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The "AGEVEN" Record: A Tool for the Collection of Retrospective Data

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ABSTRACT

Because it is easy to use, the "AGEVEN" record makes it possible to date events more precisely and to classify retrospectively demographic events (births and deaths), changes in marital status and changes in place of residence. The data collected are used to accurately recreate the socio-economic conditions that were present when the demographic events being studied took place.

KEY WORDS: Retrospective survey; Biographies; Demographic survey.

1. INTRODUCTION

Two major data collection methods are available to demographers to collect data on natural movement (natality and mortality): longitudinal observation and retrospective questionnaires. The longitudinal observation method (following a population sample over a relatively long period of time) is, in theory, the method which provides the most accurate results. It does, however, have its drawbacks. It is expensive because of the amount of travel required for observation, and a relatively lengthy period of time is needed to obtain results. Finally, in urban areas, the method is difficult to apply because of the high degree of mobility of the population, which leads to a significant deterioration of the sample, such as that encountered in IFORD's infant and child mortality surveys (Scott 1985; Fargues 1985).

The retrospective method gives less reliable results because it depends more on the memory of the respondents. However, the total observation period is generally longer than that of the longitudinal surveys introduced in recent years in African countries. The risk of omitting events remains high and dating them is inaccurate. Finally, in urban areas there is a tendency when reconstituting the past to mix events which took place in the city being surveyed with other, earlier events, which took place in other places of residence (urban or rural).

Since we wished to determine mortality and fertility differences in Pikine, a suburb of Dakar, and also wished to obtain fairly reliable results quickly, we selected a data collection method that would enable us to recreate accurately the infant and child mortality risk factors at the time of death of each of the children of the women surveyed. The survey was conducted jointly by the Senegal Statistics Branch and Orstom (Antoine et Diouf 1986). The field work was carried out between March and May 1986. The first results were available in September 1986. The method we selected is different from the retrospective method most frequently used, which takes into account only the socio-economic and cultural characteristics of the women at the time of the survey. These characteristics could, in fact, have changed considerably during the women's child-bearing years (improvement or deterioration of living conditions, change of marital status, change of activity, and so forth). Our method makes it possible to better assess the relationship between urban insertion and changes in demographic behaviour. The following objectives determined our collection strategy:

- to obtain a complete list of the events observed (mainly births and deaths);

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- to date these events as accurately as possible;
- to place the events in their socio-economic context (marital status, professional status of the husband and wife, living conditions).

2. COLLECTION AND DATING OF DEMOGRAPHIC EVENTS

To conduct a successful retrospective survey means, in particular, establishing as accurate a biography as possible (in relation to the field studied) for each person surveyed. A method has to be found, therefore, to situate past events chronologically.

A number of methodological improvements have been proposed in the past. Ferry (1977) used an "event file", which involved assigning a record to each event. According to the author, the originality of this method lay in placing the events in order together with the person surveyed (pregnancies, marriages and divorces, places of residence and so forth) and situating them in relationship with each other. The technique consisted in recreating, with the person surveyed, the succession, logic, interferences and, finally, the individual biography. However, it is a relatively complex method and involves handling numerous records in the field and during processing.

Another method of classifying and dating events was used in the Senegalese survey on fertility in 1978: the "AGEVEN" graph. There were two reasons for using the "AGEVEN" graph in the Senegalese survey:

- to make it possible to better estimate the age of the women and their children with the help of relatively precise dating;
- to make it possible to accurately estimate fertility by preparing the pregnancy histories of all the women.

The "AGEVEN" graph used in the Senegalese fertility survey (Figure 1) plots two curves. The righthand curve describing the lifeline of the woman (LL curve) is graduated in intervals of three months, making it possible to plot inside a year the events affecting the woman. The lefthand curve, called the AE (age of events) curve, indicates the time which has passed between the event and the date of the survey. Thus, an age on the AE curve corresponds to each year on the LL curve, and vice versa. This graph, which was also used in the Ivory Coast fertility survey, seems to be mainly an instrument for dating events.

3. USE OF THE "AGEVEN" RECORD IN THE PIKINE SURVEY

We tried to combine some of the advantages of each of these collection methods: the "AGEVEN" graph, which is easy to use to date events, and the event file, which makes it possible to take various kinds of events and to classify them in relation to each other. We systematized the "AGEVEN" record by distinguishing between demographic events (births, deaths), changes in marital status and changes in place of residence. For convenience, we retained the name given the graph used in the Senegalese fertility survey for our record, but while the name is the same, the uses which can be made of it are different. The "AGEVEN" record (see Figure 2) contains three columns:

- the first covers demographic events (births (B); deaths (DT); abortions (A); miscarriages (MC); stillbirths (SB)). Each event (birth or death) must be followed by its chronological ranking, the first and last names of the child and, possibly, the exact date;
- the second column covers matrimonial events and the chronological ranking of each of the spouses or partners (marriages (M); divorces (D); widowhood (W), the rank of the various fathers (indicated as F1, F2, ... Fn).

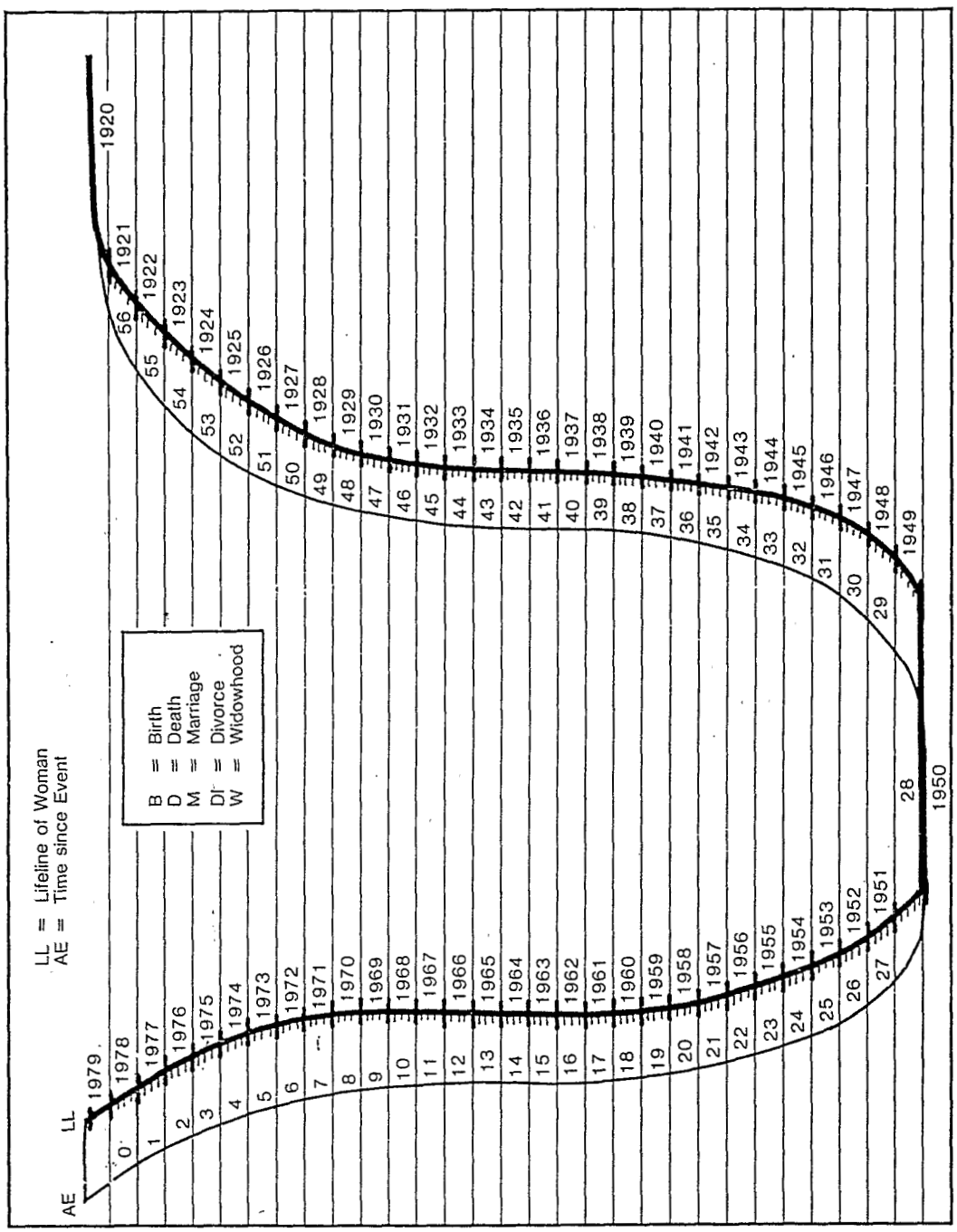

Figure 1. AGEVEN Graph Used in the Senegalese Fertility Survey

AGEVEN BNR/ORSTOM

CODES

B_i + date + name + place = birth child no. i
D_i + date + name + place = death child no. i
M_i + date + name + place = marriage no. i
DI_i + date + name = divorce spouse no. i
V_i + date + name = widowhood spouse no. i
MC = miscarriage A = abortion SB = stillbirth
F_i = father no. i

IDENTIFIER

Name:
Block:
Concession:
Household:
Woman No.:

Year	Age	Demographic Events	Matrimonial Events	Places of Residence
1986	March			
1985	0			
1984	1	B_3 Aminata 18-12-84	F_2	Pikine
1983	2			
1982	3		M_2	Pikine
1981	4			
1980	5			
1979	6	D_1 Ibrahima at age 4	DI_1	Pikine
1978	7	B_2 Abdoul 5-01-78	F_1	Dakar
1977	8			
1976	9			
1975	10	B_1 Ibrahima	F_1	Dakar
1974	11			
1973	12		M_1	Thiès
1972	13			
1971	14			
1970	15			
1969	16			
1968	17			
1967	18			
1966	19			
1965	20			
1964	21			
1963	22			
1962	23			Kaolack
1961	24			
1960	25			
1959	26			
1958	27			

Year	Age	Demographic Events	Matrimonial Events	Places of Residence
1936	49			
1937	48			
1938	47			
1939	46			
1940	45			
1941	44			
1942	43			
1943	42			
1944	41			
1945	40			
1946	39			
1947	38			
1948	37			
1949	36			
1950	35			
1951	34			
1952	33			
1953	32			
1954	31			
1955	30			
1956	29	BW Awa		
1957	28			Kaolack

Figure 2. Example of use of the "AGEVEN" record.

- the third column indicates the place of residence at the time of each of these demographic and matrimonial events. This column makes it possible to follow the migratory paths of the women and to determine the date of their arrival in Pikine.

The "AGEVEN" record is a methodological tool that serves various purposes:

- situating events chronologically;
- helping the woman situate chronologically events for which she has forgotten the date;
- ensuring that all the demographic events lived by the woman surveyed are recorded;
- identifying changes of residence and the location where events took place;
- checking the consistency of events among themselves.

The interview consists of two phases: one involving the household and the other involving the women between the ages of 15 and 49. The "household" questionnaire, which lists all members of the household, whether currently residing in the household or not, deals in particular with the filiation of the persons surveyed, their blood relationship with the head of the household or "nucleus," their sex, their marital status, and their date of birth or age. The "women's" questionnaire concerns all the women, resident and present in the household, between the ages of 15 and 49. The "AGEVEN" record is used to complete this questionnaire.

To transcribe the data collected on this record, the investigator can take various points of reference (the date of birth of the woman, the date of birth of her first child, and so forth) and, with the help of the respondent, reconstitute her entire lifeline, namely all the other events which have taken place during her life, such as marriage, divorce, and various pregnancies. This operation may be broken down as follows:

1. After recording the first live birth, the investigator asks the respondent to state all subsequent live births, in chronological order, indicating whether or not the child is still alive and whether or not he or she is still living in the household.
2. The investigator then records these births on the record, using the official documents shown to him. In our case, official documents were available mainly for children born in the Dakar area. For the age of the women, however, as well as for the birthdates of some children, the investigator has to rely on elements in the historical calendar to determine the dates (month and year).

The "AGEVEN" record makes it possible to situate events according to the age of the woman at the time of the event, the time which has passed since the event took place, or the date of the event. Any large gap between two births or other inconsistency between two events is easily detected during the interview with the woman.

It is also possible to use the "AGEVEN" record to check the consistency of events. For example, two children cannot be born within nine months of each other; a woman cannot say that she was married at age 12 and had her first child in 1970 at age 14, and then go on to say that she was born in 1950. In the latter case, there is likely an error in the date of birth of the woman and it should be corrected.

The record makes it possible to record both events for which an exact date is given and events for which only an age is given (such and such a child is now ten years old; I was married 15 years ago). Finally, with the help of this record, events for which the date is not clear can be situated. For example, such and such a child was born between the one born on 10-2-74 and the one born in 1978. It is highly likely that this child was born in 1976. To use this record successfully, the investigator must take a critical look at the chain of events and must try to make it as complete as possible, taking care to check the reliability and consistency of the responses provided. This is possible only if confidence is established in the dialogue with the respondent.

After having recorded all the live births declared by the respondent, the investigator turns to the intervals between successive births. All events are not always reported in the initial responses, but by using the "AGEVEN" record, the investigator can track down the

omitted events. The investigator thus asks himself what happened each time an interval of more than two years is recorded between two live births. The responses provided by the respondent may reveal abortions, stillbirths, death soon after birth, information obtained on contraceptives, and so forth. Although this was not an objective of the Pikine survey, the dialogue that is established can make it possible to delve deeper into matters relating to family planning.

Each of the events is linked to the location, marital status and partner of the woman at the time of the event. After recording all the events affecting the woman, the investigator then has to estimate more accurately the date of birth of the mother. The investigator has in fact already recorded the date of birth of the mother, as indicated either by the woman or the head of the household, when completing the "household" questionnaire. Now, in a one-on-one interview with the respondent and having recorded the events which affected her, he can provide the best possible estimate of the respondent's age.

For example. Awa was born in 1956 in Kaolack. She says that she has had three children: Ibrahima, who would now be 10 years old, born in Dakar, died at age 4 in Pikine; Abdoul, born on January 5, 1978 in Dakar; and Aminata, born on December 18, 1984 in Pikine. Awa was married for the first time at age 17 in Thies. She was divorced in 1979 (while living in Pikine). She remarried in 1982, at which time she was still living in Pikine (see Figure 2). During the interview, the investigator will notice a gap of almost 7 years between Abdoul and Aminata. He should ask whether there were other births or pregnancies during this period. In the case of Awa, the divorce and subsequent remarriage three years later may explain the gap. However, the investigator must check with the woman to ensure that the gap does not hide other demographic events.

The interactive form of the interview seems to encourage dialogue with the respondent and improves contact between the investigator and respondent, which is unfortunately only too often clouded by doubt on the part of the investigator and mistrust on the part of the respondent Bonnet (1984). As the investigator continues his or her investigation, new events are mentioned. When he or she asks whether there was another event between two births separated by more than two years, the respondent is often surprised and responds in one of two ways. If no event has occurred, she asks, "Why do you ask that?" If, however, an event has indeed occurred, she often asks, "Who told you that?" since she has the impression that the investigator already knows something. The "AGEVEN" record becomes a kind of crystal ball, like the cowry shell. Sometimes the interview becomes a game, and the respondent is pleased to place past events in order. A woman with a complicated marital and reproductive history may even want a copy of her "AGEVEN" record. As in any survey, there are problems with the use of this record. Sometimes it is difficult or awkward to be alone with the respondent, and often women are embarrassed if the record brings up events concerning a partner preceding the current husband.

In practice, the record is incomplete because there is no question which eliminates possible confusion between stillbirths and infants who die shortly after birth. This kind of confusion often arises in responses given in the Wolof language, in which it is difficult to distinguish between miscarriages and abortions and between stillbirths and deaths immediately after birth. Some French terms or words cannot be translated directly into Wolof. For stillbirths, for example, there is no single question that elicits the desired response. At least two questions are therefore required. When confronted with an interval between successive births, the investigators asks the following question, for example: "Lou am dikhane té Moussa ak Ali?" (what happened between Moussa and Ali?). This question correctly leads the women to stillbirths, abortions, miscarriages and so forth. To elicit a satisfactory response, clarifications are needed: "Dikhane té Moussa ak Ali, amo fi dom diou dé guinaw bou mou indé bakhane?" (did you have a child who died after giving some sign of life between Moussa and Ali?). The confusion results mainly from the fact that the distinction between a miscarriage and stillbirth is not always clear and from the fact that a child is not given a name

until he or she is a week old. Also, for certain ethnic groups, it is not until the child has a name that he or she is really taken into account. A column indicating whether or not the infant cried at birth would therefore have been very useful.

The "AGEVEN" record used in the Pikine survey did indeed provide more satisfactory data than the graph used in the Senegalese fertility survey, in terms of both the nature and quantity of data collected. However, it did not eliminate the tendency to round off the intervals between successive births in years (approximately 37% of the intervals), particularly in intervals of two years, which account for approximately 20% of the intervals observed between successive births. In addition, it was not possible, using this technique, to list all the issue of young girls who had been pregnant but who had had no live births. Some biases, which are certainly classic in demography, do persist therefore, and this method does not eliminate the need to take extreme care in the field.

4. TRANSCRIPTION FROM THE "AGEVEN" RECORD TO THE QUESTIONNAIRE AND ELECTRONIC DATA PROCESSING

The questionnaire regarding the reproductive history of the women was designed in such a way as to permit the best possible transcription of the data collected using the "AGEVEN" record. First, the characteristics of each of the children are noted in chronological order by birth, along with the date of death, if appropriate. The investigator then records the marital status at the time of each of these events in order to note any possible change in spouse. Then, changes in the socio-economic situation of the father and mother are taken into account, as well as changes in living conditions and in place of residence. The survey also included other questionnaires regarding the characteristics of the household, individuals and women observed.

The data collection method allows for two kinds of analysis. The first involves a classical analysis of mortality by generation and sub-population (according to neighbourhood, type of housing and so forth). However, what is especially interesting about this study is that it allows for analysis of mortality (and fertility) taking into account migratory behaviour and changes in the socio-economic conditions of the women surveyed. When this method is used, mortality is no longer interpreted solely according to the socio-economic conditions at the time of the survey. Rather, it is related to the conditions which really existed at the time of the event, and it is therefore possible to better understand the differences relating specifically to living conditions in urban areas (Pikine in this case).

Depending on the place of birth of the child, different morality rates were recorded. Many of the respondents are migrant women from other cities or from villages in the interior of the country. Children born to them in rural areas suffered a significantly higher risk of mortality than those born in the Dakar area.

The child mortality rate (between 1 and 4 years) clearly reveals the risks resulting from socio-economic differences. The risk of dying between the ages of 1 and 4 is 2.84 times higher for children born in villages than for those born in Pikine. The z-test shows that the difference between the two rates (Pikine mortality rate and rural mortality rate) is significant. We tested the hypothesis that the mortality rate for children born in Pikine is the same as that for children born in rural areas. Since the sample sizes are relatively large, approximation using the normal distribution is justified. Under the hypothesis that the mortality rates

Table 1

Mortality by place of birth (in thousands)

	Pikine	Dakar	Other Cities	Rural	Total	Pkn-Rural Test
Infants	52	57	45	114	58	-6,586**
Children	55	62	90	156	68	-10,093**
Population	5155	1513	644	704	8016	

are equal, the z-statistic is distributed as a standard normal variable. The symbol "**" indicates a significant difference at the $\alpha = 0.05$ level. Classic restrospective data collection without distinction as to the place of birth of the child would have led us to class births outside Pikine with those inside Pikine and would have resulted in a nigher mortality rate (child mortality rate of 68 per thousand rather than 55 per thousand).

Moreover, a second analysis can be made for each of the women observed. A simplified biographical file can be created in which the successive stages are defined in terms of births. A relationship is thus established between matrimonial events, changes in residence and reproductive data. The principal stages in the migratory path followed since the birth of the first child, or since marriage, can also be reconstructed. Longitudinal data gathered in this way lend themselves very well to recent methods for the analysis of interference between phenomena (Courgeau and Lelievre (1986); Cox and Oakes (1984)).

5. CONCLUSION

The data collected for each of the variables are very brief, but they should make it possible to detect some significant differences and to determine the living conditions at the time of birth and death. The collection methodology used is adapted to the collection of data on the reproductive histories of the women and the destiny of their children. The main advantage of the "AGEVEN" record is its facility in pinpointing various events chronologically and in classifying these events in relationship with each other, without eliminating the possibility of inserting events omitted as the interview proceeds. The flexibility of the "AGEVEN" record leads us to suggest that it could be used in other fields, for professional biographies or migratory routes, for example, by establishing a parallel between place of residence, profession, marital status, family situation, living conditions and so forth. A great deal of methodological research has been conducted in the analysis of demographic biographies (Courgeau 1984; Haeringer 1972; Riandey 1985). Our method is intended merely as a simple and reliable tool for the collection of data. It is up to each user to determine which variables he or she wishes to arrange chronologically using the "AGEVEN" record and, once the biographical framework has been collected, to obtain more data on the field(s) he or she is studying, using the questionnaire.

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