



Technical Papers

Number 62
October 1995

COMPARATIVE ANALYSIS OF DEATHS REGISTERED
IN THE CIVIL REGISTRATION OF CAMEROON
THE CASE OF THE MAYORALTIES OF YAOUNDÉ (1986 - 1993)

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FOREWORD

Programs to improve the coverage of civil registration systems need to be carefully evaluated to determine if the actions being taken are actually having the desired effect. As this paper demonstrates merely establishing more registration centers does not necessarily improve coverage of death reporting. Socio-cultural factors which appear to be the reason for lack of improvement in the case of Yaoundé need to be addressed if coverage of death reporting is to improve. Suggestions for bringing about improvement of death reporting are presented.

Mrs. Ellen Jamison translated this paper into English from the original French.

The views expressed in this report are those of the author and do not necessarily reflect those of IIVRS.

The program of the International Institute for Vital Registration and Statistics, including the publication and distribution of the Technical Papers, is supported by a grant from the United Nations Population Fund.

COMPARATIVE ANALYSIS OF DEATHS REGISTERED IN THE CIVIL REGISTRATION OF CAMEROON:
THE CASE OF THE MAYORALTIES OF YAOUNDE (1986 - 1993)

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Summary

"This study begins with a brief discussion of the sources of demographic data in Cameroon and the irreplaceable role of civil registration in the collection of data on population change. Then, based on an analysis of death registers for the period 1986 - 1993 in the civil registration centers of the city of Yaoundé (the capital of Cameroon, with over one million inhabitants in 1994), it attempts to evaluate the completeness of death registration, its consistency, its quality, and its limitations; and arrives at the conclusion that the level of completeness remains very low (about 35 percent) and that urban customs do not yet significantly affect the reporting of deaths to the civil registration as they do in some other African cities at a similar level of development (Abidjan in the Ivory Coast and Brazzaville in the Congo).

Finally, the study suggests some possible ways to improve the coverage rate and presents a model form for collecting information on deaths so that the death certificate may become a basic instrument in the production of death statistics in Cameroon."

I. Introduction

Cameroon has already carried out several activities for collecting demographic data; Regional Demographic Surveys in 1960-1965; Population Censuses in 1976 and 1987 ; and some activities based on relatively important demographic instruments such as the 1984 Census of Agriculture, the 1990 Survey of Population and Health, and the Cameroon Household Survey currently in progress.

However, this country even now does not have good demographic statistics that permit it to calculate annual demographic rates (crude birth rate and mortality rates by age) and facilitate the setting of priority objectives on the basis of an appropriate analysis of the problems, thus being able to justify specific effective actions for both the national plan and at the local community level (Kelodjoug and Sieyodjo, 1992).

All the activities cited above are limited and are sometimes intermingled one with the other without consistent follow-through (once the collection activity has been completed); processing and analysis thus take time, so much so that the results are already outdated and unusable by the time they are published.

Traditionally, there are three administrative procedures for information on population:

- the administrative census: which provides for the enumeration of certain types of population (persons subject to or affected by taxation; voting population);

- monitoring of international migratory movements at the frontier: counting the number of people who enter and who leave;

- civil registration: which identifies and describes the administrative situation of each individual.

If these three procedures work well in a country, the country should know at any given time at least the actual size of its population in relation to a previous evaluation.

Of all these administrative procedures, civil registration could be considered the best source for obtaining data on natural population change on a continuing basis.

That is why we undertook in March 1994 a processing of the death registers in the civil registration centers of the city of Yaoundé with a view to attempting to evaluate the level of completeness, the consistency, and the limitations of death registration. We also wanted to see if the degree of "urbanness" in Africa might have a positive effect on the reporting and registration of deaths. In other words, would the operation of civil registration be less deficient in the urban areas of Cameroon?

II. Description of the City of Yaoundé

Yaoundé, the political capital and the great administrative, intellectual (very low illiteracy rate of 6 percent), and commercial (second after Douala in terms of monetary circulation) center of Cameroon, today surpasses 250 square kilometers.

Demographically, the population of Yaoundé increased from 276,809 inhabitants in 1976 to 650,000 inhabitants in 1987. This corresponds to an average annual rate of increase of 6.92 percent and to an increase in density from 1,107 persons per square kilometer in 1976 to 2,600 in 1987. It represents 28 percent of the total urban population of Cameroon. Over 60 percent of this population is comprised of migrants.

It is a very young population, with a strong migratory aspect, the migrants coming more from average cities than from the countryside. An educated population, where one finds some evidence of increases in the training and education of girls. A high activity rate (17 percent in agriculture, 1 percent for agricultural activities), with more than half of workers involved in the informal sector and one person in two, age 10 and over, looking for work. The unemployment rate, in the ILO sense, remains high at 24.6 percent.

However, the high concentration of the population presents many problems: water supply and evacuation of waste water, household refuse, etc.

It goes without saying that such hygienic and sanitation problems have incalculable consequences for the health of the citizens, whether they wish it or not (Kelodjoue, 1992).

III. Methodology

Data collection took place in a traditional manner, obliging us to go to the civil registration centers of the mayoralties of the subdivision of Yaoundé and to the Urban Community.

This phase consisted of consulting the death registers for the years:

- 1986, 1987, and a part of 1988 at the Urban Community;
- from August 1988 to 1993 in the other mayoralties of Yaoundé.

In these various registers, we picked out data concerning the following variables:

- identification of the mayoralty
- date of death
- sex of the decedent
- age of the decedent
- residence district of the decedent
- occupation of the decedent

The information on the selected variables was entered onto a worksheet designed for this purpose (see appendix).

During this phase of the data collection, we encountered the following problems:

- Chronology: The registration sequence numbers are not consistent with the chronology of the events (some deaths for the month of January, followed by a death for February, then the deaths for January continue; or a death for 1987 in the middle of deaths for 1988--the latter occurred especially in cases involving court decisions). Time limits for registration as prescribed by law are not always respected.

- Age not transcribed onto the certificate (but sometimes found on the reporting form and remaining on the stub). Shoddy filling out of certificates by community agents.

- Certificate form not drawn up but a death pronounced by a doctor reported in the margin.

- Exact age miscalculated by the registration agent.

- Certificate drawn up without all the required information: sometimes only the name, or the name and age, the rest blank: especially among certificates drawn up based on court decisions, verbal proceedings of the military, police, or prisons, and on reporting forms from hospitals that furnished only some of the information required to establish death certificates.

- Information on the sex of the decedent did not appear on the death certificate but could be found on the reporting forms or other auxiliary documents maintained in the files of the civil registration centers.

- With regard to the place (or district) of residence, the name of the district was not given in most cases. This made it difficult later to determine the responsible party, an area that polarizes the various civil registration centers in Yaoundé.

Nevertheless, this does not seem to have detracted significantly from the nature of the information gathered, since we received from time to time the help of local community personnel in clarifying certain situations.

The processing and analysis of the data thus collected allowed us to obtain the crude results regarding the trend in the number of registered deaths in each civil registration center visited and to have an estimate of the rates of coverage, of nonreporting of certain key variables and of registration of nonresidents. As for the level of mortality measured by these data, it would be utopian, even using the battery of existing indirect techniques, to believe that real progress has been made in the estimation of infant or adult mortality.

IV. The Principal Global Results

(a) Trend in the number of registered deaths in Yaoundé

As shown in Table 1, the number of deaths registered in the civil registration centers of the city of Yaoundé has followed (since 1976) a sawtooth trend without any real pattern linked to the risk of dying. Thus, the highest number was registered in 1978 (1,541 deaths) and the lowest in 1990 and 1991 (1,062 and 1,094 deaths), thus establishing a general downward trend beginning in 1988 (the starting year of activities in the mayoralties of the subdivision of Yaoundé; this seems to have had the effect of suppressing the reporting of deaths due to the slow start of activities in these centers). But the two latest years show a new momentum for recovery that we hope will continue from now on.

This aggregate table also reveals an overwhelming excess of male over female deaths, by a margin of more than 50 percent.

Table 2 distributes the overall results by mayoralty. During the period, the mayoralty of Yaoundé 1st registered the most deaths in the civil registration (2,660 certificates), followed by Yaoundé 2nd (1,768 certificates), then Yaoundé 4th and finally Yaoundé 3rd, with 1,382 and 1,254 certificates, respectively. The annual totals of deaths for 1989, using the population figure for 1987, correspond to the crude death rates shown in Table 3.

The resulting values are very low (the crude death rate is about 2 per 1,000), as this mortality measure for the city of Yaoundé was 7.17 per 1,000 according to the 1987 census. Thus, the fluctuations observed during this period are due more to a chronic underregistration of deaths in the civil registration and not to an uncertainty of the overall system (Podlewski, 1970), than to an improvement in health conditions or even to the fact of low general mortality in the Yaoundé region (Dackam, Gubry, and Ngwe, 1990), without, however, denying the real effort undertaken by the government during this period in the area of public health.

The civil registration centers of the city of Yaoundé, taken as a whole, registered a total of 7,064 deaths during the period 1988 to 1993 (Table 2), which is too few to be plausible. Table 4 presents mortality data from other sources.

One notes from that table that the number of deaths occurring between March 1986 and April 1987 and captured in the 1987 census for the city of Yaounde was 4,022. Assuming that the census figures are closer to reality,¹ it can be safely concluded that the death registration rate in civil registration is still around 34 percent. This is confirmed by noting the number of deaths from hospital sources for the same period, which underestimate the deaths as observed in the census by about 50 percent (Table 5).

The low coverage rate found in this analysis confirms once more that very few deaths are reported to the civil registration in Yaoundé. And, as Michel Francois (1989) states, much more time will be required for this to improve. So demographic measures will still have to be obtained for a long time from sample surveys that must be taken accurately (Tabutin, 1989) or by a permanent civil registration observation system (Podelwski, 1970).

Actually, the real advantages related to the fact of reporting a death are not attractive for the majority of citizens (except in cases of inheritance decisions if the decedent owned any assets, or income tied up somewhere, or for the settlement of the capital dossier of the decedent, life insurance--but all of these obviously concern only a small proportion of the citizens of the city).² And this differs from the reporting of births, for which the prospects of education, establishment of identity cards, driver's license, and job-seeking constitute definite elements of motivation for parents.

Table 4 attempts to evaluate the underestimation rate by the classical method of comparison, assuming that the results of the 1987 census were very close to reality in spite of technical and social problems that arise during enumerations.

(b) Trend in rates of nonreporting of selected variables

The most pertinent variables for demographic analysis are: sex, age, and occupation.

- With respect to sex, this variable was not provided for on the death certificate, and its processing poses enormous difficulties if the reporting form is not available. One must be satisfied just to know the first name or to guess the sex from the socio-cultural context of the deceased.³

- Collection of information on age benefitted from the advantage regarding the possibility of checking the death reporting form and the fact that the certificate includes an entry for both date of birth and age. For the period as a whole, the rate of nonreporting for this variable was about 1.3 percent. This confirms that reporting of age is relatively good.

- Finally,⁴ the occupation variable has been relatively well collected by civil registration officials. Thus, the 2.6 percent not stated comes mostly from the oldest group of persons.

The details by mayoralty are presented in Table 6.

However, it is useful to emphasize that these rates would be relatively higher, especially in the case of sex, if one had to rely on just a single copy of the death certificate.

It seems interesting to us to see if deaths are registered at the place of residence of the deceased.

¹ Logically, the number of deaths registered in health facilities should be greater than those captured in the census. In fact, deaths of nonresidents represent almost 28 percent. It is difficult to confirm without a supplementary survey that most deaths occur at home, for in the hospital registers one finds many cases of deaths that probably occurred at home and are kept in the hospital mortuaries.

² In urban as well as rural areas, informal social security mechanisms exist in the form of "ton-tines," traditional associations which, according to the case, provide material and financial assistance to the family of the deceased without the proof of a death certificate.

³ This is why the nonreporting rate for this variable is practically worthless in this analysis, for we had to process the death certificates and the death reporting forms at the same time.

⁴ Assuming that persons under 6 years of age do not have an occupation.

(c) Analysis of the registration rate of nonresidents

Almost 27.5 percent of deaths registered in the mayoralties of the city in 1993 referred to nonresidents of the capital, and the average for the whole period under study was 17.25 percent.

The lack of precision in the district names (in many cases) does not allow us to evaluate the focus area of the various civil registration centers of the city of Yaoundé which, in principal, ought to coincide with the administrative boundaries of the subdivisions. The relatively high proportion of decedents with undetermined residence would result primarily from the fact that the personnel disregard the social and statistical importance of this variable.

V. Conclusion

We thought at first that the rapid urbanization that Yaoundé has experienced, the social structure of its population, the economic and intellectual activity that has continually been developing there, would bring about a noticeable increase in the reporting of vital events. But, based on the evaluation of the quality of data on deaths registered in the vital registration in Yaoundé, it must be concluded that the coverage rate is still very low in Yaoundé (34 percent). This leads one to suppose that, if in the highly educated and cultural urban area we register such a rate, then in the poor and illiterate rural area, it would be illusory even to speak of "registration of deaths."⁵ This, in the final analysis, can only reinforce the pessimism of many researchers about the possibility of deriving measures of mortality based on civil registration data in countries with deficient statistics (Timaeus, 1993).

Another result to be confirmed is the overwhelming excess of male over female deaths. Even though the lower mortality of females is the rule (Veron, 1980), that would not explain the fact that fewer female than male deaths are reported here.

However, the capture of age data in the civil registration seems to be better than that in other sources, especially the census and the health registers.

VI. Discussion and Suggestions

The improvement of civil registration is the product of a long continuous process and not the "sudden" result of an administrative organization established by decree. Unaware of this observation by Michel Francois (1988), in Cameroon the only attempt to raise the low coverage rate has been to increase the number of civil registration centers. So far, this option has seemed to give satisfactory results only in the case of births (for reasons that have already been presented). In the case of death registration, and in light of this study, it can be affirmed that nothing seems to develop; the reasons are primarily socio-cultural. In fact, the still-dominant tradition (even in urban areas) expects that one forget very quickly certain kinds of deaths (stillbirths, children under 1 year of age, deaths following long illnesses, sorcery), and that the deceased always be buried in their home village. In Yaoundé, the capital of Cameroon, over 50 percent of inhabitants have their place of origin outside the city limits. These people use all their cleverness, day or night, to transport or "steal" their dead to the burying place, thus evading all the administrative procedures. They do not even think to obtain a death certificate if there is any way to get out of it.

That is why it would be interesting to establish a legal authorization for burial, which would be issued as quickly as possible by the mayors, or village, district, or religious chiefs (priests, pastors, imams) of the sector where the burial takes place, in return for filling out the statistical forms presented in the appendix of this article and which would serve later to establish the death certificate.⁶

⁵ Already between 1967 and 1970, Podlewski (1970) observed in l'Adamaoua that two-thirds of births were registered although it was required to pay a fee, while only 10 to 20 percent of deaths were registered even though it was free.

⁶ In this way, it would be possible to develop a list of persons who legally should report a death, for example: a spouse, an adult member of the family, others in the household, the doctor who pronounced the death, or the person having organized the funeral ceremonies (Zuluage, 1993).

A large effort for educating and sensitizing the population is necessary at all levels. This activity of sensitizing and/or training should be extended to all the actors involved in the reporting of deaths (community agents, doctors, military, police, prison directors, clerks of the court) who should review their form or verbal procedure with a view to introducing the main key variables required for the analysis of mortality, and thus reduce the number of blank spaces on the death certificate.

Finally, it would be desirable to include on the death certificate the variables of sex and reported cause of death even if the latter is difficult to determine without the diagnosis of a doctor.

Table 1. Trend in the Number of Registered Deaths in the Mayoralties of Yaoundé

Year	1976	1977	1978	1986	1987	1988	1989	1990	1991	1992	1993
No. of deaths											
Female	NA	NA	NA	815	422	392	370	307	371	504	457
Male	NA	NA	NA	425	942	708	739	755	723	867	871
Total	1,363	1,449	1,541	1,240	1,364	1,100	1,109	1,062	1,094	1,371	1,328

Table 2. Distribution of Deaths in Civil Registration, by Sex and Mayoralty in Yaoundé Between 1988 and 1989

Mayoralty	Yaoundé 1st			Yaoundé 2nd			Yaoundé 3rd			Yaoundé 4th			YAOUNDE		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Jan.-July 1988	-	-	-	-	-	-	-	-	-	-	-	-	375	201	576
Aug.-Dec. 1988	106	77	183	92	26	118	69	51	120	66	37	103	333	191	524
1989	213	118	331	192	110	302	176	71	247	158	71	229	739	370	1109
1990	201	97	298	202	90	292	157	67	224	195	53	248	755	307	1062
1991	209	113	322	206	78	284	145	58	203	163	122	285	723	371	1094
1992	300	205	505	228	138	366	145	76	221	194	85	279	867	504	1371
1993	297	148	445	256	150	406	155	84	239	163	75	238	871	457	1329
1988-1993	1701	959	2660	1176	592	1768	847	407	1254	939	443	1382	4663	2401	7064

Note: Yaoundé was divided into 4 Mayoralties as of August 1, 1988.

Table 3. Death Rate by Mayoralty, for Yaoundé (per 1,000)

Mayoralty	Population	Deaths	CDR
Yaounde 1st	190 887	331	1.73
Yaounde 2nd	120 201	302	2.51
Yaounde 3rd	141 564	247	1.74
Yaounde 4th	108 133	229	2.12
YAOUNDE	560 785	1 109	1.98
YAOUNDE (1987 census)	560 785	4 022	7.17

Sources:

Population: 1987 census)

Deaths: 1989 civil registration

CDR - Crude death rate

Table 4. Other Sources of Data on Mortality in Yaoundé

Sources	Census			Hospital sources		
	M	F	T	M	F	T
Year						
1976	891	785	1 676	-	-	-
1987	2 285	1 337	4 022	1 297	791	2 088
1988	-	-	-	1 211	794	2 008

Table 5. Estimates of the Underestimation Rate of Deaths (percent)

Census (1987) (a)			Civil Registration (1987) (b)			Hospital Sources (1987) (c)			Difference(1) (d)=a-b			Difference(2) (e)=c-b			Rate(1) (f)=d/a			Rate(2) (g)=e/c		
M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
2285	1737	4022	942	422	1364	1297	791	2088	1343	1315	2658	355	369	724	58.77	75.70	66.08	27.37	46.6	34.67

6

Summary Table

Source	M	F	T
CR/Census	58.77	75.70	66.08
CR/Hosp.	27.37	46.6	34.6

CR = Civil registration
Hosp. = Hospital sources

Table 6. Trend in the Rate of Nonreporting of Selected Variables,
by Mayorality in Yaoundé Between 1988 and 1993 (percent)

Mayorality	Yaoundé 1st			Yaoundé 2nd			Yaoundé 3rd			Yaoundé 4th			YAOUNDE		
Year	Sex	Age	Occupation	Sex	Age	Occupation	Sex	Age	Occupation	Sex	Age	Occupation	Sex	Age	Occupation
1986													0	4.6	8.4
1987													0.73	3.5	9.96
1988	0	22.5	5.76	0	0.8	1.69	0	0	4.17	0	0	0.97	0	7.76	6.09
1989	0	0.6	1.5	0	0	2	0	0	1.62	0	0	2.62	0	0.18	1.89
1990	0	0	2.34	0		0.32	0	0	1.34	0	0	2.02	0	0.09	1.88
1991	0	0	1.55	0	0	1.06	0	0	1.97	0.7	0	2.46	0.18	0	1.76
1992	0	0.39	1.78	0	0	2.46	0	0	2.26	0	0	0.71	0	0.15	1.8
1993	0	0	2.92	0	0	2.46	0	0	1.67	0	0	2.52	0	0	2.48
1988-1993	0	3.92	2.64	0	0.18	2.06	0	0	2.17	0.11	0	1.9	0.02	1.28	2.6

Table 7. Trend in the Proportion of Nonresidents in Yaoundé (percent)

	YAOUNDÉ	Yaoundé 1st	Yaoundé 2nd	Yaoundé 3rd	Yaoundé 4th
Year					
1986	14.93				
1987	13.88				
1988	15.09	11.5	23.73	17.5	8.73
1989	12.26	10.27	15.7	15.38	6.99
1990	14.5	15.77	18.5	18.78	3.23
1991	16.82	15.22	16.55	14.29	20.35
1992	17.72	23.37	22.68	14.03	3.94
1993	27.25	23.37	15.02	11.30	21.85
1988-1993	17.25	22.22	18.73	15.2	10.84

DIVISION

FEDERAL REPUBLIC OF CAMEROON
Peace — Work — Fatherland

ARRONDISSEMENT
SUBDIVISION

CENTRE D'ETAT CIVIL

CIVIL STATUS REGISTRATION CENTRE

de - of

ACTE DE DECES
DEATH CERTIFICATE

N°

Nom du décédé (e)
Name of deceased

Le - On the

Est décédé (e) à
Died at

M - Mr.

Agé (e) de - Aged

Né (e) le - Born on the

A - At

Profession
Occupation

Domicilié (e) à
Resident at

Fils ou fille de
Son or daughter of

Demeurant à
Resident at

Et de - And of

Demeurant à
Resident at

Dressé le
Drawn up on the

Sur la déclaration de
In accordance with the declaration of

Lesquels ont certifié la sincérité de la présente déclaration.
Who attested to the truth of this declaration.

Par Nous,
By Us,

Le Déclarant (e),
The Declarant,

Signature de l'Officier de l'Etat Civil,
Signature of Registrar,

DIVISION

FEDERAL REPUBLIC OF CAMEROON
Peace — Work — Fatherland

ARRONDISSEMENT
SUBDIVISION

CENTRE D'ETAT CIVIL

CIVIL STATUS REGISTRATION CENTRE

de - of

ACTE DE DECES
DEATH CERTIFICATE

N°

Nom du décédé (e)
Name of deceased

Le - On the

Est décédé (e) à
Died at

M - Mr.

Agé (e) de - Aged

Né (e) le - Born on the

A - At

Profession
Occupation

Domicilié (e) à
Resident at

Fils ou fille de
Son or daughter of

Demeurant à
Resident at

Et de - And of

Demeurant à
Resident at

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Drawn up on the

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By Us,

Le Déclarant (e),
The Declarant,

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Signature of Registrar,

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