PATTERNS OF SURVIVORSHIP IN UPPER VOLTA AND NIGER, 1969 AND 1970

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1. Introduction

1.1. This paper will present a comparative discussion of levels of and differentials in infant and childhood survivorship in Upper Volta and Niger. The discussion is based on preliminary findings of a larger comparative study of infant and childhood survivorship in Ghana, Upper Volta, and Niger, currently being carried out by the senior author.[1] This study represents a case where data from surveys originally intended to study fertility[2] can be profitably used to study other areas as well. The fact that the surveys from which these data are drawn were not designed to study survivorship per se, did restrict the analysis somewhat. But, as the questionnaires in the three surveys were very similar, use of these survey data presented an opportunity to study the survivorship experience of women in relation to a wide range of social variables on a comparative basis. Given the relative scarcity of reliable information on mortality in most West African countries, the advantages of studying these survey data easily outweighed the disadvantages.

1.2. The findings reported in this paper are based on two surveys carried out by one of the authors.[2] in Upper Volta and Niger in 1969 and 1970 respectively. Data were drawn principally from detailed pregnancy histories collected in interviews with women in four areas of Upper Volta(Ouagadougou, Bobo-Dioulasso, the rural-urban fringe of Ouagadougou, and several rural villages), and in Niger on the responses to 2 questions on the number of children ever born alive and the number of children surviving to the time of the interview, for both Niamey and a random sample of rural villages, in the Zarma region. In the case of Niger supplementary data are available for a sub-sample of urban women who were reinterviewed during which time detailed pregnancy histories were collected.

1.3. Discussion here will revolve for the most part around evidence which indicates a possible decline in the risks of death in infancy and early childhood over the decade of the sixties. Some of the principal socio-economic differentials will be presented and discussed only briefly.

2. General Levels

2.1. Generally Niger had slightly higher proportions of children surviving to the time of the interview than did Upper Volta.[3] (See Table I).

2.1.1. Differences between the proportions surviving of children born alive in Bobo-Dioulasso and Niamey are slight.

2.1.2. Differences between Ouagadougou and Niamey, and especially between the rural-urban fringe and rural areas in Upper Volta and the rural areas in Niger, are much greater.

2.1.3. Differences between the urban and rural samples in Niger are less than those found between the urban and rural samples in Upper Volta, indicating, perhaps, too high a level of survivorship in the rural Niger sample. This may indicate the presence of memory error and omission of childhood and/or infant deaths. Evidence was found of this type of error among older women in the rural Upper Voltaic sample in that the proportions of children dying in the age group 0 to 1 seemed too low for women currently 30+, and indeed, were even lower than those for women 20-29, while the proportions dying in the age group 1-5 were, as expected, much higher for older women than for younger women. Unfortunately data on age at death for rural Niger are not available so that a comparable analysis cannot be made. However, given this rather high rural survival ratio relative to the urban in Niger, caution is called for in its interpretation.

2.2. Table II shows the proportions of children dying in the age groups 0-1, 1-2, 2-3, 3-4 and 4-5. The proportions of children dying decrease over the first five years of life with the first year being the most dangerous period, but this decrease is very slow, so that the proportions dying over the age group 1-5 are higher than those dying in the age group 0-1. This pattern is characteristic of most developing countries where infectious and nutritional diseases are still the predominant factors in the high risks of childhood mortality.

3. Evidence for an Improvement in Mortality Conditions

3.1. Evidence for an improvement in mortality conditions is two-fold. One such evidence is found within the data from the surveys themselves and the other by comparison of the surveys with the 1960 censuses.

3.2. Within the surveys themselves, the following evidence of such a decline is available.

3.2.1. In both the Upper Voltaic and the Niger surveys the proportion of children surviving to women 30+ was lower than the proportion surviving to women 20-29 when the age of mother at the time of the birth of the child was controlled. (See table III). (Data for Niger refer only to Niamey and are based on the pregnancy histories of a subsample of 140 women reinterviewed out of the main sample. While cell sizes here are small the same trend appears).

3.2.2. In the Upper Voltaic sample information on the age at death of the child is available. Inspection of Table IV shows that the difference in the proportions of children surviving to women over and under 30, controlling for the age of the mother at the time of the birth of the child, comes mainly for deaths occurring over the age group 1-5 years rather than over the age group 0 and 1 years. This seems quite reasonable since it is easier to effect a decrease in childhood as opposed to infant mortality, the latter being heavily affected by neo-natal mortality, of which many causes are endogenous. The former depends largely

on environmental conditions and can respond to a broad spectrum of changes which might tend to improve the general environment of the child - i.e. improved water supply, greater abundance of foodstuffs, increased knowledge of child care. Decreases in mortality in infancy, however, would more often require intensive medical attention at a level that few developing countries can afford.

3.2.3. Table IV also shows that there is a decrease in the proportions dying over the age group 1-5 among women 30+ as age at birth increases. The more recent births occuring to older women, then, have been subject to better chances of survival than were their earlier counterparts. This trend emerges in spite of the possible influence of two countertrends. The first is a tendency for infant and childhood deaths to increase as age of mother at birth of the child increases, and while these greater risks affect survivors in the age group 0-1 to the greatest extent, they might also be expected to adversely affect survivorship over the age group 1-5 as well. The second is the well-known tendency for older women to forget deaths which occurred in the distant past. This tendency would tend to increase the proportions reported as dying as age of mother at birth increases, as the more recent deaths are more likely to be remembered and added in to the pregnancy histories. The emergence of the trend of decreasing proportions dying as age of mother at birth increases in spite of the possible presence of these two counter influences makes this finding rather strong evidence in favour of an improvement in mortality conditions.

3.3. Further evidence of such a change in mortality risks over time can be found in a comparison of the census results of 1960 for both Upper Volta and Niger, and the 1969 and 1970 surveys.

3.3.1. Table V compares the proportions surviving of children ever born alive by age of mother found in the censuses of Upper Volta and Niger and the 1969 and 1970 surveys. Special attention should be paid to the findings for rural areas of the 1969 and 1970 surveys as the censuses were not carried out in Ouagadougou, Bobo-Dioulasso or Niamey. However, a census was carried out for Ouagadougou in 1961-62 and these results appear in Table V as well. Generally, all the samples in both the 1969 and 1970 surveys indicated higher proportions of children surviving than did the corresponding census a decade before, but, in the case of Ouagadougou, only for older women were the proportions surviving higher in the 1969 survey as opposed to the 1961-62 census. The latter comparison, however, is difficult to evaluate as the 1961-62 census report advises caution in accepting the accuracy of these survival ratios. Given this qualification it seems than one can say that the 1969 and 1970 survey found higher survivorship than did the censuses on the early 1960's.

3.3.2. This finding might be attributed to differences in the methods used in the censuses as opposed to those used in the 1969 and 1970 surveys. However, the proportions surviving in the census were gathered by means of similar retrospective survey techniques to those used in the 1969 and 1970 surveys, and given the indication of an amelioration in survivorship conditions within the survey data itself (see section 3.2 above), the interpretation of this difference between the two surveys and the respective censuses as a further indication of such an improvement seems reasonable. Indeed, the dovetailing of these two separate pieces of evidence lends considerable strength to the argument that mortality conditions within early childhood have improved.

4. Other Findings

4.1. Several differentials in survivorship were studied in the two surveys, including differentials by religion, education and polygyny. Briefly, children of educated, Christian, or monogamous women had better chances of surviving than did children of uneducated, Muslim or Animist, or polygynous women. Generally, the urban samples in both surveys had greater proportions surviving than did the rural samples, however, as noted above, differences between the Niger samples were small. However, in both surveys the urban lost their advantage, at times completely, among groups who were older, uneducated, and Muslim. The explanation for this seems to be in the maintenance of a balance between the advantages gained by means of access to various amenities, ideas and information in the urban areas, and the disadvantageous tendency for the durations of breastfeeding to be somewhat shortened in cities. among those urban groups having durations of lactation which are much shorter than those practised by their rural counterparts, and who are also groups probably not enjoying full access to the urban advantages (such as the older, uneducated Muslim women) the cities offer little or no advantage in terms of keeping children alive.

4.2. The preliminary study of differentials seems to show yet another type of change in mortality conditions in that the differences found between the survivorship experience of children of older and younger women in the same educational, religious and polygynous/monogamous categories were greater than the differences between educational religious and polygynous categories.

5. Conclusion

5.1. Finding an explanation for an increase in the survivorship chances of Upper Voltaic and Nigérien children is difficult when such a trend is drawn from a cross-sectional survey. However, the data do indicate one thing- any explanation put forth will have to be one that can explain such a decline in the rural as well as the urban areas. It may be that the Animation Rurale programs have played a large part in this decline, and Cantrelle et al.[5] have pointed out the greater importance of a steady and abundant food supply than the provision of medical care in the lowering of infant and childhood mortality rates in Senegal. Unfortunately, data on these Animation Rurale programs are not readily available, but future research into infant and childhood mortality would do well to incorporate such factors into the study design.

Table I

Proportions Surviving Until Time of Interview of Children Ever Born Alive: Upper Volta (1969) and Niger (1970)

Survey	Sample	No. Children Ever Born	Proportion Surviving
Upper Volta	Ouagadougou	2240	.738
	Bobo-Dioulasso	1140	.774
	Rural-Urban Fringe	730	.673
	Rural	1589	.671
Niger	Niamey	5229	.781
	Rural*	2630	.741

*West Niger only, approximating Stratum 6 of the 1960 census

Table II

Proportion of Children Born Alive Dying in Age Group:

Survey	Sample	0-1	1-2	2-3	3-4	4-5	1-5
Upper Volta	Ouagadougou	.106	.065	.039	.022	.009	.135
	Bobo-Dioulasso	.109	.038	.038	.020	.011	.107
	Rural-Urban Fringe	.111	.068	.059	.038	.014	.179
	Rural	.107	.064	.051	.050	.019	.180
Niger	Niamey*	.065	.040	.056	.006	-	.102
	Rural*						

*Based on subsample of urban women for whom pregnancy histories and ages of children at death were obtained. No data are available for the rural sample.

Table III

Proportion Surviving of Children Ever Born Alive by Age of Mother at Birth of the Child and Current Age: Upper Volta and Niger 1969-70

		Current Age								
		15-29			30+					
		Age of Mother at Birth								
		15-19	20-24	25-29	15-19	20-24	25-29	30-34	35-39	40-49
Survey	Sample									
Upper Volta	Ouagadougou	.749	.787	.868	.645	.641	.760	.756	.722	.673
	Bobo-Dioulasso	.764	.842	.926	.680	.743	.800	.779	.839	.368
	Rural-Urban Fringe	.669	.761	.756	.571	.571	.636	.731	.786	.778
	Rural	.624	.773	.836	.606	.622	.688	.658	.685	.623
Niger	**Niamey	.872	.846*	-	.750	.746	.778	.929*	-	-

*Based on less than 45 cases; results for cells with less than 10 not reported.
**Results of pregnancy histories of sub-sample of 140 Hawsa and Zarma women.

Table IV

Proportions Dying over Age Groups 0-1 and 1-5 of Children Ever Born Alive by Age of Mother at Birth of the Child and Current Age: Upper Volta (1969)

			Current Age								
			15-29			30+					
		Age	Age of Mother at Birth								
Survey	Sample	Group	15-19	20-24	25-29	15-19	20-24	25-29	30-34	35-39	40-49
Upper Volta	Ouagadougou	0-1	.119	.103	.083	.122	.125	.065	.084	.087	.115
		1-5	.109	.096	.041	.180	.190	.159	.138	.109	.173
	Bobo-Dioulasso	0-1	.123	.074	.056	.139	.128	.100	.105	.097*	.105*
		1-5	.102	.074	.019	.172	.122	.093	.116	.065*	.368*
	Rural-Urban Fringe	0-1	.116	.094	.133	.175	.151	.059	.090	.107*	-
		1-5	.157	.138	.089	.206	.210	.271	.128	.107*	.111*
	Rural	0-1	.191	.118	.151	.077	.085	.081	.084	.109	.188
		1-5	.140	.105	.014	.258	.256	.189	.198	.163	.113

*Based on less than 45 cases; results for cells with less than 10 not reported.

Table V

Proportions Surviving of Children Ever Born Alive by Age of Mother: Upper Volta and Niger Surveys (1969, 1970) and Upper Volta and Niger Censuses (1960-61)

Survey	Sample	Age of Mother					
		15-19	20-24	25-29	30-34	35-39	40-4
Upper Volta	Ouagadougou (1969)	.819	.773	.752	.758	.732	.636
	Bobo-Dioulasso (1969)	.905	.827	.774	.740	.783	.687
	Rural-Urban Fringe (1969)	.789*	.798	.700	.688	.606	.685
	Rural	.722*	.781	.711	.688	.655	.640
Upper Volta Census (1960)		.756	.674	.607	.586	.556	.528
Ouagadougou Census (1961-62)							
	Mossis	.869	.793	.754	.718	.702	.676
	Total	.885	.811	.745	.730	.719	.686
Niger	Niamey	.851	.841	.817	.754	.720	.736**
	Rural	.775	.823	.750	.758	.684	.709**
Niger	Census	.780	.730	.719	.692	.670	.660

*Based on less than 45 cases. **40-49.

Source Yves Blayo, "Mortalité: Niveau," Démographie Comparée Tome I, I.N.S.E.E., Paris, 1967 Tableau 5, p. IV-20. Recensement Demographique, Ouagadougou (1961-62), Resultats Definitifs, I.N.S.E.E., Paris. Decembre, 1964, Tableau 37, p.91.

NOTES

1. Dissertation research currently in progress by J. Harrington.

2. Data are drawn from three fertility surveys carried out by D.I. Pool in Ghana 1965-66, Upper Volta 1969, and Niger 1970. For description of the surveys see D.I. Pool, "A Note on a Demographic Sample Survey for the Study of Factors Affecting Fertility in Ghana," Africa, Vol. 37, No. 3; D.I. Pool et al. "Enquête sur la Fécondité en la Haute-Volta," Notes et Documents Voltaiques, Vol. 2, No. 4, 1969; D.I. Pool, "Enquête sur la Fécondité et la Famille au Niger: Méthodologie," Collections Méthodologiques, No. 1, C.N.R.S.H., Niamey, 1970.

3. These proportions may not be directly comparable in that those for the Upper Volta samples are based on information cumulated over the pregnancy histories while those for Niger are based on only two questions - the number of children born alive and the number surviving. As the former involved intensive questionning and built-in cross-checks, it may well be more accurate than the latter, and less susceptible to problems of omissions and memory lapse. A study is currently being made of the Niger subsample women who first answered the two questions and were later reinterviewed for pregnancy histories. Unfortunately, at the time of this writing those results were not available.

4. "Il n'en reste pas moins que ces renseignements sont trop fragmentaires et sujets a caution pour qu'on puisse en tirer des conclusions fermes.
On ne peut donc avancer aucune chiffre précis en ce qui concerne ce taux de mortalité de la ville de Ouagadougou." Recensement Démographique de Ouagadougou 1961-1962: Résultats Définitifs, p. 50.

5. See P. Cantrelle et al. "Summary: Mortality Among Children in Sénégal," in Conditions de Vie de l'Enfant en Milieu Rurale en Afrique, Centre International de l'Enfance, Réunions et Conférences XIV, Dakar, février 1967, p. 148.