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SOURCES OF DATA ON BIRTH AND DEATH RATES  
IN SENEGAL

SOURCES OF DATA ON BIRTH AND DEATH RATES  
IN SENEGAL<sup>1/</sup>

I. SITUATION BEFORE DEMOGRAPHIC SURVEYS

As a rule, two components are used in estimating crude birth and death rates:

- the number of births and deaths, taken from civil registration sources;
- the population in which these vital events have occurred, estimated from censuses.

Urban area

Civil registration system: Births and deaths are practically all registered in the main centres, but domicile is not accurately determined.

Monthly statistical collation is made only for the city of Dakar.

Censuses: These are of uneven value and are made at irregular intervals, nevertheless, they in some cases permit estimation of global population growth, but without its being possible to distinguish how much is due to natural growth and how much to migratory growth.

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<sup>1/</sup> By P. Cantrelle, (Office de la Recherche Scientifique et Technique Outre-Mer.)

Rural areas - Representing more than 80 per cent of the population

Civil registration system: The proportion of births registered is very low; that of deaths is lower still and therefore records are of no demographic value.

Censuses: These are held periodically, as a rule annually, and cover the de jure population. However, the method used does not guarantee strict determination of the de jure population, because the official does not make a house-to-house check.

On the other hand, the operations concern "taxable" persons, and a considerable fraction of persons under 14 is thus omitted. A still larger fraction of persons over 60 is omitted. Global under estimation is of the order of 20 per cent.

Reference is made to the Roman Catholic parish registers, which have been kept regularly for many years and in some cases go back as far as the eighteenth century. They deal only with a special minority, but would be an interesting and as yet untapped source of demographic data.

## II. DEMOGRAPHIC SURVEYS

When civil registration regulations were made applicable to the whole of the country in 1950, the statistical office played an important part in improving the data of vital statistics and urban censuses.

On the other hand, to make up for the total absence of information on natural movement, it made inquiries combining the registration of births and deaths with a census:

- the census distinguished between the present-in-area population and the resident population;
- at the same time a retrospective family inquiry was made (resident population) dealing with births and deaths that had occurred during the previous twelve months.

These were sample surveys.

Two such inquiries were made and their results are given in Table I.

The use of the retrospective inquiry method may, however, have led to an under-estimation of the number of births and deaths.

When the extrapolated data of the sample demographic survey carried out at Dakar in 1961 are compared with the data extracted from the civil registration offices of this city for the same period, the following results are obtained:

|                     | <u>Demographic survey</u> | <u>Vital statistics</u> |
|---------------------|---------------------------|-------------------------|
| Births              | 15,800                    | 17,854                  |
| Deaths              | 2,780                     | 5,429                   |
| Deaths under 1 year | 560                       | 1,576                   |

The demographic survey covered only the resident population, whereas the vital records may also cover a certain number of persons domiciled outside Dakar; however, it does seem that the number of deaths is under-estimated in the demographic survey, and even more so the number of deaths under one year.

On the other hand, these surveys cannot reflect anything but the situation in any given year, and, while the birth rate is stable, one imagines that mortality may vary greatly from one year to the next, in particular as a function of epidemics, climatic changes, and harvest fluctuations.

### III. NEW PLAN OF ACTION <sup>1/</sup>

In 1962, after a study of the situation with regard to data on the birth and death rates, a campaign was envisaged:

- first in rural areas, apparently the least advanced with regard to civil registration;
- later in urban areas.

<sup>1/</sup> CANTRELLE P., United Nations Technical Assistance expert  
L'état-civil et les autres sources de renseignements sur l'évolution démographique au Sénégal, Dakar, May 1964. 112 roneoed pages + annexed tables and graphs.

Rural area :

A long-term campaign intended to improve the implementation of the new civil registration regulations (scheduled under the law of June 1961), both at the central and local levels, was undertaken simultaneously with - a short-term operation intended to obtain the most accurate possible demographic observation.

This was the subject of the pilot inquiry described in another report. The aim of this inquiry was not to obtain rates representative of a region but to try to gain an increasingly true picture by means of observations repeated during several annual cycles, and at the same time to see to what extent the new civil registration regulations could be implemented within the villages themselves, what difficulties were encountered and what improvements were to be made.

Operation of the civil registration system - practical measures for its improvement

The law of 23 June 1961 established new civil registration regulations in Senegal, making it compulsory for all citizens to declare births, marriages and deaths. In practice a close copy of the French law, it was drafted by administrators and jurists, and the implementing measures were taken without the advice of demographers.

In view of the present administrative structure, these regulations often remain a dead letter. Those administratively responsible are doubtless aware of the importance of civil registration, but do not seem to grasp all the practical implications of the civil registration system.

Generally speaking, the failings of the system are ascribed to the fact that the population do not make declarations. This is a wrong view of the problem. There can be no declarations, registration, or vital statistics if the administrative civil registration system does not work.

In collaboration with the statistical office, the expert made concrete proposals for better operation of the system; he put some of these proposals into effect; the statistical office may keep an indirect check on the operation of the system by verifying the value of the vital statistics, but it cannot replace the officials responsible for the administrative

apparatus and must confine its actions within certain limits.

The elements of the system are summed up in the attached diagram: it has been noted that, instead of being a flexible transmission element, each link in the chain, on the contrary, hampers the operation.

The proposals and measures intended to promote smooth operation of this system have been stated in detail in the above-mentioned report. Of necessity, they dealt with various practical aspects:

- 1) Responsibility for the administrative operation of civil registration at central level: this is the motive force on which everything else depends, but it is at this level that the greatest difficulties are encountered in having the necessary though simple, action taken; for example, a circular intended for Governors, Prefects, and Sub-prefects, specifying certain procedures for implementing the regulations, has not yet been distributed.
- 2) The civil registration centres: siting and the areas to be served.
- 3) Persons responsible for registration at local level: selection and appointment, briefing and remuneration.
- 4) Civil registers: drafting, supply from the printing press to the local centre.
- 5) Declarations: the declarer, place and time-limit for declarations, instructions to the population (see attached brochure), measures to facilitate action.
- 6) Vital statistics: for the moment, this is the simplest task. Only one in statistical office employee would be needed to bring them up to date and to some extent activate the administration responsible. Certainly such statistics cannot yet be used for the calculation of birth and death rates. The registration rates, which are all that can be calculated from them, merely indicate how the system is operating, but they have the advantage of verifying the effectiveness of the measures indicated previously and showing whether the operation progress as expected.

Therefore, for the moment, simple quarterly returns have been made, including only the number of births, marriages or deaths.

The first objective is to obtain regular submission of statistics from all the centres. After the re-organization of civil registration in French West Africa in 1950, almost all the civil registration centres in Senegal sent in regular quarterly returns. As from 1956, coinciding with the period of political and administrative changes, returns seem to have been submitted less regularly, quarterly returns from the 188 registration centres having been submitted as follows:

|            |      |             |
|------------|------|-------------|
| 70 in 1959 | i.e. | 37 per cent |
| 28 in 1960 | i.e. | 15 per cent |
| 6 in 1961  | i.e. | 3 per cent  |
| 2 in 1962  | i.e. | 1 per cent  |

After the establishment of new civil registration centres in 1962, in implementation of the 1961 law, 214 out of 464 registration centres (46 per cent), not including the Cape Verde area, sent in returns. Although there is obvious progress, it can be seen that the objective is still distant.

On the other hand, the centres that submitted returns did not always do so for all four quarters. A count was made on 15 May 1964 and, after various reminders and circulars to the Governors, again on 31 October 1964 (Table II); comparison of the two indicates the effectiveness of this measure.

The second aim is to estimate the proportion of vital events declared (Table III). Complete data are available only for 19 out of 31 communes and 12 out of 86 arrondissements. But the registration rates calculated for the communes do not give a true picture, for, on the one hand, a certain number of the vital events registered are for persons domiciled outside the commune, in particular, because of the presence of maternity homes and hospitals; on the other hand, the total number of the population is not well known and, in general, greatly under-estimated when there has been no recent census by the statistical office.

It is preferable to estimate the proportion of vital events declared only when complete data are available for a whole département (communes and arrondissements). Such results are available only for one département out of twenty-seven, namely THIES. It is estimated that, in 1963, 82 per cent of births, 32 per cent of deaths, and 12 per cent of marriages were registered. This is probably one of the most favourable cases.

It is noted that the rate of registration of deaths in the Commune of Thies is about 9 per thousand. It may therefore be supposed that not all the deaths in this commune are registered.

In future, efforts will be concentrated on improving the operation of the civil registration system in the areas most advanced in this matter, for example, the département quoted, and then a separate sheet will be used for each registration.

When, after checking, it is considered that complete and permanent coverage has been achieved, the statistics of the area in question will be adopted as genuine vital statistics.

The same procedure will be successively département by département.

#### Parish registers

It is proposed to make extractions from the parish registers according to the method of L. Henry. First of all, an experiment will be made in a village (FADIOUT, a Serer village in the Sine region).

#### Demographic observations

Until this action bears fruit, the observations now being made will be continued (method of annually repeated observations):

1) In the pilot area of SINE-SALOUM: allocations have been obtained that will permit a study spread out over three consecutive annual cycles.

2) In the area of KHOMBOLE-THIENABA (département of THIES), where it has been found possible to have a continuous registration system of the population under 15 established by the maternal and child welfare department.



3) In the rice-farming development area of the Senegal delta arrondissement of ROSS-BETHIO), where it is contemplated that a continuous registration system of the population will be set up in 1965 when the first farmers arrive.

It would be interesting to extend these observations to a sample representative of a region or the whole State, a sample of clusters of villages, each cluster having about 5,000 inhabitants; but this project is thwarted by the absence of budgetary allocations.

#### Urban area

A certain number of proposals to improve the operation of the civil registration system in rural areas are also applicable to urban areas. However, the system operates better there than in rural areas.

No continuous or repeated observation is contemplated, but merely a campaign with regard to civil registration:

- accuracy of information, particularly domicile
- checking of the completeness of declarations
- collation and analysis of data

to be carried out first in the Dakar urban centre, later in THIES, and then in the other cities, where the conclusions of the Dakar experiment will be applied.

At Dakar, proposals were submitted to the Governor of the region, who represents the Ministry of the Interior, which is administratively responsible for civil registration; it is hoped that they will be put into effect as from 1 January 1965.

These proposals are mainly concerned with the death rate, as the greatest potential factor in influencing changes in natural growth and perhaps in the global growth of the city.

Remarks:

The scope of demographic surveys depends on the amount of available funds. On the other hand, the improvement of civil registration is relatively cheap. However, both operations imply competent personnel.

The presence of the United Nations expert working in close collaboration with the statistical office was a determining factor. However, so as not to lose the benefit of work already done, it had to be continued in some way or another. As this post could not be kept on by the United Nations, it was taken over by ORSTOM.

TABLE I

DEMOGRAPHIC SAMPLE SURVEYS IN SENEGAL

|                    |           | <u>Sampling fraction</u> |         |
|--------------------|-----------|--------------------------|---------|
|                    | Year      | Villages                 | Centres |
| Village of Senegal | 1957      | 1/10                     | 1/5     |
| Whole of Senegal   | 1960-1961 | 1/50                     | 1/20    |

1960-1961 DEMOGRAPHIC SAMPLE SURVEY

|  | Total pop.<br>adjusted<br>to 1/20 | Birth rate<br>per thousand | Death rate<br>per thousand | Infant Mort<br>lity rate per<br>thousand live<br>birth |
|--|-----------------------------------|----------------------------|----------------------------|--|
| <u>Rural areas</u>                                     |                                   |                            |                            |  |
| Cape Verde   | 933                               |                            |                            |  |
| Casamance  | 25,103                            | 48.3                       | 21.3                       | 156  |
| Diourbel   | 25,315                            | 42.4                       | 16.7                       | 73   |
| River  | 14,758                            | 46.7                       | 17.5                       | 116  |
| Eastern Senegal  | 7,474                             | 29.8                       | 14.2                       | 117  |
| Sine Saloum  | 32,763                            | 41.1                       | 19.5                       | 118  |
| Thiès  | 16,221                            | 43.8                       | 19.6                       | 58   |
| Total  | 122,566                           | 43.2                       | 18.7                       | 109  |
| <u>Urban areas</u>                                     |                                   |                            |                            |  |
| Cape Verde   | 19,908                            | 44.9                       | 8.4                        | 34   |
| All urban areas  | 33,879                            | 43.7                       | 9.5                        | 36   |
| Total, Senegal   | 156,445                           | 43.3                       | 16.7                       | 93   |
| RIVER REGION- comparison of demographic sample surveys |                                   |                            |                            |  |
| 1957 Settled   |                                   | 47.5                       | 24.7                       | 190  |
| Semi-nomadic (Moors)                                   |                                   | 34                         | 23                         | 137  |
| Landing points   |                                   | 46                         | 27                         | 177  |
| Total  |                                   | 45.2                       | 23.8                       | 173  |
| 1960 Total Senegalese bank                             |                                   | 46.7                       | 17.5                       | 116  |

SUBMISSION OF QUARTERLY RETURNS OF VITAL STATISTICS TO THE  
STATISTICAL OFFICE

TABLE II

| <u>By quarter</u><br><u>1963</u> | No. of<br>civ.reg.<br>centres | No. of<br>returns<br>expected | No. of returns<br>submitted as of: |           | Percentage<br>as of: |           |
|----------------------------------|-------------------------------|-------------------------------|------------------------------------|-----------|----------------------|-----------|
|                                  |                               |                               | 15 May 64                          | 30-Oct.64 | 15 May 64            | 30 Oct.64 |
| 1st                              | 464                           | 464                           | 139                                | 195       | 30                   | 42        |
| 2nd                              | "                             | "                             | 134                                | 194       | 29                   | 42        |
| 3rd                              | "                             | "                             | 88                                 | 161       | 19                   | 35        |
| 4th                              | "                             | "                             | 51                                 | 152       | 11                   | 33        |
| Total                            | 464                           | 464                           | 412                                | 702       | 22                   | 38        |
| <u>By type of<br/>centre</u>     |                               |                               |                                    |           |                      |           |
| Communes                         | 31                            | 124                           | 64                                 | 95        | 52                   | 77        |
| Main Arr. centres                | 86                            | 344                           | 121                                | 203       | 35                   | 59        |
| Secondary centres                | 347                           | 1388                          | 227                                | 404       | 16                   | 29        |
| Total                            | 464                           | 1856                          | 412                                | 702       | 22                   | 38        |
| <u>By region</u>                 |                               |                               |                                    |           |                      |           |
| Thiès                            | 56                            | 224                           | 91                                 | 125       | 40                   | 56        |
| Diourbel                         | 77                            | 308                           | 82                                 | 180       | 27                   | 58        |
| Sine-Saloun                      | 106                           | 424                           | 98                                 | 143       | 23                   | 34        |
| Casamance                        | 103                           | 412                           | 75                                 | 150       | 18                   | 36        |
| River                            | 69                            | 275                           | 45                                 | 79        | 13                   | 29        |
| Eastern Senegal                  | 53                            | 212                           | 21                                 | 25        | 9                    | 12        |
| Total                            | 464                           | 1856                          | 412                                | 702       | 22                   | 38        |

TABLE III

REGISTRATION OF BIRTHS, DEATHS AND MARRIAGES IN THE CIVIL REGISTRATION  
CENTRES THAT HAVE SUBMITTED QUARTERLY RETURNS FOR 1963

|                              | Popula-<br>tion | Births | Deaths | Mar-<br>riages | Registration rates 0/100 |        |           |
|------------------------------|-----------------|--------|--------|----------------|--------------------------|--------|-----------|
|                              |                 |        |        |                | Births                   | Deaths | Marriages |
| <u>Communes</u> <sup>a</sup> |                 |        |        |                |                          |        |           |
| Kolda                        | 6050            | 361    | 39     | 31             | 59.7                     | 6.4    | 5.1       |
| Sedhiou                      | 3500            | 250    | -      | 19             | 71.4                     | -      | 5.4       |
| Zeguïn Chor                  | 29840 °         | 2049   | 645    | 116            | 68.7                     | 21.6   | 3.4       |
| Velingara                    | 2604            | 230    | 70     | 16             | 88.3                     | 26.9   | 6.1       |
| Diourbel                     | 28560 °         | 1251   | 726    | 90             | 43.8                     | 25.4   | 3.1       |
| Kebemer                      | 3500            | 213    | 37     | 12             | 60.3                     | 10.6   | 3.4       |
| Louga                        | 16280 °         | 876    | 80     | 42             | 53.8                     | 4.9    | 2.6       |
| Dagana                       | 4516            | 283    | 85     | 35             | 62.7                     | 18.8   | 7.8       |
| Saint-Louis                  | 48840 °         | 4000   | 1413   | 163            | 81.9                     | 28.9   | 3.3       |
| Podor                        | 4682            | 272    | 45     | 31             | 58.1                     | 9.6    | 6.6       |
| Bakel                        | 2964            | 190    | 37     | 13             | 64.1                     | 12.4   | 4.4       |
| Tambacounda                  | 10478           | 607    | 76     | 69             | 57.9                     | 7.3    | 6.6       |
| Fatick                       | 7198 °          | 456    | 68     | 24             | 63.3                     | 9.4    | 3.3       |
| Foundiougne                  | 1623            | 68     | 12     | 11             | 41.9                     | 7.4    | 6.8       |
| Gossas                       | 4611            | 225    | 31     | 14             | 48.8                     | 6.7    | 3.0       |
| Mekle                        | 5587            | 363    | 33     | 38             | 64.9                     | 5.9    | 6.8       |
| Tivaouane                    | 7900            | 718    | 72     | 28             | 90.9                     | 9.1    | 3.5       |
| <u>Total, communes</u>       | 188733          | 12412  | 3469   | 752            | 65.8                     | 18.3   | 4.0       |

|                                     | Popula-<br>tion    | Births | Deaths | Mar-<br>riages | Registraion rates 0/00 |        |           |
|-------------------------------------|--------------------|--------|--------|----------------|------------------------|--------|-----------|
|                                     |                    |        |        |                | Births                 | Deaths | Marriages |
| <u>Arrondissements</u> <sup>b</sup> |                    |        |        |                |                        |        |           |
| Diatla Counda                       | 33948              | 151    | 12     | 2              | 4.4                    | 0.3    | 0.1       |
| Paba Garage                         | 27155              | 218    | 22     | -              | 8.0                    | 0.8    | -         |
| Goye                                | 40807              | 127    | 62     | 9              | 3.2                    | 1.5    | 0.2       |
| N'Dindy                             | 30922              | 80     | 5      | 8              | 2.6                    | 0.2    | 0.3       |
| N'Dame                              | 30848              | 26     | 10     | 3              | 0.8                    | 0.3    | 0.1       |
| Rao                                 | 21098              | 440    | 65     | 49             | 20.9                   | 3.1    | 2.3       |
| Fogolimbi                           | 10138              | 48     | 22     | -              | 4.7                    | 2.2    | -         |
| Fumola                              | 21492              | 193    | 33     | 24             | 9.0                    | 1.5    | 1.1       |
| N'Diedieng                          | 27521              | 135    | 30     | 6              | 4.9                    | 1.1    | 0.2       |
| <u>Total, arrond.</u>               | 243929             | 1418   | 261    | 101            | 5.8                    | 1.1    | 0.4       |
| <u>Département of<br/>Thies</u>     |                    |        |        |                |                        |        |           |
| <u>Communes</u>                     |                    |        |        |                |                        |        |           |
| Thies                               | 69140 <sup>c</sup> | 3860   | 686    | 244            | 55.8                   | 9.9    | 3.5       |
| Khombole                            | 4100               | 455    | 19     | 20             | 111.0                  | 4.6    | 4.9       |
| <u>Arrondissements</u>              |                    |        |        |                |                        |        |           |
| Notto                               | 25390              | 665    | 126    | 20             | 26.2                   | 5.0    | 0.8       |
| Pout                                | 23239              | 722    | 154    | -              | 31.1                   | 6.6    | -         |
| Thienaba                            | 40927              | 632    | 87     | 11             | 15.4                   | 2.1    | 0.3       |
| <u>Total, départ.</u>               | 162796             | 6334   | 1072   | 295            | 38.9                   | 6.6    | 1.8       |

- a. Population of communes: figures supplies by the administration.  
(Year varies).
- b. Figures given by the administration, relating to mid 1961, adjusted  
by the correction coefficients of the demographis sample survey 1960-61.
- c. Results of the demographic survey 1960-61.

## ANNEX

## CIVIL REGISTRATION SYSTEM IN SENEGAL

DIAGRAM OF DECLARANTS AND REGISTRATION

