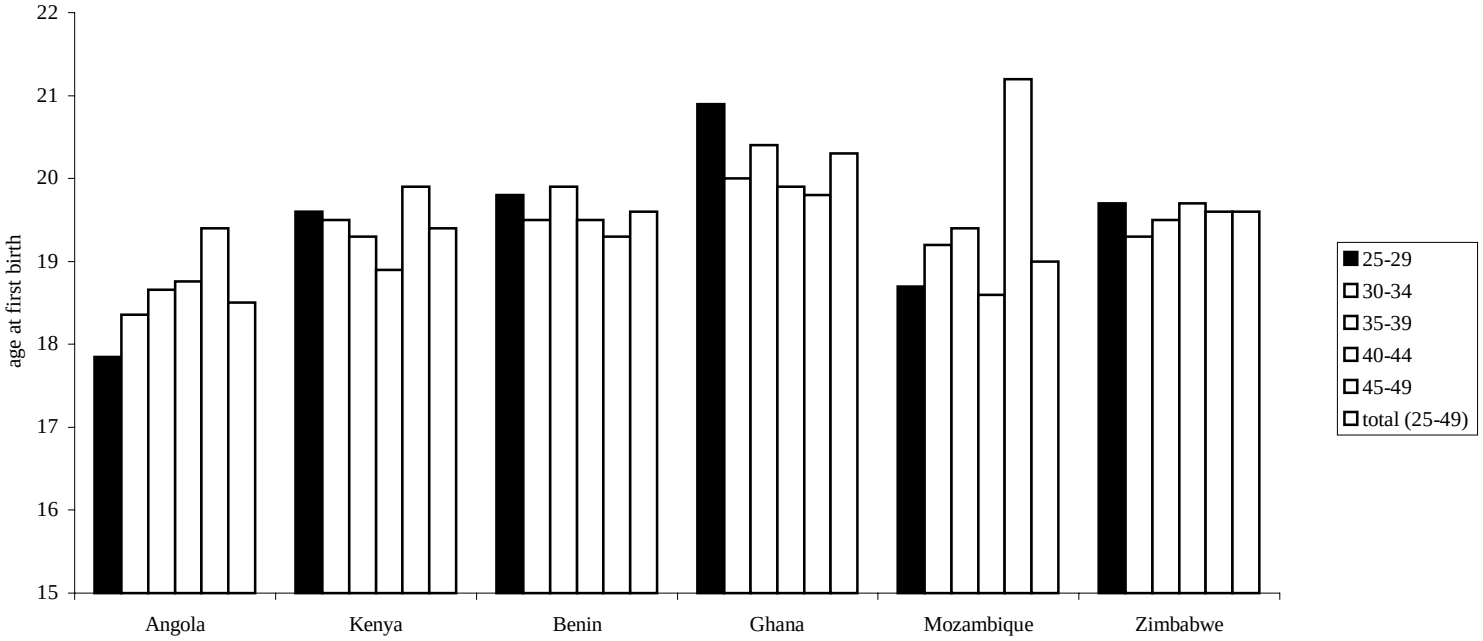
Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1993; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994.*

Figure III. Trends in total fertility rates in selected countries.



Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic and Health Survey, 1993; Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994.*

Figure IV. Median age at first birth by age group at the time of the survey



Sources: *Benin, Enquête Démographique et de Santé, 1996; Ghana Demographic and Health Survey, 1998; Angola: Inquérito de Indicadores Múltiplos; Kenya Demographic ana Kenya Demographic and Health Survey, 1998; Moçambique, Inquérito Demográfico e de Saúde, 1997; Zimbabwe Demographic and Health Survey, 1994.*

FIGURE V. ODDS RATIOS OF HAVING A BIRTH IN A GIVEN 12-MONTH PERIOD RELATIVE TO 8/93-7/94, BY REGION OF WAR IMPACT, WOMEN AGED 19 AND OVER, ANGOLA MICS 1996

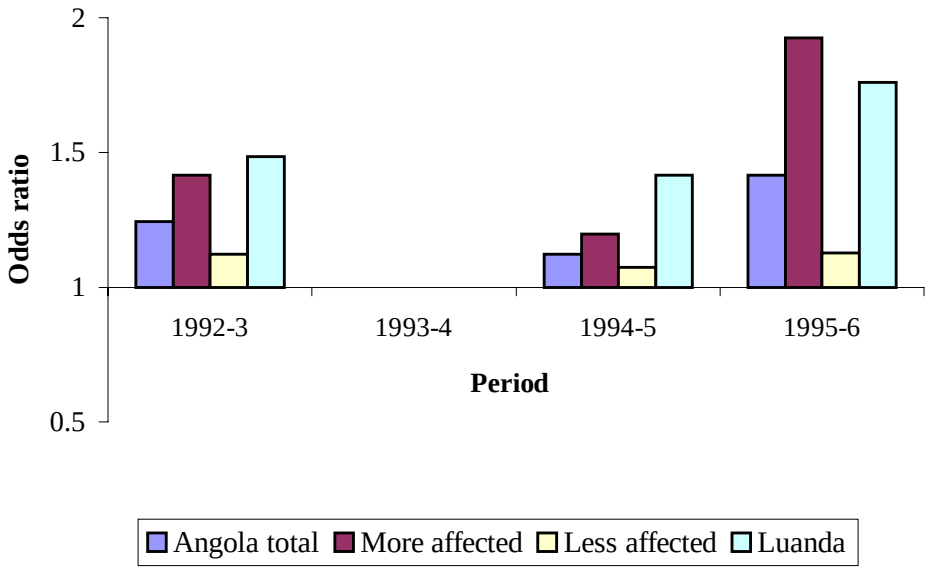
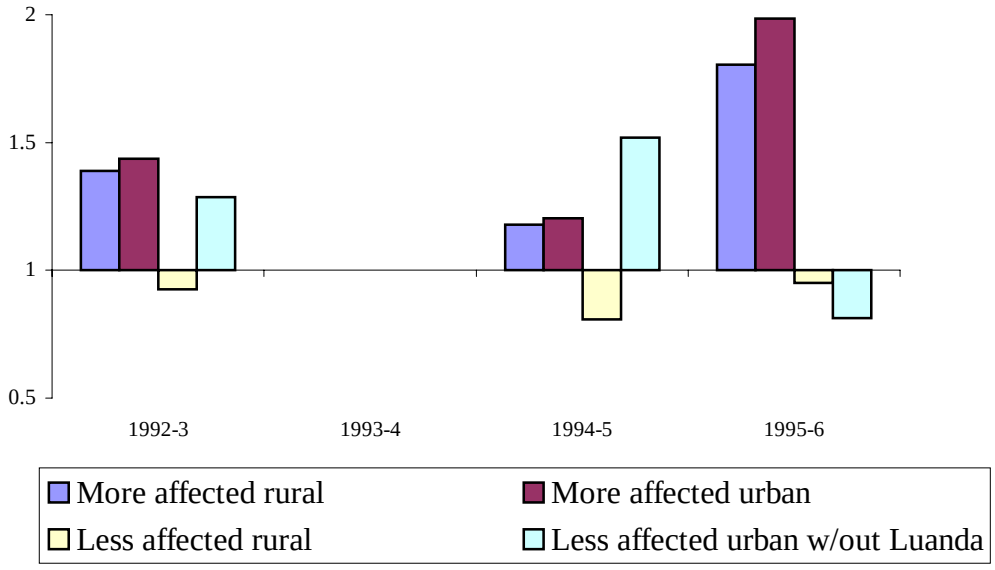


FIGURE VI. ODDS RATIOS OF HAVING A BIRTH IN A GIVEN 12-MONTH PERIOD RELATIVE TO 8/93-7/94, BY REGION OF WAR IMPACT AND AREA OF RESIDENCE, WOMEN AGED 19 AND OVER, ANGOLA MICS 1996.



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