Socio-Political Regime and Child Survival in Rwanda
Analysis of the 1965-1977 crisis

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Running head: Mortality crisis in Rwanda

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Abstract

A change in under-five mortality trend occurred in Rwanda between 1965 and 1977. Before 1965, under-five mortality was declining from an estimated value of 346 per 1000 in 1950 to 229 per 1000 in 1965. Then it rose for about 12 years to 261 per 1000 in 1977, to decline again, reaching a level of 132 per 1000 in 1992. Reasons for this unexpected rise in mortality are explored. The period of mortality increase corresponded to a period of economic growth driven by increases in price of coffee on the international markets, whereas the period of mortality decline occurred during an economic downturn due to a large part to a decrease in coffee prices. The first period was marked by severe difficulties after independence, due to the rapid departure of expatriates, the relative international isolation and the lack of international aid, the flight of educated persons of Tutsi origin, and possibly the departure of herders and their cattle following civil unrest and fights between Hutu and Tutsi between 1959 and 1966. During the second period, social indicators became more favourable, with the increasing benefits of earlier social investments, higher openness to international markets, more international aid, and more internal stability. This study revealed the frailty of the state in a newly established country and the ultimate determinants of child survival.

Keywords: under-five mortality, child survival, mortality determinants, political crisis, ethnic conflict, economic development, Rwanda, sub-Saharan Africa.

Introduction

Since 1950 mortality decline among children has been overwhelming in the world, and particularly noticeable in sub-Saharan Africa, the continent with the highest levels of infant and child mortality at the beginning of this period. A series of reviews documented the decline in mortality in various African countries. Hill (1991) documented mortality decline in 36 countries using indirect estimates of under-five mortality from census and survey data. A recent document edited with the World Health Organization (1999) provided adjusted under-five mortality in 45 countries of sub-Saharan Africa, most of them consistent with previous estimates, and derived from a mixture of direct and indirect estimates. These studies indicated a steady mortality decline since at least 1950 or 1955 in most countries, and sometimes since 1930 when data were available (Ghana, Angola). Garenne (1997) already noted that in a number of countries the mortality decline was not sustained, and that under-five mortality increased over certain periods of time, in places such as Rwanda, Madagascar, Ghana and Zambia, long before the HIV/AIDS epidemics started having a demographic impact. The WHO study also referred to mortality increases prior to 1990 in places such as Rwanda, Uganda, Zambia, Mozambique and Niger.

Mortality decline is considered to be the result of health, social and development policies, and in particular of improvements in preventive and curative medicine and in nutrition, and has been documented for a long time in both developed and developing countries (Stolnitz, 1955; Stolnitz, 1965; Davis, 1956). As a consequence, a mortality increase over a period of time could be considered as a failure of such policies, and ultimately a failure of state management, unless other causes such as emerging or re-emerging infectious diseases could explain the reversals, as exemplified by the case of HIV/AIDS after 1990 in countries such as Botswana, Zimbabwe and South Africa.

The aim of this study is to document the mortality increase in Rwanda over the 1965-1977 period, and to explore the socio-political context that could explain it. This study is part of a series of case studies on mortality increases in Africa undertaken by the same authors and supported by the Wellcome Trust. We emphasized here on the historical context of colonization, the difficult period of transition to independence and the following years of constructing a new country, a new social fabric and a new political system. The study stops before the major 1994 crisis, which culminated in the civil war andwith the well publicized genocide that followed.

Demographic evidence

Rwanda is a tiny landlocked country of central Africa, of about 26 338 square kilometers. It hosted a population of about 1.1 million at the beginning of the 20th century, about 2.1 million in 1950, 2.9 million at time of independence, and 7.2 million at the 1991 census. Estimates of population size vary for the period after the 1994 genocide, which killed a significant proportion of the population, but also permitted to Tutsi refugees to come back (Niyibizi, 1982; DHS-2002 report, Gakusi and Garenne, 2002). A census conducted in August 2002 revealed a population of 8.1 million, which implies a net loss of about 1.0 million people as a result of the genocide of Tutsi and the following massacres of Hutu, some having been killed, others having fled the country, and not discounting for the number of Tutsi returnees after the civil war. Population density was already high in the early part of the 20th century by African standards (42 habitants per square kilometer), and was extremely high at the 1991 census (272 hab/km^2). Historically, Rwanda was prone to repeated famines, and from 1890 to 1943 nine severe famines have been documented , some of them leading to massive dying of large parts of the populations (Anonym, 1956, Tallon, 1987).

Levels of under-five mortality are not known prior to 1950. After 1950, infant and child mortality estimates could be reconstructed from two demographic sample surveys: the 1982 survey, part of the World Fertility Surveys (WFS), and the 1992 survey, part of the Demographic and Health Surveys (DHS). When this study was conducted, data from the 1996 demographic sample survey (*Enquête Socio-Démographique*) and of the 2000 DHS survey were not yet available for in-depth research. This is primarily the cause why the analysis stops in 1992.

The method of reconstructing mortality trends has been presented elsewhere (Garenne, 1997; Garenne and Gakusi, 2002). It consists in computing period estimates of under-five mortality, using life table technique from birth history data, the periods being usually two consecutive years, sometimes 4 or 5 years in order to cumulate enough births and deaths. When several estimates from the same period from two surveys were available, they were combined proportionately to the number of deaths recorded. Slopes of mortality trends were estimated by fitting logit-linear trends. Reversal in mortality trends were first identified using

polynomial adjustment, and the changes in slope were tested using logit-linear models. Only significant changes in slope are presented in this study.

Results of this reconstruction are presented in figure 1. Under-five mortality was clearly declining over the 1950-1965 period, from 317 per 1000 in 1950-1954 to 232 per 1000 in 1965-1969, then rose for about 12 years to 263 per 1000 in 1977-1978, then declined again until 1991-1992 (154 per 1000). Further published evidence from DHS reports indicates that mortality rose again at the time of the civil war and of the genocide even among the population who survived until the following survey, to a peak of 219 per 1000 over the 1991-1995 period, and declined again thereafter, reaching an average values for the 196 per 1000 in the five years preceding the 2000-DHS, a value close to that of 1965. Reconstructed estimates from linear logistics regression indicate a mean annual decline of -2.8% over the 1950-1965 period (from 346 to 229 per 1000, P= 0.004), then a mean annual increase of 1.1% over the 1965-1977 period (P= 0.005), and a mean annual decline of -4.6% over the 1977-1992 period (from 261 to 132 per 1000, P< 0.001).

The changes in slope were all highly significant at P< 0.001. Had the decline of the first period be continued steadily, as expected in a normal health transition, under-five mortality would have been 94 per 1000 in 1992, some 29% below the observed value. That is to say that if mortality decline was rapid after 1977, it did not allow to fully recover from the losses of the earlier period. Further analysis indicates that the small mortality increase in 1985-1986 was not significantly different from the previous two years 1983-1984 (P= 0.181). Although Rwanda was a 96% rural country in the 1965-1977 period, the mortality increase was similar in urban (+16%) and in rural areas (+15%), which reveals a national phenomenon. The mortality increase was also visible both in the WFS and in the DHS surveys. We analyze thereafter the possible explanations for this unexpected rise in child mortality.

< Figure 1 about here>

< Table 1 about here>

Historical background

Prior to the arrival of European settlers at the end of the 19th century, the area now covered by Rwanda and its twin country Burundi was divided into local kingdoms, and

dominated by a split between the two main ethnic groups, the Hutu and the Tutsi. The area also hosted a small group of pygmy like population, the Twa. The Hutu are considered from Bantu origin, and were traditionally farmers, whereas the Tutsi are from Nilotic origin, and traditionally herders, raising cattle. Tutsi tended to dominate the political scene and the economy, and Hutu were considered as vassals to the Tutsi, through a complex system, called *ubuhake,* of duties and services provided by the Hutu in exchange for milk and protection from the Tutsi. The actual Rwanda was ruled by a Tutsi king, a dynasty going back to the middle of the 17th century (Heremans, 1973; Vansina, 2000).

The colonial period (1898 – 1958)

European penetration came from the East, and the Germans were the first to conquer and settle in the actual Rwanda (1898). This piece of land was in fact formally allocated to Germany at the Berlin conference (1884) which started the colonial rush to sub-Saharan Africa. German rule did not last long, and was terminated in 1916 during World War I. In 1922, the League of Nations attributed the territory and nearby Burundi to Belgium, who already controlled Congo (formerly Zaire), and the colony was named Ruanda-Urundi. Belgians settled their capital in Bujumbura, in actual Burundi, on lake Tanganyika. With European colonialists came the Christian missionaries who would play a major political and social role in the colony (Harroy, 1984).

At first, the colonial invasion created reactions from the local authorities, and in particular the king of Rwanda, Musinga, was hostile to any modernization of the society. He was dismissed in 1931, under the strong influence of the missionaries who saw him as a major obstacle to their actions, and was replaced by his son, Mutara Rudahigwa, who converted to Catholicism, and paved the way to Christianization and Westernization of the society. Colonial rule came to an end in 1962, and the former colony Ruanda-Urundi was split into two independent countries, Rwanda and Burundi (Kalibwami, 1990).

As elsewhere in colonial Africa, the social sectors, typically health and education, were dominated by missionaries prior to 1950. The first protestant missionaries came with the Germans in 1906 (the German Evangelic church) and were followed by a variety of groupssuch as the American 7th day Adventists (1919), the Church Missionary Society (1922), the American Methodist,and the Swedish Pentacost Church (1926). The Catholics also came in early, and the first "*Pères Blancs*" arrived in 1900. They were followed by the "*Soeurs Blanches*" (1909), and by a variety of organizations such as "*Oeuvre de la Sainte Enfance*"

and "*Congrégation pour la Propagation de la Foi*". Catholics and protestants competed to win the souls of local people and to establish faithful relationships with the people, and acted primarily through health and education, as elsewhere in Africa (Mbandahe, 1990)

In the field of health, the focus was on the development of hygiene, the prevention of infectious diseases through isolation of contaminated persons and the burning of their personal belongings. In the field of social services, the focus was on the care of orphans,famine relief and a variety ofpoverty alleviation schemes. Of course, education in modern schools was the prime objective to promote local elites and to convert people to Christianity (Mbandahe, 1990).

During the colonial period, a clear relationship links Christianization, modern education, and the provision of health services (Figure 2). If the first two decades (1900-1922) saw only a moderate coverage of the population, the next period (1922-1947) witnessed of a dramatic involvement of missionaries, and of a major impact of their action: the number of baptized persons was multiplied by 6.5, the number of children enrolled in schools by 10.0, and the number of visits to mission clinics by 6.8, the log-linear trends being almost parallel. The sole accident to this impressive progression was that of the second world war, period after which the evolution recovered quickly and went back to the previous tracks. By the end of the colonial period the country was well covered by the missions. This gives a measure of the potential difficulties at the end of this era.

< Fig. 2 about here >

Colonial state development policies in Rwanda were quite standard for this period. The colonial power first created roads, markets and cities to favor economic exchanges. They also promoted cash crops, in particular coffee, which culture became compulsory in 1925, and accounted for 80% of the exports at time of independence. In addition, cultures of tea, cotton and peanuts were also promoted. The colonial power also intervened in the management of seeds, and various means of regulating the local agriculture, so that famines disappeared after 1945. Rwanda has only limited natural resources, and only a few mines were exploited during the colonial period, in particular tin ore (cassiterite) and tungsten (wolfram).

In the field of education, the colonial power focused on the education of an elite. During the first years of the colonial rule, the Tutsi aristocracy refused modern education, and only a few Hutu were educated in the Western system. However, after 1931, when modernization really took off, the opposite pattern prevailed: the colonial power favored Tutsi

education, so that by mid-1950's, most educated professionals (teachers, nurses, agronomists, technicians) were indeed Tutsi. The "*Groupe Scolaire Astrida*" located in Butare trained most educated people over this period, though remained of a small scale for the country, with small numbers of graduate every year, and a medium level of education. At time of independence, there was no university training in the country (Harroy, 1984).

As elsewhere in Africa before 1950, public health policies focused on hygiene (toilets, water supply) and the control of major endemic diseases, such as sleeping sickness (trypanosomiasis), tuberculosis, malaria, and endemic syphilis (yaws). After 1950, the physical infrastructure was developed (hospitals, dispensaries), and newly developed drugs (vaccines, antibiotics, antimalarial) were introduced in the population (Bloom and Sachs, 1998). In addition, a program of house spraying of DDT aimed at controlling the mosquitoes vectors of malaria. All these actions can easily explain the mortality decline in the 1950's, and suggest that mortality decline could have started long before with the actions ran by missionaries.

The transition period (1958-1962)

Compared to other African countries, what characterized Rwanda was the difficult transition at time of independence. First, the progression towards an independent political rule became more focused on internal fights between Hutu and Tutsi rather than a bargaining with the colonial power. Indeed, the independence movement was led by Hutu recently educated, who funded the independence party movement, *Mouvement Démocratique Républicain - Parti du Mouvement de l'Émancipation Hutu (MDR-Parmehutu)*, strongly opposed not only to colonial rule, but also to Tutsi domination. This resulted in serious civil strife, and systematic massacres of Tutsi in several occasions in years 1959 and 1963-1964 (Nkubdabagenzi, 1961; Niyonzima et al., 1957; Reyntjens, 1985; Gakusi et Nkundabagenzi, 1989)

This situation had serious social consequences. Firstly, as a result of the fights many educated people, most of them Tutsi, were either killed during massacres, of fled to neighboring countries, so that by 1966 there were only few teachers and nurses left in the country. Indeed, the Tutsi who accounted for 11% of the population in 1959 represented 88% of educated people in the colonial administration, and about three quarters of children educated in the Butare elite school (Munyangaju, 1959; Lemarchand, 1970). Secondly, many Belgian expatriates left shortly after independence, since they felt that there was no long term

future for them, they feared for their security, and they were given financial incentives to start a new life in Europe. According to Harroy (1984), 1000 of the 1500 expatriates left between 1960 and 1961. As a result of these sudden departures, many hospitals and health centers were left without physicians and nurses for a number of years, as was the case in Congo, and probably worse than in Congo (Vanderick and Questiaux, personal communications; Time magazine, 1960). Thirdly, because of the division between Rwanda and Burundi, the first part remained without any modern city, without a central bank, and without any significant infrastructure, contrary to the second part better endowed (Paternostre de la Mairieu, 1983). Fourth, with the departure of the Tutsi, a large proportion of cows had left the country, living the remaining population with less milk than before. Fifth, the 1958-1962 years were years of low agricultural production, and even if there was no famine per se, food availability had strongly diminished compared to previous periods. Sixth, the new government sometimes prohibited the missionaries to dispense health care, in order to promote the public system (Mbandahe, personal communication). All these reasons could have had an impact on child survival in the following years.

The first republic (1962-1973)

The first republic was proclaimed in 1962, and the government led by President Grégoire Kayibanda had a difficult task to build a country without physical and administrative infrastructure (the capital of the colony used to be in Burundi), and with very few educated persons (educated Tutsi had fled), and in the context of severe attacks from Tutsi refugees located in neighboring countries. This governement was not marked by any strong ideology, and followed a mild socialist policy of investment in education and health, with very limited resources.

During the first republic, the priority was given to the construction of the institutions of the newly established independent state. An university was inaugurated as soon as 1963, with priority to the medical school, which accounted for about a third of the total number of students in the first years. By 1972, 24 physicians had been trained, and added a significant number to the remaining 48 expatriates. A central bank was instituted in 1964, with a new currency. A serious effort was devoted to build the missing administrative infrastructure. The government received little help from the international community, and was surviving on meager resources, and primarily on coffee exports. Its success could be seen in the numbers of trained persons and medical infrastructure after 10 year of efforts. By 1972, the number of

nurses had more than doubled (653 against 300), the number of dispensaries also more than doubled (150 against 71), the number of maternity wards was multiplied by three (41 against 13), and the number of hospital beds increased by 61% (5687 against 3532).

The harshness of this first period is better reflected in the outcome, despite the investments in health and education. This is the period during which under-five mortality increased (see figure 1), and also the period during which school attendance declined significantly. According to Erny (1978), primary school enrolment dropped from 63.9% in 1964 to 40.8% in 1974 (see figure 3). This drop seems to be due to the same reasons as the change in under-five mortality, that is a decline in the trained labor force (school teachers) in the context of fast growing population, at a rate of some 3.7% per year.

<Figure 3 about here (School attendance)>

Surprisingly at the first glance, income during this period was rather increasing, and seemed to follow a favorable trend. According to the Penn World tables, the Gross National Product (GDP) per capita expressed in parity purchasing power (PPP) dropped somewhat at time of independence, from 537 $ in 1960 to 368 $ in 1964, primarily because of the departure of expatriates who had a much higher income and possibly to ethnic conflict, but recovered quickly and increased steadily to 621 $ in 1973. Similarly, using a slightly different method, Maddison estimated that GDP-PPP per capita dropped somewhat at time of independence, from 656 $ in 1960 to 525 $ in 1964, and increased steadily to 688 $ in 1973. In other words, the period of mortality increase was associated with a period a slow economic growth, and not of recession. Increase in income seems to be closely associated with the changes in coffee prices, the leading export of Rwanda, which rose from 0.42 USD per pound in 1960 to 2.35 USD per pound in 1977 on international markets, a 5.7 fold increase in a 17 year period (CNUCED, 1999). This supply of income for the state primarily financed the investments in the social sector.

<Figure 4 about here : GDP-PPP)>

Other economic indicators also appear favorable over the 1965-1977 period. For farmers, both the food crops and the cash crops increased in volume (kilo per capita), by 38% for the former and by 71% for the later (see annex table for details). This indicates that mortality increase occurred despite stable food availability per capita, and increasing income

for the farmers, and is unlikely to be due to nutritional problems. Table 2 summarizes the evolution of critical indicators during this period. The divergent evolution of social and economic indicators appears clearly: while education and health indicators deteriorate, the economic indicators improve during the 1965-1977 period, revealing independent underlying mechanisms (Sen, 1981, 1993, 1998).

< Table 2 about here>

The second republic (1973-1994)

This first period ended with the coup d'Etat led by Juvénal Habyarimana in 1973. The second republic was proclaimed and differed from the first in many aspects of economic and socio-political life. Habyarimana tried to resolve the Hutu/Tutsi divide. He was more careful to integrate Hutu and Tutsi together, and wanted to build a new and homogenous nation. Habyarimana's power was based on a single party, the MRND (*Mouvement Révolutionnaire National pour le Développement*), which was the only authorized party, and to which all citizens were registered since birth. His first policy was to open the economy to business, including for civil servants and military personnel.

The political system set up by Habyarimana was disputed from 1989 on, and a war was engaged in October, 1990, which evolved in the genocide of 1994 following the death of Habyarimana in the shot down of his presidential plane. His death was the signal for starting the genocide, which paved the way to the return of the Tutsi into power in Kigali, the capital city of Rwanda, now ruled by Kagame after the resign of Bizimungu on March 2000.

The second Republic benefited from investments made since independence, notably in qualified personnel and in infrastructures. It strengthened the actions begun in the medical, educational and economic sectors. It received a substantial international aid. The economic indicators improved until the beginning of the 80s when the country witnessed a decline of its living standards.

Meanwhile, GDP per capita increased by about 28% between 1975 and 1983. Imports and exported exploded, and were multiplied by almost 10 by 1985. However, budget deficit increased as well as the international debt. Economic growth was not sustained, and by 1992 GDP-PPP had dropped by about 20%, in large part due to a drop of coffee prices on international markets (-52% between 1983 and 1992). However, the 1983-1992 of economic

downturn was not associated with a social downturn. Both under-five mortality continued to decline (as between 1977 and 1983) and school enrolment continued to increase (see figures 1 and 3). The second republic also witnessed a major increase in international public aid, which increased from an average value of 6.4 USD per capita in 1965-1977 to 19.9 USD/capita in 1977-1992, about three times more than during the previous period.

During the second republic, health and education policies followed the previous path, and benefited from the trained personnel and the new infrastructure. In addition, new international programs were developed, in particular the Expanded Programme on Immunization (EPI), which probably contributed significantly to the continuous decline in under-five mortality. International aid seems to have played an important role during this period, when by 1985 some 64% of health expenditures were financed by foreign organizations (Ministère de l'Economie et des Finances, 1987).

Discussion

The Rwanda case study presents an interesting situation of relative independence between economic and demographic outcomes. The underlying causes of trend dynamics seem to be a mixture of internal politics and external economic shocks. The main reason why the country ended up in a difficult social situation after independence (1965-1977) seems to be the sudden departure of the expatriates and of the educated Tutsi and the lack of educated Hutu, which translated into increasing child mortality and decreasing school attendance. This was exarcerbated by the lack of international aid, and by the withdrawal of the Churches from health and education sectors which became the state prerogative. These unfavorable social trends occurred despite economic growth associated with increasing income due to increasing prices of the main export (coffee) on international markets. The next period (1977-1992) was almost the opposite: better social indicators, as shown by decreasing mortality and increasing school attendance, despite a decline of coffee prices on the international markets, despite decrease in food availability per capita, and despite rampant corruption and increasing inequalities. These favorable social trends seemed to have benefitted from previous investments during the preceding period, in a context of more open economic policies, and significant international aid and investment.

One salient feature of the Rwanda case is the frailty of the newly independent state, due to a number of factors: lack of administrative infrastructure, lack of educated personnel, relative geographic isolation, and isolation from the international aid networks. It took the first Republic about 15 years (1962-1977) to build the missing infrastructure and to train the necessary personnel in health and education. Results were seen only in the next 15-year period (1977-1992). A few figures could illustrate the paucity of trained personnel at time of independence: the number of physicians was 22 in 1963, the number of secondary teachers was only about 60 in 1961[1], and one of the rare trained economist, a 27 year old, was chosen as the Minister of Economic Affairs. In the first years following independence, the country depended on a few persons of good will, but of little expertise.

The relative independence between economic and social indicators can be explained by analyzing the main determinants of the two sectors, which responded to independent dynamics. This is not to argue that these factors should normally be independent. On the contrary they normally appear closely correlated in most countries in the world, primarily because they both are the results of proper state management and state policies. However, the relationship is not at all mechanical, and cases such as this of Rwanda indicate that they can occasionally evolve in different directions on medium term periods of some 15 years.

The Rwanda case of mortality increase appears different from classic divides, such as left/communist versus right/capitalist policies, or democracy versus despotism, or mismanagement versus good governance. The social, economic and political dynamics were quite independent from ideological divides, and the historical heritage of colonization and the late effects of social investments appear far more important to understand the social outcomes.

The more recent period (1994-2002) offers a different situation, dominated by the civil war and the difficult recovery period. According to the recent DHS survey, under-five mortality is still high in Rwanda, much higher that it should have been under a smooth health transition since 1962, not counting the ordeal of the genocide period. This underlines the complexity of the socio-political situations of African countries, and the erratic character of the health transition that results for chaotic political, social and economic changes.

[1] According to Erny (2001), in 1961, there were 280 000 students in the primary school, 1200 in the secondary school and there were 132 rwandan students abroad.

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Table 1 Estimates of under-five mortality in Rwanda

Date	Estimated level q(5), per 1000	Percent change over the period	Mean annual Change (%)	Slope P-value
1950	346			
		-34%	-2.8%	0.004
1965	229			
		+14%	+1.1%	0.005
1977	261			
		-50%	-4.6%	0.001
1992	132			

Source: Reconstructed by authors from linear-logistics estimates

Table 2:

Table 3: Time series of selected economic and social indicators, Rwanda 1960-1992

			Social indicators			Economic indicators			Production		
Year	Under-five mortality q(5)	School enroll-ment Primary	Income per capita GDP-PPP	Openess (I+E)/Y	Coffe price US ct / pound	International Aid USD/ capita	Export quantities Index 100	Public debt RWF/capita	Food crops Kg/ capita	Cash crops Kg/ capita	Mines Tonne
1960	264		656	24	41	2.7					2141
1961	257		525	23	38	2.4	48			3.6	2995
1962	250		695	24	36	3.5	51		551	3.3	2405
1963	242		611	20	35	2.1	40		595	1.7	2104
1964	235	63.9	525	26	47	1.7	58		363	2.7	2366
1965	229	65.9	548	31	45	2.1	55	56	579	3.2	2316
1966	227	56.7	570	34	42	3.0	38	224	733	2.7	2340
1967	230	53.6	594	28	39	3.4	47	289	758	3.4	2682
1968	233	47.8	618	29	39	3.4	38	329	732	3.7	2548
1969	236	52.9	666	26	40	3.9	63	354	746	3.7	2567
1970	239	52.0	717	27	52	4.5	79	417	781	4.2	2997
1971	242	48.8	705	27	45	5.2	128	464	773	4.4	2792
1972	245	47.1	687	25	50	5.9	113	1123	738	3.3	2727
1973	248	43.9	688	25	62	6.4	133	1325	748	4.1	2729
1974	251	40.8	700	34	66	7.5	118	1530	680	4.1	2876
1975	254	41.6	806	27	65	12.3	154	1781	758	5.0	2741
1976	258	43.9	766	34	143	12.6	212	1916	792	5.6	3128
1977	261	45.6	779	32	235	13.2	133	1876	797	5.6	3221
1978	240	49.5	827	39	163	16.4	84	2607	772	5.7	2984
1979	230	56.8	874	44	174	17.8	89	2917	852	5.9	3775
1980	221	59.8	946	41	154	18.8	61	3942	810	5.2	2915
1981	212	63.7	972	32	128	19.4	71	4278	851	6.2	2425
1982	204	58.9	1011	36	140	18.1	69	4825	860	4.9	2377
1983	195	57.9	1031	32	132	16.8	70	5858	801	7.1	2077
1984	187	57.9	957	32	144	16.5	77	6786	705	6.6	2139
1985	179	59.2	972	31	146	17.1	87	7758	729	8.4	1510
1986	172		996	33	193	19.9	100	8455	730	8.2	
1987	165		958	29	112	21.4	107			8.1	
1988	158		894	29	135	20.6	84			8.0	
1989	151		855	26	107	19.1	94			6.2	
1990	144		885	22	89	26.6	109			6.8	
1991	138		797	29	85	31.6	97			5.9	
1992			828	29	64	25.5	91			8.4	

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Figure 1: Under-five mortality trends in Rwanda (per 1000 live births)

Figure 2: Activities of missionaries in Rwanda (log scale)

Figure 3 : Trends in GDP-PPP per capita in Rwanda (in 1990 USD)

Figure 4: Trends in primary school enrollment, Rwanda (per 100 children of school age).