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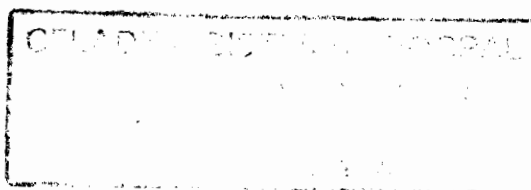
INTERNATIONAL CONFERENCE ON POPULATION, 1984

Expert Group on Mortality and Health Policy
Rome, 30 May - 3 June 1983

Item 4 of the provisional agenda

MORTALITY AND HEALTH POLICY

Paper prepared by the
Centro Latinoamericano de Demografía,
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NOTE

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The term "country" as used in the text of this paper also refers, as appropriate, to territories or areas.

The designations "developed" and "developing" economies are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

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1. It is difficult for the representative of CELADE to prepare an effective and useful contribution that suits the items included in the Annotated Provisional Agenda for the Expert Group on Mortality and Health Policy. Those responsible for the elaboration of the agenda and those responsible for ECLA-CELADE work programme were after, obviously, two quite different objectives.

The first ones conceive interesting and valuable studies -if it were possible to carry them out- which should be taken into account by those who plan socio-economic development policies. For us, ECLA-CELADE, who work in developing countries in Latin America, the implementation of such studies is illusory on the one hand, there is not enough information to carry out sound studies aimed at establishing the interrelationships, or simple associations, included in the Agenda. On the other hand, in most of our countries it does not exist a realistic socio-economic development policy due, mainly, to the prevalent politic and economic instability.

We are convinced of the existence of interrelationships between socio-economic development and mortality, but we can not quantify the answers with reliable data, to such questions as: 'Which are the roles of development in eliciting or retarding mortality reduction?'; 'What are the effects of development-related changes in the environment and in life styles on health and mortality?'; and other questions included in point 4 of this Agenda.

2. This paper presents what we know about mortality in Latin American countries in terms of present levels, trends and some few differentials.

In some cases the knowledge is reliable, in other cases the estimates are plausible and in others, though still plausible, are of dubious value.

We believe that this presentation is both basic and useful for studies of interrelationships such as those mentioned in the Agenda (which I would like to insist, are very interesting). Those who undertake studies of the nature suggested in the Agenda might benefit from this summary view of where we are, presently, in the knowledge of mortality.

We believe it is fundamental to present a panorama on:

- a) The quality of information available in most of our countries,
- b) The levels of mortality (it is our understanding that we know the level if we are able to determine, through any procedure a life table).
- c) The trends of mortality, in terms of selected indicators,
- d) The differentials by sex,
- e) Other differentials, particularly those related to childhood mortality,
- f) Causes of deaths, though this matter has not been studied systematically, i.e. for the majority of countries at CELADE, as the case of the other above-mentioned points.

3. It seems appropriate to make some comments on the extent and depth of this paper probably too simple to some.

- (i) The poor quality of available data in most Latin American countries limits seriously any sound analysis on mortality, even if restricted to determine some simple indicators.
- (ii) Our work-programme gives first priority to help countries to assess their demographic situation. Consequently, we must elaborate estimates and projections on level and trends of the mortality, the fertility and the migration of all Latin American countries. These tasks imply the evaluation of all sources of information, the test of different methods, the analysis of findings, taking into account other social, economic variables, apart from avoiding any inconsistency among demographic variables. This is a permanent activity at CELADE and allows to keep up-dated demographic estimates for the countries of the region.

This activity, that absorbs a large proportion of our resources, has prevented us to conduct studies in line with the approach of those appearing in the Agenda.

a. Quality of information.

We must insist on the weak statistical base available in developing countries to determine reliable estimates on levels, trends and differentials of mortality, because we would like to emphasize how far we are from the possibility of conducting studies such as, for instance, "alternatives for health intervention programme, ranging from selective cause-specific programmes to more comprehensive multi-cause programmes", this being an item in the Agenda (5).

It is convenient to point out, anyway, that the situation vary among countries and throughout time. In some instances paradoxical conditions are presented in some countries. We have improved enormously in the knowledge of mortality in some countries, where almost nothing was known until the 70's. The improvement due to the application of indirect demographic methods, developed during the last two decades. These indirect techniques have been applied to data collected in population censuses and surveys (1, 2, 3). On the other hand, countries that traditionally have kept reasonably acceptable registers on deaths and births, and their censuses have been considered of good quality, have suffered a deterioration on the quality of their statistics, during some periods. Cases like Argentina, Mexico and Brazil illustrate the point.

It is difficult to establish uniform criteria, to classify countries according to the reliability of their data. The procedures to evaluate basic data need, information provided by independent sources. They can not be used in most countries of our region, either because there are not available independent sources of data, or if they exist, the information they provide is not adequate.

In consequence, direct objective criteria and other kind of evidences -sometimes they would seem rather subjective- will be used to define the reliability of the mortality estimates.

Two considerations are taken into account when deciding on the accuracy of an estimate:

(i) The methods of estimation, determined by the availability of data in terms of quantity, quality and opportunity. They can be: direct, when available information on births, deaths and population, allows its application, or, indirect -using not traditional information- or simple models adopted for a particular situation.

We strongly support that not any method, with complex subjacent hypothesis, can replace the original data, if available and accurate. Common sense must dictate the selection on which is the best method to be applied in each case.

(ii) Consistency of estimations with other indicators: demographic, and socio-economic ones. It happens sometimes that mortality estimates are based on weak information, but they are able to estimate a plausible level, to describe a trend, and even, to determine some relevant differentials.

Let us examine how the utilization of the two points above permit the classification of countries into different categories.

As was mentioned above it is understood that mortality of a country (area, region or sub-group of a population) is known if a life table can be elaborated, or, what is the same, that sufficient indicators or parameters can be derived in order to construct a life table. Traditional data sources of mortality estimates are registers of deaths -numerators- and the population enumerated in a census -denominators-; both data classified by age, if possible by sex.

The evaluating methods of registers, births and deaths, as well as those applied to population censuses permit us to conclude that mortality estimates for: Argentina, Chile, Uruguay, Venezuela, Costa Rica, Cuba and Mexico (4) are reasonably accurate. The population of these seven countries represented in 1980, according to CELADE's estimates, 40 percent of the total of the region.

This reasonable accuracy has not been held, necessarily, the same throughout time. There are evidences that both in Argentina and Mexico, for example, some deterioration occurred and for some periods there is no information about annual number of deaths and births. In other cases, like for example, in Chile and Costa Rica, recent census information is not available (in Costa Rica the population census has not yet been carried out), but registers on annual deaths are available. To solve these problems we have interpolated-for Argentina and Mexico- the serie of deaths, and extrapolated the population estimates for Chile and Costa Rica. In this way we have produced up-dated estimates on mortality.

In summary in these seven countries life tables have been constructed following orthodox methods. However, we do not mean that these procedures are the best for all cases and for every mortality research. In fact, in the rest of the countries -the majority- indirect techniques in the analysis of mortality are generally employed.

Mortality estimates for Brazil, Ecuador, Peru, Guatemala and Panama, where different procedures have been used, could be accepted as plausible. They represent consistent mortality estimates as compared with fertility estimates and sex-age distribution of population. When we are imposing consistency we are introducing, to some extent, arbitrary criteria or subjective judgement, supported on common senses. Population in these five countries was 44 percent of the total of Latin America.

For the rest of the countries, Bolivia, Colombia, Haiti, El Salvador, Nicaragua, Dominican Republic, Honduras and Paraguay, mortality estimates are uncertain, they are derived from data of poor quality. Among them there is a diversity of situations. When examining each case this circumstance should be born in mind.

b. Level of mortality.

In Table 1 expectation of life at birth (e_0^0) and infant mortality rates (IMR) are presented, by countries, for the three groups defined according to the reliability of their estimates. Values of these two indicators are given for quinquenniums between 1950-1955 to 1980-1985, roughly a documentation of the recent past trend, and for the 1995-2000, (a set of possible projected values).

Let us concentrate firstly our attention in the most recent estimates, that is the one corresponding to 1975-1980.

In the following auxiliar table -1.a.-, we indicate the years to which correspond the basic information used to derive the most recent estimate, the source of that data and the method used in each country.

It is not by chance that the highest values of e_0^0 , and the lowest values of IMR, correspond to the first group of countries, that is, the ones we consider with reliable estimates. There is an obvious association between level of mortality and socio-cultural and economic development, and countries of the first group are, in general and relatively, in a better condition than the rest.

The second group is more heterogeneous than the first one. A difference of 12.1 years between the highest and the lowest e_0^0 is observed (as opposed to 8.7 years in the first group). It is surprising to include Panama in this group, with a rather, relatively, high standard of living. But the last revision of the mortality estimates has shown that there are indications that a deterioration in the registration of deaths has taken place in recent years.

The uncertainty of the estimates in the last group could explain, partially, the enormous differences among level of mortality by countries. In the extreme case, Bolivia with 48.6 and Paraguay with 64.1 years, illustrate the point (the difference attains 15.5 years).

If a weighted average is computed for each group, with population as weighter factor, we obtain: 66.2, 61.1 and 59.0 years, for the first, second and third group respectively. Differences among these averages could have

Table 1.a.

Countries	Years to which correspond the most recent information on death from Vital Statistics	Census base of the estimate on population by age	Methods used
<u>Group 1</u>			
Argentina	1976-1979	1980	Direct
Chile	1971-1974	1970	Direct
Uruguay	1974-1976	1975	Direct
Venezuela	1969-1971	1971	Direct
Costa Rica	1979-1981	1973	Direct
Cuba	1977-1978	1980	Direct
Mexico	1969-1970	1970	Direct
.....			
<u>Group 2.</u>			
Brazil	1976-1980	1980	Growth Balance Equation (GBE) for adult mortality. Proportion of dead children for child mortality.
Ecuador	1970-1975	1972	GBE for adult mortality. Proportion of dead children for child mortality.
Peru	1970-1975	1972	GBE; proportion of dead children and other indirect procedures applied to results on the National Demographic Survey (Prospective and Retrospective) 1974-1976; National Fertility Survey, 1977-1978.
Guatemala	1972-1973	1973	GBE for adult mortality. Proportion of dead children for child mortality.
Panama	1975-1980	1980	Direct
.....			
<u>Group 3.</u>			

In the rest of the countries indirect procedures were used to different information provided by censuses and some surveys.

Table 1

LATIN AMERICA: LEVELS OF MORTALITY IN TERMS OF:
 (a) EXPECTATION OF LIFE AT BIRTHS, IN YEARS (BOTH SEXES)
 (b) INFANT MORTALITY RATES (IMR) PER THOUSAND (BOTH SEXES)
 FOR QUINQUENNIUMS BETWEEN 1950-1955 TO 1980-1985 AND 1995-2000.

(a) Expectation of life at births in years.

	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1995-2000
Argentina	62.7	64.7	65.5	66.0	67.3	68.7	69.7	72.0
Chile	54.1	56.1	57.6	60.5	64.2	65.6	67.0	70.6
Uruguay	66.3	67.2	68.4	68.6	68.8	69.6	70.3	72.1
Venezuela	52.3	55.7	58.9	61.8	64.5	66.2	67.8	70.9
Costa Rica	57.3	60.1	63.0	65.6	68.1	71.4	73.0	74.4
Cuba	58.8	61.8	65.1	68.5	70.9	72.7	73.4	74.7
Mexico	50.8	55.4	58.6	60.3	62.2	64.0	65.7	69.6
Brazil	51.0	53.4	55.9	57.9	59.8	61.8	63.4	67.5
Ecuador	46.9	49.6	51.9	54.6	57.1	60.0	62.6	69.0
Peru	43.7	46.2	48.8	51.3	55.0	57.1	59.1	64.3
Guatemala	42.7	45.4	48.2	51.2	54.6	57.8	60.7	68.0
Panama	55.3	59.3	62.0	64.3	66.4	69.2	70.7	73.2
Bolivia	40.4	41.9	43.4	45.1	46.7	48.6	50.7	59.4
Colombia	50.6	53.5	56.2	58.4	60.4	62.2	63.6	66.9
Paraguay	51.9	54.5	56.6	59.6	63.1	64.1	65.1	67.8
El Salvador	45.3	48.8	52.3	55.9	59.1	62.2	64.8	71.3
Haití	37.6	40.7	43.5	46.2	48.5	50.6	52.7	58.4
Honduras	42.2	45.0	47.9	50.9	54.1	57.1	59.9	67.8
Nicaragua	43.0	45.5	47.9	50.4	52.9	55.2	57.6	64.7
Dominican Rep.	45.1	49.1	52.6	55.3	57.9	60.3	62.6	68.1

(Continued)

Table 1 (Conclusion)

(b) Infant mortality rates (IMR) per thousand.

	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1995-2000
Argentina	65.9	60.3	59.7	57.4	49.0	40.5	36.0	26.1
Chile	127.2	117.0	107.0	89.8	72.0	62.3	54.0	35.1
Uruguay	57.4	53.6	47.9	47.1	46.3	41.6	37.5	28.9
Venezuela	110.9	92.2	76.9	64.9	52.4	44.8	38.6	27.7
Costa Rica	88.6**	81.6**	70.6**	60.3**	67.1**	29.6	20.2	16.3
Cuba	79.0***	34.0***	38.7***	39.2***	33.8	22.5	20.4	15.8 }*
Mexico	113.9	97.7	86.3	78.5	69.3	60.5	53.0	36.7
Brazil	134.7	121.9	109.4	100.1	90.5	78.7	70.6	50.6
Ecuador	167.7	147.6	132.3	114.5	100.0	83.2	68.8	38.5
Peru	195.1	173.4	152.2	132.7	106.5	93.4	81.9	71.7
Guatemala	131.0**	130.7**	128.1**	115.3**	90.2	79.0	67.7	40.4 }*
Panama	70.2**	61.3**	55.5**	46.7**	43.8	36.2	32.5	25.3 }
Bolivia	175.7	169.7	163.6	157.5	151.3	138.2	124.4	74.4
Colombia	123.2	102.2	84.5	74.2	66.9	59.4	53.3	40.5
Paraguay	105.7	91.2	80.6	66.9	52.6	48.6	45.0	35.7
El Salvador	-	-	-	-	101.0	84.8	71.0	42.2 *
Haiti	219.6	193.4	170.5	150.3	134.9	120.9	108.1	76.8
Honduras	-	-	-	-	110.7	95.4	81.5	46.3 }
Nicaragua	-	-	-	-	108.9	96.5	84.5	51.4 }*
Dominican Rep.	-	-	-	-	83.6	73.1	63.5	41.8 }

* The values e_0^0 and q_0^0 come from the estimates elaborated by CELADE, except those with (*) whose values correspond to a work titled 'Infant mortality rates: estimates and projections by country and region, 1970-2000', prepared by the U.N. Population Division.

** G. Feeney, J. Chackiel and E. Taucher, 'Mortalidad al comienzo de la vida'. Paper presented to the Latin American Panel. Unpublished.

*** IMIAL, Cuba.

anticipated since, as mentioned above, there is a clear association between reliability of information and economic socio cultural development. It is necessary, however, to bear in mind that a larger margin of error is affecting the average values of the last two groups.

If we make the same exercise with the IMR, we obtain weighted averages of 51.3, 80.0 and 80.3 per thousand, for the first, second and third group respectively.

Since IMR is a more sensible demographic indicator of socio-economic conditions, than $\overset{0}{e}_0$, differences between first and second groups of countries could reflect a true difference. The lack of difference between the second and the third group is most likely spurious and due simply to the fact that IMR, in the latter group, are grossly underestimated.

c. Mortality trends.

In Table 1 inserted above it can be observed what has been the mortality trends in terms of $\overset{0}{e}_0$ and IMR, for both sexes. Values are self explained.

A glance to Figures 1, 2 and 3, gives an overall picture of mortality trends. In those figures the expectation of life at birth, for both sexes, separately, for each of the three groups of countries, has been plotted.

We can observe that the historical trends in the first group of countries is more irregular than in the others. This can be easily explained as in these countries the estimates being closer to reality, than in the others, reflect patterns that probably are true. In countries in group 2, the trends reflect rather the adjustment imposed to defective data than the real historical trend. This same reason explains the extraordinary regularity, presented by countries included in the third group.

What do we expect about mortality level by the end of the century in the Latin American countries? The projections must be taken with caution, particularly those for countries where present mortality levels are uncertain.

Figure 1

Group 1

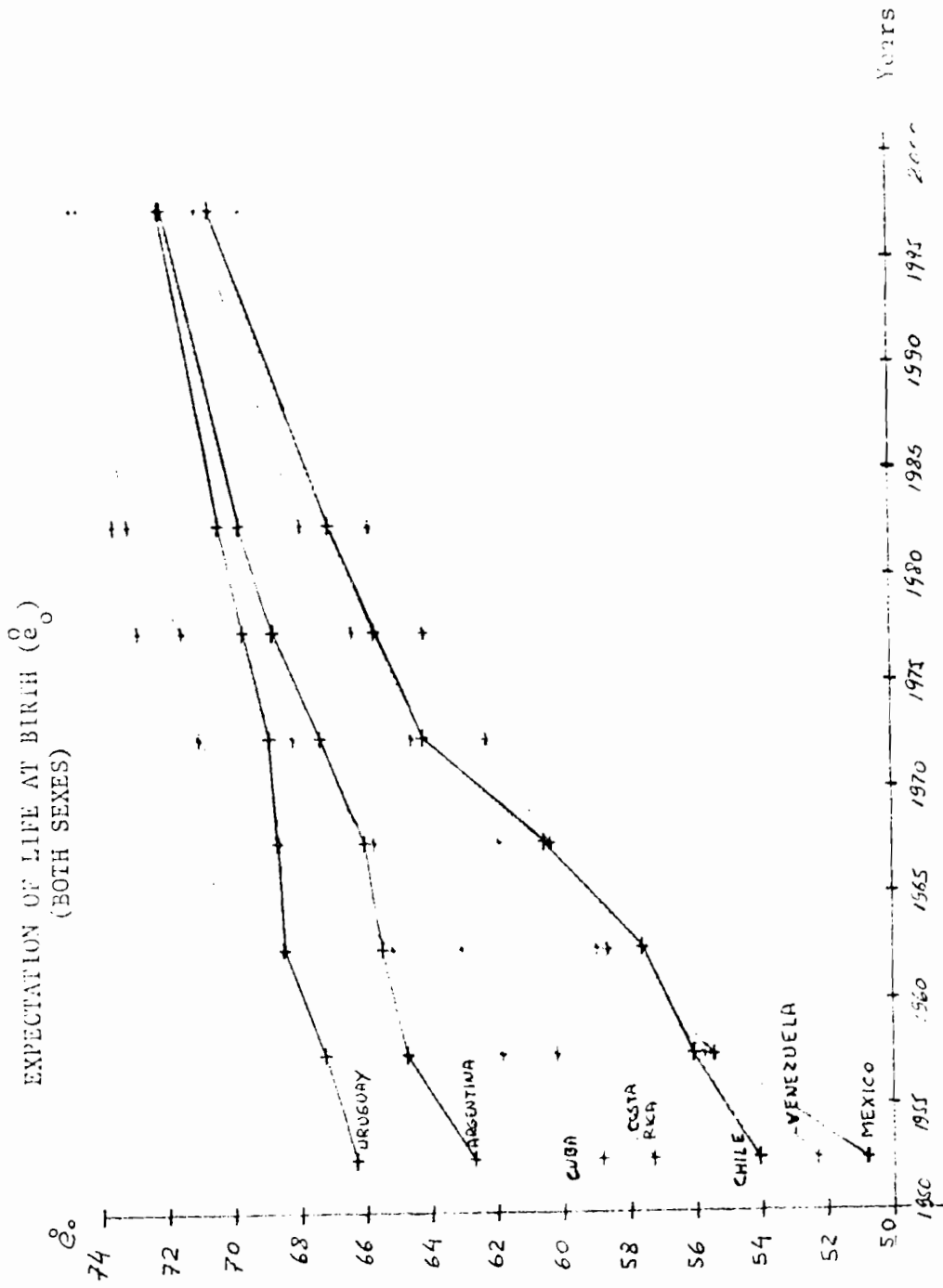


Figure 2

Group 2

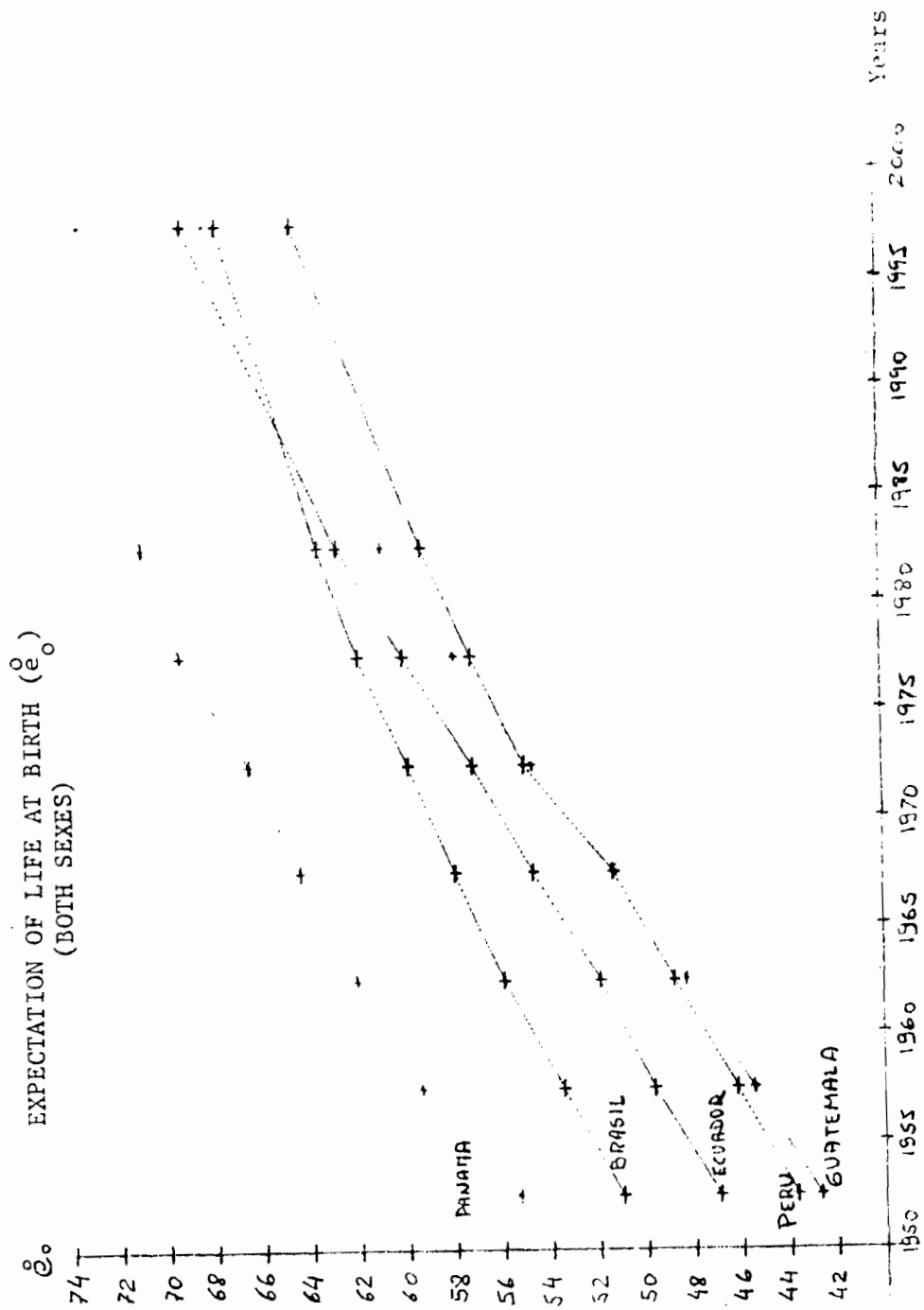
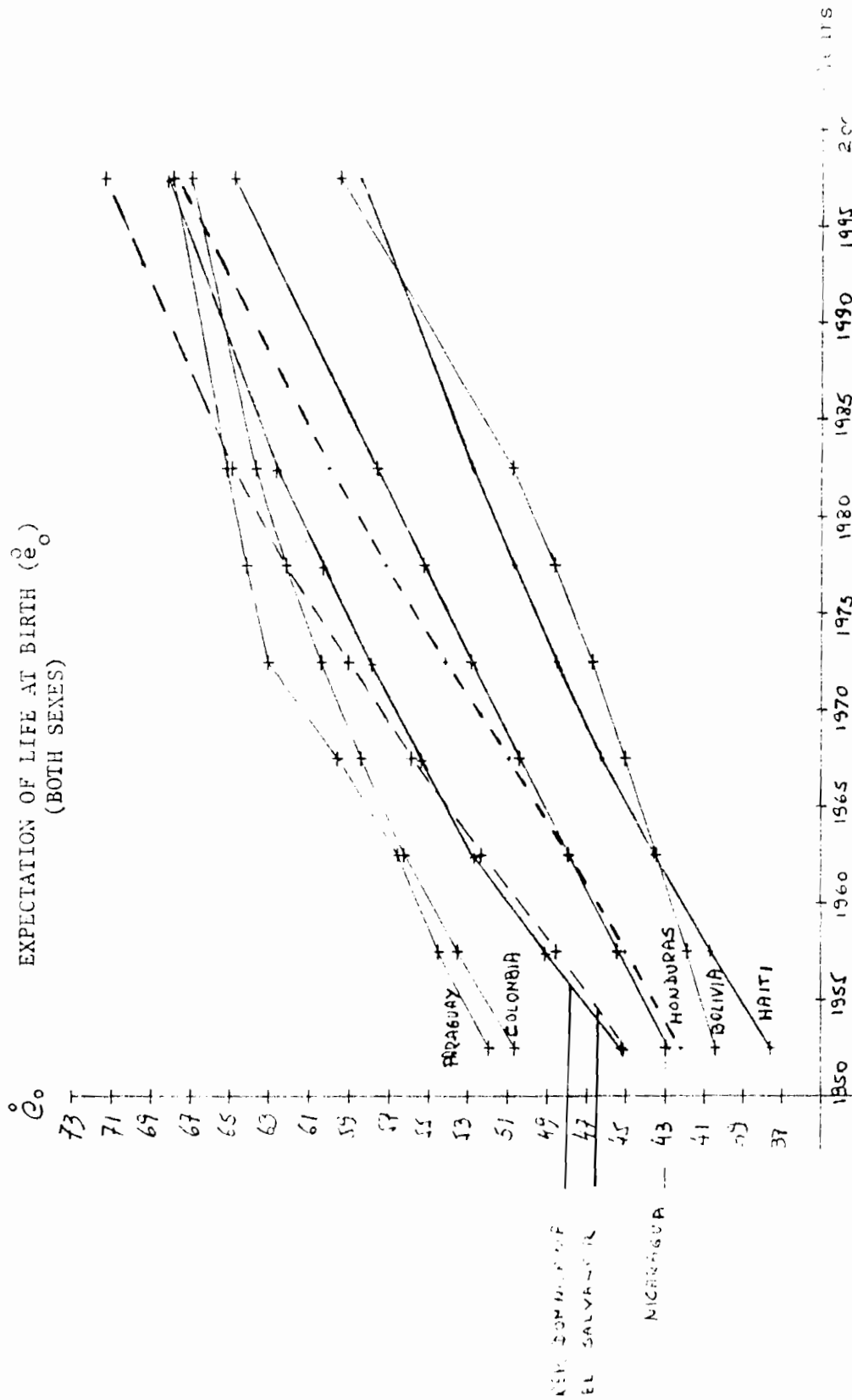


Figure 3

Group 3



In order to project mortality it is assumed:

- countries with moderate level of mortality at present, will continue the declining trend at a slower path than in the past.
- countries with high or moderate high level of mortality, currently will experiment a more rapid decrease than those of the other group.

Consequently, we anticipate that by the end of this century, expectation of life at birth will show lower dispersion among countries. For example, 58.4 years is the lowest value, estimated for Haiti, and 74.7, the highest, for Cuba. That means a difference of 16.3 years instead of 24.1 years estimated for the quinquennium 1975-1980, between these two same countries.

Regarding IMR, projected values for the quinquennium 1995-2000 reflect important declines, particularly, in countries like Ecuador (54 percent of the present value), Honduras (51 percent) and El Salvador (50 percent). However, basic data for these countries are rather weak, and so are the projected values.

If we limit our attention to the first group of countries, the decrease in IMR will range between 30 percent (for Cuba) and 45 (for Costa Rica). In this same group of countries the greatest difference will be between Mexico (36.7 per thousand) and Cuba (15.8 per thousand), that is almost 21 per thousand. At present, say 1975-1980, the difference between them is as 38.

In summary we assume that by the end of this century, differences in mortality levels among Latin American countries will be smaller, though important dissimilarities among countries will continue.

d. Mortality by sex.

In Table 2, expectation of life at birth, probabilities of dying between 35 and 40 years, and between 60 and 65 years, by sex, are presented for the quinquennium 1975-1980, for the three groups of countries defined above. Values of similar indicators for France, Sweden and the United Kingdom have also been included for comparisons.

Unfortunately, when this paper was prepared there were not available life tables for the period 1975-1980 for: Guatemala, Panama, El Salvador, Honduras, Nicaragua and Dominican Republic. Fortunately all these countries are included either in the second or third group and we concentrate the analysis of differential by sex in the first group of countries.

In general, high values of $\frac{e_0}{e_0}$ imply greater differences by sex in mortality, and this is in fact, what can be observed in Table 2. An exceptional low difference is observed in Cuba -with the lowest mortality level in Latin America- it can be related to the rapid decline in mortality and changes in patterns of causes of deaths. Differences in most countries of the first group, between male and female expectation of life at birth, achieve similar values to those presented by the selected European countries.

With regard to probabilities of dying between 35 and 40 years, an age span arbitrarily selected as representative of adult mortality, an index of male overmortality has been computed as the quotient between male and female $5q_{35}$. Greater differences, more over male mortality, are observed in countries of the first group (as well as in the three selected European ones), as compared with the rest of Latin American countries.

Explanation to this fact could be found, perhaps, in different pattern of causes of death affecting male and female populations. As mentioned above, there are not enough comparable studies in most of Latin American countries to give a satisfactory answer to this matter.

Analogous observations could be given in the case of probabilities of dying between 60 and 65 years. In addition, the quality of the estimation of the indicator is probably less reliable: larger errors than in younger ages

Table 2

LATIN AMERICA: MORTALITY BY SEX, 1975-1980, IN TERMS OF:

(i) EXPECTATION OF LIFE AT BIRTH

(ii) PROBABILITY OF DYING BETWEEN 30 AND 40 YEARS $5q_{35}$

(iii) PROBABILITY OF DYING BETWEEN 60 AND 65 YEARS $5q_{60}$

	e_o (in years)		Δ	$5q_{35}$ (o/oo)		M/F	$5q_{60}$ (o/oo)		M/F
	Males	Females		Males	Females		Males	Females	
Argentina	65.4	72.1	6.7	17.4	10.9	1.6	121.6	58.6	2.1
Chile	62.4	69.0	6.6	23.0	12.8	1.8	126.2	77.3	1.6
Uruguay	66.4	73.0	6.6	13.4	8.5	1.6	118.9	63.7	1.9
Venezuela	63.6	69.0	5.4	19.0	13.1	1.5	138.2	98.8	1.4
Costa Rica	69.0	74.0	5.0	13.1	7.3	1.8	86.3	57.4	1.5
Cuba	71.1	74.4	3.3	10.9	7.9	1.4	81.4	61.9	1.3
Mexico	61.9	66.3	4.4	25.2	18.0	1.4	109.2	82.8	1.3
Brazil	59.5	64.2	4.7	26.9	21.2	1.3	102.7	89.9	1.1
Ecuador	58.0	62.0	4.0	25.8	21.3	1.2	108.7	94.5	1.2
Peru	55.7	58.6	2.9	24.9	22.0	1.1	121.4	111.5	1.1
Guatemala	56.8	58.8	2.0	-	-	-	-	-	-
Panama	67.5	71.0	3.5	-	-	-	-	-	-
Bolivia	46.5	50.9	4.4	37.5	30.7	1.2	150.7	126.5	1.2
Colombia	60.0	64.5	4.5	22.0	18.0	1.2	113.5	81.8	1.4
Paraguay	61.9	66.4	4.5	23.0	18.4	1.3	110.8	84.5	1.3
El Salvador	60.0	64.5	4.5	-	-	-	-	-	-
Haiti	49.1	52.2	3.1	40.7	36.5	1.1	159.3	148.6	1.1
Honduras	55.3	58.9	3.6	-	-	-	-	-	-
Nicaragua	53.5	57.0	3.5	-	-	-	-	-	-
Dominican Rep.	58.4	62.2	3.8	-	-	-	-	-	-
France (1977-79)*	69.9	78.0	8.1	11.8	5.9	2.0	104.0	42.6	2.4
Sweden (1979)*	72.5	78.7	6.2	9.7	4.6	2.1	83.4	46.4	1.8
United Kingdom (1970-72)*	70.0	76.2	6.2	7.6	5.3	1.4	114.2	59.4	1.9

* Demographic Yearbook, 1980.

affecting both deaths and population, may introduce serious shortcomings. Age misreporting, either in the case of deaths as well as in population may be with different magnitude and direction, could yield erratic measure of mortality.

What do we expect in the future in connection with mortality by sex? In general, we assume increasing differences in projecting mortality by sex. For the whole region a difference of around six years on average, is estimated by the end of the century.

e. Other differentials in mortality.

It has always been believed, sometimes on the basis of fragmentary information, some others of relatively reliable sources, that IMR has been and is still very high in Latin American countries, and that enormous differences prevail among subgroups of population defined according to geographical areas and or socio-economic variables.

The inclusion in census questionnaires, starting -mainly- in 1970 of questions on children ever born and on children surviving (and/or dead) permitted the utilization of a procedure, originally developed by William Brass (5) that conducted to estimates of child mortality which have documented, in many instances for the first time, what has been until now only suspected or guessed. Effectively child mortality is very high indeed in the region (we are referring mostly to periods precedent to 70's round of censuses) and there exists tremendous differences in the incidence of mortality within each country.

There are more than 15 country-studies conducted under the project 'IMIAL' (3) directed by Dr. Hugo Behm.

The indirect methods used to estimate child mortality provide values that refer rather to the age span 0-2 or 0-3, etc., than to 0-1, i.e. the infant mortality rate (IMR). For this reason in the tables below, estimates of the risk of dying, of a newborn, before attaining the age 2, are presented.

Two tables have been selected from a summary published in 'Notas de Población' N°16.

Table 3

PROBABILITY OF DYING FROM BIRTH TO EXACT AGE 2, IN
URBAN AND RURAL POPULATION. SELECTED LATIN AMERICAN
COUNTRIES, 1965-1970.

Country	Probability of dying (Per thousand)		Percentage of: Rural over- Rural mortality popu- lation		Percentage of illiteracy	
	Urban	Rural			Urban	Rural
Bolivia, 1971-1972	166	224	34.9	62	-	-
Peru, 1967-1966	132	213	61.4	40	16.8	50.7
Nicaragua, 1966-1967	143	152	6.3	65	24.1	69.7
Guatemala, 1968-1969	119	161	35.3	64	52.8	63.6
El Salvador, 1966-1967	139	148	6.5	60.5	29.0	58.6
Honduras, 1969-1970	113	150	32.7	69	19.7	51.7
Ecuador, 1969-1970	98	145	48.0	58.7	9.3	36.3
Dominican Rep., 1970-1971	115	130	13.0	60	27.9	41.1
Chile, 1965-1966	84	112	33.3	24.9	7.4	27.0
Colombia, 1968-1969	75	109	45.3	36.4	18.2	42.2
Costa Rica, 1968-1969	60	92	53.3	59.4	7.5	18.0
Paraguay, 1967-1968	69	77	11.6	62.6	11.2	25.2

Source: Dr. Behm and collaborators, 'Mortalidad en los primeros años de vida
países de la América Latina, CELADE, Serie A, N°1024 to 1032, 1036
and 1037, San José, Costa Rica. Data of rurality and illiteracy:
from the respective population censuses.

Table 4

PROBABILITY OF DYING FROM BIRTH TO EXACT AGE 2,
ACCORDING TO EDUCATION LEVEL OF MOTHERS.
SELECTED LATIN AMERICAN COUNTRIES, 1966-1970.

Country	Probability of dying (per thousand)						Mortality group "none/"10 and more"
	Total	Level of education of mother					
		None	1-3	4-6	7-9	10+	
Cuba <u>a/</u>	41	46	45	34	29	-	-
Paraguay	75	104	80	61	45	27	3,9
Costa Rica	81	125	98	70	51	33	3,8
Colombia <u>b/</u>	88	126	95	63	42	32	3,9
Chile	91	131	108	92	66	46	2,0
Dominican Rep.	123	172	130	106	81	54	3,2
Ecuador	127	176	134	101	61	46	3,8
Honduras	140	171	129	99	60	35	4,9
El Salvador	145	158	142	111	58	30	5,3
Guatemala	149	169	135	85	58	44	3,8
Nicaragua	149	168	142	115	73	48	3,5
Peru <u>c/</u>	169	207	136	102	77	70	-
Bolivia	202	245	209	176	110 <u>d/</u>	-	-

a/ Provisional data of a preliminar study carried out with the 'Encuesta Nacional de Ingresos y Egresos de la Población, 1974'. The groups of education are: 0, 1-5, 6 and 7 years and more.

b/ The groups of education are: 0, 1-3, 4-5, 6-8, 9 years and more.

c/ The groups of education are: 0-2, 3-4, 5, 6-9, 10 years and more.

d/ Corresponds to 7 years and more.

Values presented in Tables 3 and 4 are self-explained. They provide useful information that should be taken into account by public health planners and policy makers.

f. Causes of death.

The study of child mortality, considered in the precedent point, provides a good example of work conducted on a comparative basis in a high proportion of Latin American countries. In all cases the information collected was the same, though probably of different quality; in all cases the methodology employed was the same.

In contrast to that situation, nothing similar has been carried out with regard to causes of deaths, though more than 20 studies on the general subject of causes of death have been carried out in CELADE or under the supervision of CELADE.

The quality of basic data, quite dissimilar among countries, is probably the first reason for the lack of such a systematic study. Another is that there is not a widely accepted methodology for studying mortality by causes of death. Some authors have followed one approach; other demographers another. CELADE has not developed itself a method to recommend, as is the case of other fields.

Some recent studies have been carried out in Chile (6) and Uruguay (7) where reliable data, from vital registers, are available. However we cannot repeat this kind of study in a typical Latin American country since, as it has been mentioned many times in this paper, poor quality of information is an obstacle even for simple studies, such as those aimed at establishing estimates on levels and trends of mortality.

It is necessary, in consequence, to develop a new approach to solve the problem using sources of data other than the traditional registers of death. Improvements in death registration to furnish good information are almost impossible to attain in the short term.

Some ideas have arisen in order to gather information of causes of death from laymen. Our position is rather exceptional. We are more confident in other approaches to the matter. If a demographic survey is carried out and a question on deaths that occurred during, say, the last 24 months is included, it would be possible to investigate in depth the circumstances and specifically, though possible roughly, the cause of each death. This operation can be viewed as a joint venture of demographers and public health worker. The former would provide information of a national representative sample of annual deaths, that includes: name of the deceased, his address at the time of death, and other personal characteristics such as sex, age, marital status, etc.

As it was pointed out above, in some countries, child mortality is still very high. Deaths of children account for approximately one third of the total. If it is so, what CELADE is testing, as a pilot study, of recent child mortality in Paraguay (8), could represent a promisory method to investigate at least, causes of deaths, among children. In this study each mother, when registering a child, recently born, is asked about the surviving of her pre-decent child. If he has died, a question aimed at investigating the cause of death is included in the questionnaire. This section of the form is completed by a physician. This pilot research is being carried out with the Ministry of Health of Paraguay.

In summary, regarding to studies of causes of deaths it is necessary to encourage the development of simple methods to be used in a typical underdeveloped country, where information from registers of deaths is defective. In our present circumstances case studies by countries, as those mentioned for Chile and Uruguay, are not the ideal solution to clarify what is happening with the causes of death in Latin America.

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