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(3/1/82)

IESA, P. 10/11/82
26.1/82

FAMILY AND FERTILITY

CEPAL/CELADE contribution to the
Expert Group on Fertility and Family.
New Delhi, 5-11 January 1983

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1. Introduction

The supply of comparable data on fertility, and on variables (or factors) related with this component of population growth, obtained from the National Fertility Surveys conducted in the countries of the region during the period 1975-1980 under the WFS Programme, has enabled CELADE to carry out various studies on the evolution of fertility in the Latin American countries and the part played in the changes observed by a specific set of demographic and socio-economic variables.

Thus studies have been undertaken, among others, on the following topics:

- a) levels and trends of fertility;
- b) urban-rural differentials in fertility;
- c) socio-economic differentials in fertility;
- d) family planning and fertility;
- e) marital structure and fertility.

Hence it has been possible not only to study the chronological evolution of fertility during the period 1955-1975 in various countries of the region, but also to analyse the differential variation in this component of population growth in connexion with such variables as: the woman's educational level and economic participation; her participation in family planning programmes; her habitual place of residence (urban or rural area); variables relating to the conjugal state, such as age at the time of the first union; legality and multiplicity of unions; duration of the union or total time lived in union in the case of women who have contracted more than one union; length of the interval between marriage and first birth (or potential fertility of the woman at the start of her conjugal life) and subsequent intervals between successive births.

Since the validity of any conclusions that may be drawn from the different fertility surveys based on interviews with a sample of woman of childbearing age depends upon the quality and consistency of the information obtained, CELADE has also taken care to examine the validity of the samples selected by comparing a distribution series from the surveys in question with those obtained from other fertility surveys, other demographic surveys, population census data and vital statistics.

Some of the studies mentioned have been carried out as part of CELADE's collaboration with the United Nations Population Division, in its capacity as a member of the Working Group on Comparative Analysis of Fertility Surveys set up under the WFS Programme by the Division in question. Where this has been the case use has been made of the tabulations recommended by the Working Group for a Minimum Programme of Analysis.

Notwithstanding the various studies already made, it still remains to contemplate others in which, for example, attention is focused on: a) the relation between the participation of women in family planning programmes and its effect on the reduction noted in the size of families; b) the reciprocal effects that may be produced by the decrease in infant mortality and the diminution of the increase in family size; c) prediction of the future size of the family according to its socio-economic level, and the effect on the growth rate of the population.

In so far as technical assistance to countries permits, work will proceed on the above-mentioned analytical studies, particularly that concerned with the search for a simple procedure whereby data from these surveys can be utilized to estimate the demographic impact that the participation of women in family planning programmes has had upon the decline in fertility.

2. Family and fertility

The foregoing very succinct description of CELADE's participation in the Comparative Analysis of National Fertility Surveys under the WFS Programme will next be followed by a brief account of the content of the document entitled "Family and Fertility".

It is simply a paper in which the aim is to relate the increment in the size of a family during the course of conjugal life, whatever its internal structure, in relation to variables as important as the following:

- age at date of first union;
- effective duration of a union or series of unions;
- stability of a union according to its legality;
- number of unions;
- interval between date of union and first birth,

taking into consideration not only cumulative fertility (total number of live births per woman) but that reached during the first five years of conjugal life.

The need to restrict the present document to a modest number of pages has ruled out the possibility of considering either the variation in the increase in parity in the family produced as a result of the mother's participation in family planning programmes, or the difference in reproductive potential between women residing in urban areas and those living in a rural environment. Other factors as important as permanent sterility of the woman, the duration of breastfeeding or of the period of immunity to risk the practice of abortion, the length of the delay in renewing sexual relations and sub-fecundity are not analysed in respect of their bearing on the increase in family size.

Moreover, data on some of the factors noted above are very difficult to obtain, and respondents' declarations are often marked by a pronounced bias (as has been proved to be the case with respect to the number of abortions induced by a given woman).

3. Variation in the proportion of single women

Albeit the comparisons to be presented below will be essentially focused on the group of women that have ever lived in conjugal union (legal or otherwise), the overall level of fertility in a given country (Total Fertility Rate) depends upon the proportion of women who effectively participate in the process of family formation.

Thus, part of the difference that may be found in general fertility, as in the larger or smaller number of families that have been formed, will depend upon the proportion of women taking no part in the reproductive process. Table 1 shows variations in the proportion of single women, by age groups, in seven countries of the region which have participated in the WFS Programme.

Table 1
PROPORTION OF SINGLE WOMEN, BY AGE GROUPS, IN SEVEN COUNTRIES
OF THE REGION, ACCORDING TO DATA OBTAINED FROM THE NATIONAL
FERTILITY SURVEYS CARRIED OUT UNDER THE WFS PROGRAMME.

Age group	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Guyana	Jamaica
15 - 19	84.9	---	72.1	---	---	65.3	40.4
20 - 24	44.0	44.9	26.7	34.4	38.6	26.3	12.3
25 - 29	22.3	25.0	9.7	15.0	12.1	7.2	4.2
30 - 34	11.3	12.2	4.8	8.8	7.0	2.0	1.3
35 - 39	12.3	12.9	2.0	5.5	5.4	3.4	2.9
40 - 44	8.8	10.9	2.5	6.1	3.2	2.1	1.2
45 - 49	9.1	9.6	3.0	4.7	1.9	2.0	1.5
Average							
20 - 49	22.0	22.8	11.3	15.2	13.5	9.9	4.8

With respect to the group of women in the 15-19 age group it can be seen -in the countries for which women in those age groups are included- that the proportion of single women is highest in Colombia (84.9%), at the opposite extreme to Jamaica, where it is less than half the foregoing figure (40.4%).

As regards the rest of the women of childbearing age -in the 20-49 age groups- it can be seen that Jamaica and Guyana present the lowest average proportions of single women (4.8% and 9.9%), and that in the various age groups these proportions are equally low in comparison with those observable in the other countries. The situations of Panama and the Dominican Republic are relatively alike, with average proportions of 13.5% and 11.3%, respectively, slightly below that observable for Mexico (15.2%). Lastly, the highest average proportions of single women are to be found in Colombia and Costa Rica, where the age specific proportions are quite similar too.

In these circumstances it might be supposed that in countries where the proportion of single women is smaller, average levels of fertility would be higher than in countries where the reverse is the case. But there is evidence that, for other reasons, the real situation is entirely different.

4. Variation in the proportion of women separated, divorced or widowed

Given the hypothesis that a longer duration of conjugal unions (stability of the union) would be linked to a smaller proportion of separated or divorced women or widows, in the countries with a bigger proportion of women whose status is among these three, family sizes would tend to be smaller.

Table 2 shows the variation in the proportion of separated or divorced women and widows, by five-year age groups, at the date when each of the surveys was carried out.

Table 2
PROPORTION OF SEPARATED OR DIVORCED WOMEN OR WIDOWS IN THE
GROUP OF WOMEN WHO HAVE EVER LIVED IN CONJUGAL UNION,
BY AGE GROUPS, IN COUNTRIES OF THE REGION
PARTICIPATING IN THE WFS PROGRAMME.

Age group	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
15 - 19	15.8	---	26.7	---	---	13.8	8.4	19.4
10 - 24	10.5	7.9	19.0	7.9	13.3	13.0	8.3	15.2
25 - 29	9.6	12.2	17.1	5.7	12.9	15.8	9.2	17.1
30 - 34	11.3	11.0	15.6	7.9	13.8	18.3	8.5	14.6
35 - 39	15.9	12.0	13.8	11.4	15.6	22.1	11.5	15.0
40 - 44	18.2	12.3	26.1	13.5	14.5	23.6	14.4	16.8
45 - 49	25.9	20.3	28.8	18.9	23.5	29.0	20.5	26.3
Average								
20 - 49	14.3	11.6	19.1	10.0	15.0	19.8	11.2	17.1

It can be seen from Table 2 that the proportion of separated or divorced women and widows increases, in most countries, after 25 years of age. One of the reasons for this variation may be sought in the dissolution of the partnership through widowhood and, on a smaller scale, through separation or divorce, which is possibly more common in the urban than in the rural environment.

As regards the countries' position in relation to the general average, the largest proportion of women whose marriages have been dissolved for one of the three causes mentioned are to be found in Peru and the Dominican Republic. On the other hand, Mexico, Guyana and Costa Rica show levels similar to one another, and are the countries with the lowest values in the parameter. Midway between these two extremes, with relatively similar levels, are Colombia and Panama. As a very general conclusion it might be said that Mexico should display the highest fertility levels, as against Peru, which should show the lowest. This conclusion is undoubtedly inaccurate, since the impact of other factor may bring about an entirely different situation.

5. Variation in the proportion of women living in consensual union

Given the further hypothesis that women living in consensual union begin to do so for the first time at earlier ages than women get married, and that the duration of the union or series of unions in which they participate is longer, it might be concluded that this group of women would make a more influential contribution to fertility levels. This greater contribution to the reproductive process would be reflected in the existence of larger families than those of married women.

Table 3 shows the inter-country variations in the proportion of women living in consensual union, by age groups.

Table 3

PROPORTION OF THE GROUP OF WOMEN EVER HAVING LIVED IN CONJUGAL UNION
REPRESENTED BY WOMEN LIVING IN CONSENSUAL UNION BY AGE GROUPS,
IN COUNTRIES OF THE REGION PARTICIPATING IN THE WFS PROGRAMME

Age group	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
15 - 19	47.0	---	85.9	---	---	51.2	46.3	---
20 - 24	34.7	41.2	75.4	16.4	57.7	35.6	34.8	83.5
25 - 29	26.9	20.7	64.1	11.9	53.5	25.1	24.5	65.2
30 - 34	20.8	16.5	62.4	13.8	51.3	20.4	23.4	52.7
35 - 39	29.0	19.5	47.5	14.7	44.5	16.6	24.8	45.6
40 - 44	18.9	18.3	53.8	10.4	46.3	16.2	24.3	38.5
45 - 49	17.1	12.4	41.0	10.6	42.9	17.3	22.9	33.2
Average								
20 - 49	25.6	18.5	60.1	13.3	50.4	23.3	26.5	57.1

The figures presented in Table 3 for women living in consensual union are highest for the Dominican Republic, Panama and Jamaica, as against Mexico, where the proportion is lowest.

Under a natural fertility regime the three countries indicated above would be expected to have a higher level of fertility than Mexico. On the other hand Colombia, Guayana and Peru would be in an intermediate position, slightly in advance of Costa Rica.

As will be seen, this situation does not really occur, since, for example, Jamaica shows the lowest levels of fertility and of increase in parity per year of union.

6. Variation in proportion of women with one union only

If the hypothesis is accepted that there is a correlation between family sizes, or the number of children born alive to a woman ever having lived in conjugal union, and the number of unions, it is worth while to note, by age groups, the variation in the proportion of women that have had one union only, in order to seek a simple explanation of the differences in family size from one country to another.

The corresponding data may be seen in the following table.

Table 4

PROPORTION OF WOMEN WHO HAVE HAD ONLY ONE UNION, WHETHER
OR NOT DISSOLVED AT THE DATE OF THE SURVEY, BY AGE
GROUP, IN COUNTRIES OF THE REGION
PARTICIPATING IN THE WFS PROGRAMME.

Age group	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
15 - 19	94.0	---	88.4	99.2	---	97.4	76.7	73.6
20 - 24	90.2	94.5	73.1	96.2	86.8	94.7	70.0	54.2
25 - 29	89.0	93.6	66.0	94.1	76.3	90.9	65.5	46.8
30 - 34	88.5	92.1	63.5	92.2	73.9	87.9	64.6	41.1
35 - 39	80.1	89.0	60.5	88.3	73.9	84.7	58.9	42.7
40 - 44	84.1	87.2	58.5	89.7	68.4	86.0	57.3	46.4
45 - 49	80.1	89.9	63.7	88.3	66.4	82.8	50.9	45.8
Average								
20 - 49	85.9	91.4	65.2	91.9	75.2	88.1	62.6	46.8

Comparison of the figures given in Tables 3 and 4 reveals the existence of a positive correlation between the variations in the proportion of women with only one union and in the proportion of women living in a consensual union. In other words, the smaller the proportion of women who have had one union only, the smaller is the proportion of women living in consensual union.

If it is granted that the variation in fertility is associated with the variation in the proportion of women who have had one union only, whether dissolved or not, and if the average increase in parity per year of duration of the union is less in the case of women who have had only one union, it is to be expected that in the countries where the proportion of women with only one union is larger, family sizes will be smaller.

On the basis of this assumption, under a régime of natural fertility, Colombia, Costa Rica, Mexico and Peru would have lower levels of fertility than Jamaica, which has the smallest proportion of women in the situation in

question. On the other hand, the Dominican Republic, Panama and Guyana would be in an intermediate position.

Lastly, it can be observed in Table 4 that the proportion of women with only one union is systematically smaller in Jamaica, in any age group, than in the other countries.

7. Age at date of first union by age group
and number of unions

As will be seen below, age at the date of the first union varies by age group and by number of unions. With respect to the latter characteristic, two sub-groups will be considered: the first, that of women who have had only one union and the second, that comprising women who have had two unions or more. No distinction is made as to whether the woman's last or only union is still undissolved or not. If it is proved that women who have had only one union enter into it, on an average, at later ages than women who have had two unions or more, and if there is also evidence that in the two sub-groups defined the duration (or stability) of the union is different, a new factor will be added to those helping to account for the differences in family size in these sub-groups of fecund female population.

Table 5

AGE AT DATE OF FIRST UNION, FOR WOMEN WITH ONE UNION ONLY OR
WITH TWO OR MORE UNIONS, IN COUNTRIES OF THE REGION WHICH
HAVE PARTICIPATED IN THE WFS PROGRAMME.

Age at date of first union	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
- Group 1 Women with one union only -								
-15	8.6	4.4	13.8	12.4	8.8	8.3	12.2	10.9
15 - 17	27.7	23.3	36.6	32.4	22.7	27.8	42.8	35.8
18 - 19	21.7	21.4	22.0	21.2	22.6	21.9	20.5	18.2
20 - 21	16.3	18.7	12.6	14.1	18.1	16.7	12.6	14.5
22 - 24	13.8	17.3	9.8	11.4	17.6	14.0	7.9	11.5
25 - 29	8.5	10.7	4.3	6.3	7.8	8.8	2.9	6.3
30+	3.4	4.2	0.9	2.0	2.3	2.5	1.0	2.8
Average	20.0	20.8	18.5	19.1	20.1	19.9	18.2	19.2
S.D.	4.4	4.4	3.7	4.1	4.1	4.2	3.5	4.3
- Group 2 Women with two or more unions -								
-15	22.8	18.0	16.3	29.1	19.5	21.4	20.4	17.6
15 - 17	39.1	35.3	40.0	40.1	41.1	39.2	43.3	46.0
18 - 19	19.6	21.1	22.5	14.5	21.4	18.7	21.0	18.4
20 - 21	9.1	11.5	11.4	8.1	8.7	11.4	8.2	9.8
22 - 24	5.8	8.4	6.6	5.5	6.9	6.4	4.5	5.3
25 - 29	2.9	4.6	2.8	2.3	1.8	2.3	2.1	2.4
30+	0.7	1.1	0.4	0.4	0.6	0.6	0.5	0.5
Average	17.6	18.3	17.9	17.1	17.6	17.6	17.4	17.6
S.D.	3.5	3.8	3.3	3.4	3.3	3.4	3.2	3.2

If the average figures for age at date of first union of women with one union only are compared with those corresponding to women with two or more unions, it can be noted that women in the latter group start the family-forming process earlier, with differences varying between 0.8 years in the case of Guyana and 2.5 years in that of Mexico and Panama.

It can further be seen that within each group both the average age at first union and its variations are relatively similar.

In the case of women with only one union the average age is about 19.5 years as against 17.6 years for women with two or more unions, so that there is a difference of 1.9 years in favour of the latter group.

From the figures given it can be deduced that women who enter into a union at an earlier age are likely to have more than one union, probably because the first, being consensual, is of shorter duration, whereas the duration of the next, even if it is of the same type, will be longer.

If it is true that the group of women that enter into a union at an earlier age have a tendency to contract more than one union and if the cumulative time represented by all the unions in which they have participated is longer than the cumulative time in the case of a woman with only one union, this simple fact will account for the differences between these two groups of women as regards family size.

8. Duration of union, by number of unions

It might be established as a working hypothesis that the total time accumulated in the course of conjugal union by a woman who participates in more than one such union is less than the cumulative time she should have amassed if she had participated in one union only. This hypothesis, however, is totally discredited by the facts, since there is evidence that the cumulative time is longer in the case of women with more than one union. This result may be partly due to the fact that women enter into more than one union do so at an earlier age than women participating in one union only and that the dead periods -or spells of absence of the spouse or partner- are relatively short.

The existence of this situation could be tested by means of tabulations to show the dead periods between each of the successive unions according to the woman's age at the date of her first union, the legality of the unions in question and other control variables such as the woman's place of residence (urban or rural area) and her educational level.

Table 6 presents the structure of union duration, by number of unions, dividing women into the same two major groups as before: Group 1: women with only one union; Group 2: women with two unions or more.

Table 6

RELATIVE DISTRIBUTION OF WOMEN EVER HAVING LIVED IN CONJUGAL UNION, BY DURATION OF UNION ACCORDING TO WHETHER THE WOMAN HAS HAD ONE UNION ONLY OR TWO OR MORE UNIONS, IN COUNTRIES OF THE REGION PARTICIPATING IN THE WFS PROGRAMME.

Duration of union	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
- Group 1: Women with only one union -								
0 - 4	27.7	23.7	31.0	26.5	24.9	24.5	28.7	35.0
5 - 9	22.1	23.2	22.0	20.9	22.9	20.6	21.4	22.8
10 - 14	17.8	18.8	15.6	17.0	18.8	17.1	14.2	14.0
15 - 19	14.4	14.6	11.6	14.0	14.2	14.8	13.9	10.8
20 - 24	10.1	10.7	10.7	11.4	9.7	12.9	10.4	9.1
25 - 29	6.3	7.3	6.4	7.5	7.1	7.9	7.9	6.6
30+	1-6	1.7	2.7	2.8	2.4	2.2	3.5	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average duration	11.6	12.2	11.4	12.3	12.1	12.7	12.2	10.6
- Group 2: Women with two or more unions -								
0 - 4	22.8	18.0	30.4	29.1	19.5	13.6	20.4	17.6
5 - 9	39.1	35.3	39.5	40.1	41.1	19.2	43.3	46.0
10 - 14	19.6	21.1	17.0	14.5	21.4	21.5	21.0	18.4
15 - 19	9.1	11.5	7.1	8.1	8.7	19.4	8.2	9.8
20 - 24	5.8	8.4	4.1	5.5	6.9	15.0	4.5	5.3
25 - 29	2.9	4.6	1.9	2.3	1.8	8.3	2.1	2.4
30+	0.7	1.1	0.0	0.4	0.6	3.0	0.5	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average duration	13.5	13.3	12.3	14.7	13.5	14.4	13.3	12.1

It is observable that in the case of women with only one union the relative distributions are comparatively similar, although the distribution for Jamaica shows an asymmetry in the direction of shorter durations, in contrast with Peru, where the asymmetry is mainly in the direction of longer duration. In other words, it may be said that the stability of the union is less in Jamaica than in Peru. As regards the relative distributions corresponding to women with two unions or more, once again Jamaica shows a pronounced asymmetry in the direction of shorter durations, as against Mexico, where the second union would seem to be more stable; while it must be admitted that women with three or more unions represent a very small proportion of the female population.

9. Duration of union and average number of
children per year of union

A comparison of age at date of first union among women ever having lived in conjugal union reveals that women who contract a union at an earlier age participate in more than one union. It might be thought, however, that although they enter into more than one union, the time accumulated in all the unions in question is less than the time accumulated by a woman who has had one union only. But, as can be seen in Table 7, the situation is entirely different, since in the case of women who have contracted more than one union the cumulative time of conjugal life is longer than in that of women with one union only.

Table 7

AGE AT DATE OF FIRST UNION, DURATION OF UNION, AVERAGE NUMBER OF CHILDREN PER YEAR OF UNION, IN THE CASE OF WOMEN WITH ONE UNION ONLY OR OF THOSE WITH TWO OR MORE UNIONS, IN COUNTRIES OF THE REGION WHICH HAVE PARTICIPATED IN THE WFS PROGRAMME.

Country	Group 1: Women with one union only			Group 2: Women with two or more unions		
	Age at first union	Average duration of union	Average of children per year of union	Age at first union	Average duration of union	Average of children per year of union
Colombia	20.0	11.6	0.3536	17.6	13.5	0.3967
Costa Rica	20.8	12.2	0.3376	18.3	13.3	0.4082
Dominican Republic	18.5	11.4	0.3507	17.9	12.3	0.3551
Mexico	19.1	12.3	0.3628	17.1	14.7	0.3558
Panama	20.1	12.1	0.3037	17.6	13.5	0.3682
Peru	19.9	12.7	0.3460	17.6	14.4	0.3784
Guyana	18.2	12.2	0.3161	17.4	13.3	0.3227
Jamaica	19.2	10.6	0.2863	17.6	12.1	0.3380

Moreover, it can be seen that the average increase in parity per year of union is greater in women with two or more unions than among women with one union only. Except in Mexico, where the ratio of these averages is 91%, the biggest increase in parity ranges from 101.1% for the Dominican Republic and 121.2% for Panama. These differences would appear to suggest that family sizes are smaller in the case of women with only one union than where the mother has contracted more than one union.

A possible hypothesis would be that women who enter into a union at an earlier age are endowed with greater potential fertility than those who do so at a later age and that in this latter group there would seem to be a larger proportion of women participating in family planning programmes or resorting to the practice of abortion.

10. Increase in parity during the first five years of union

By comparing the average increase in parity in the first time of union with the fertility observable in the last five-year period, among women who have had one union only the change undergone by the level of fertility through time can be detected.

Comparisons are made with due allowance for the different ages at which women contract unions, so taht it is possible to determine -grosso modo- the relative reduction of fertility in the various five-year age groups.

Table 8

ANNUAL INCREASE IN PARITY DURING THE FIRST FIVE YEARS OF UNION
 AMONG WOMEN WITH ONLY ONE UNION OF WHICH THE DURATION HAS
 BEEN AT LEAST FIVE YEARS, IN COUNTRIES OF THE REGION
 PARTICIPATING IN THE WFS PROGRAMME.

Age at first union	Colombia			Costa Rica			Dominican Republic		
	Observed	Expected	Reduction %	Observed	Expected	Reduction %	Observed	Expected	Reduction %
-15	0.4080	0.4035	---	0.4260	0.4182	---	0.4020	0.3471	---
15-19	0.4720	0.4317	-8.5	0.4880	0.4474	-8.3	0.4550	0.3931	-13.6
20-24	0.4620	0.3760	-18.6	0.4860	0.3170	-34.7	0.4370	0.4128	-5.5
25-29	0.4360	0.2738	-37.2	0.5020	0.2187	-56.4	0.4980	0.3079	-38.2
30+	0.3520	0.1748	-50.3	0.6300	0.1588	-74.8	0.4400	0.2725	-38.1
Average	(0.4535)		(-14.2)	(0.4868)		(-20.7)	(0.4471)		(-13.1)

Age at first union	Peru			Mexico			Panama		
	Observed	Expected	Reduction %	Observed	Expected	Reduction %	Observed	Expected	Reduction %
-15	0.4038	0.4196	---	0.4020	0.4235	---	0.4060	0.4014	---
15-19	0.4558	0.4622	---	0.4680	0.4489	-4.1	0.4410	0.4294	-2.6
20-24	0.4705	0.4247	-9.7	0.4720	0.4351	-7.8	0.4070	0.3591	-11.8
25-29	0.4925	0.3340	-32.2	0.4740	0.3529	-25.5	0.3940	0.2487	-36.9
30+	0.4434	0.2750	-38.5	0.5020	0.2927	-41.7	0.2660	0.1686	-36.6
Average	(0.4556)		(-6.8)	(0.4627)		(-7.9)	(0.4170)		(-9.0)

Age at first union	Guyana		
	Observed	Expected	Reduction %
-15	0.3500	0.3444	---
15-19	0.4400	0.3972	-9.7
20-24	0.4100	0.3844	-6.2
25-29	0.3420	0.2656	-22.3
30+	0.2660	0.1852	-30.4
Average	(4056)		(-9.6)

If it is assumed that the expected figures for the annual increase in parity during the first years of union, by age at first union, are consistent with those of marital fertility rates in the last five-year period, with reference to the 15-19, 20-24, ... 30-34 age groups and that the expected value in the first group is of the order $0.2 + 12.5 + 0.8 + 17.5$ -a valid hypothesis under a fertility régime constant through time- it is possible to determine the relative decline in fertility in the age groups in question.

Marital fertility manifestly declines more and more as the age of the woman increases, which means that the annual increment in parity during the first five years of union is appreciably less among women that contract a union after 25 years of age.

Given that the pattern of the variation in the proportion of women contracting a first union, by age groups, is 0.125; 0.500; 0.246; 0.088; 0.041, it is possible to estimate the general reduction that has occurred in family size, by age at which the union is formed, during those first five years of union. The biggest drop -about 20.7%- is observable in Costa Rica, and next come Colombia and the Dominican Republic with decreases of 14.2% and 13.1%, respectively. In contrast, Peru records the least reduction in family size (6.8%).

Adopting the same standard for the proportion of women contracting a first union in the age groups shown in Table 8, a comparison can be drawn between the annual increase in parity during the first five years of union in the different countries, and it can be seen that the largest increment corresponds to Costa Rica (0.4868) and the smallest to Guyana (0.4056), approximating closely to the figure for Panama (0.4170).

11. Increase in parity after the fifth year of union

If the annual increase in parity during the first five years of union is taken as a benchmark, it can be seen that annual increments after the fifth year of union are, as a general rule, appreciably smaller. Let us look at the situation as regards women who have contracted only one union, in the seven countries which are being compared.

Table 9

WITH REFERENCE TO WOMEN WHO HAVE CONTRACTED ONLY ONE UNION INCREMENT
IN PARITY AFTER THE FIFTH YEAR OF UNION IN RELATION TO THE INCREASE
IN THE FIRST FIVE-YEAR PERIOD, IN EACH SUCCESSIVE QUINQUENNIAL
SUBSEQUENT TO THE FIRST, BY NUMBER OF YEARS OF UNION, IN
COUNTRIES THAT HAVE PARTICIPATED IN THE WFS PROGRAMME

Duration of union	Colombia				Costa Rica				Dominican Republic			
	Q ₂	Q ₃	Q ₄	Q ₅₊	Q ₂	Q ₃	Q ₄	Q ₅₊	Q ₂	Q ₃	Q ₄	Q ₅₊
5 - 9	0.80				0.53				0.69			
10 - 14	0.64	0.61			0.50	0.30			0.73	0.51		
15 - 19	0.78	0.49	0.40		0.58	0.35	0.19		0.85	0.69	0.49	
20 - 24	0.92	0.69	0.41	0.28	0.77	0.56	0.29	0.12	0.97	0.82	0.62	0.31
25 - 29	0.88	0.83	0.55	0.23	0.90	0.73	0.54	0.16	0.99	0.90	0.76	0.34
30 +	0.94	0.93	0.78	0.26	1.13	0.97	0.95	0.23	0.88	0.85	0.73	0.24

Duration of union	Mexico				Panama				Guyana			
	Q ₂	Q ₃	Q ₄	Q ₅₊	Q ₂	Q ₃	Q ₄	Q ₅₊	Q ₂	Q ₃	Q ₄	Q ₅₊
5 - 9	0.72				0.73				0.79			
10 - 14	0.78	0.61			0.60	0.49			0.74	0.37		
15 - 19	0.83	0.66	0.44		0.77	0.41	0.29		0.87	0.56	0.28	
20 - 24	0.91	0.76	0.57	0.37	0.83	0.56	0.32	0.22	1.00	0.75	0.42	0.15
25 - 29	0.87	0.80	0.67	0.32	0.83	0.62	0.47	0.20	1.01	0.83	0.59	0.19
30 +	0.96	0.89	0.82	0.35	0.98	0.77	0.69	0.31	1.24	1.05	0.84	0.26

Duration of union	Jamaica				Average			
	Q ₂	Q ₃	Q ₄	Q ₅₊	Q ₂	Q ₃	Q ₄	Q ₅₊
5 - 9	0.73				0.71			
10 - 14	0.65	0.54			0.66	0.49		
15 - 19	0.76	0.45	0.28		0.78	0.52	0.34	
20 - 24	0.85	0.72	0.33	0.22	0.76	0.69	0.42	0.24
25 - 29	0.87	0.70	0.60	0.20	0.91	0.77	0.60	0.23
30 +	0.82	0.90	0.94	0.34	0.99	0.91	0.82	0.28

It is apparent that the relative values corresponding to each duration-of-union group are fairly similar throughout the different five-year periods, except in Costa Rica, where the ratios in question are appreciably less than in other countries. Such a situation means that in this country a significant decline in fertility has taken place, which will be conducive to family sizes considerably smaller than those observed at the date of the survey.

If it is postulated that the reciprocal values of the increases in parity correspond to the average figures for the intervals between births, Table 9 clearly shows that these intervals lengthen as the woman grows older. It is equally evident that in so far as the increment in parity decreases more rapidly, causing a wider spacing-out of births, the population concerned is one in which there is greater participation in family planning programmes (as in the case of Costa Rica). The adoption of the ratios given as average figures in Table 9, together with information on the duration of the union and the general increase in parity per year of union makes it possible to estimate the average number of children by duration of union.

The following is the standard model:

Duration of union	Quinquennia conjugal life					Increment per year of union
	0 - 4	5 - 9	10 - 14	15 - 19	20 +	
(x,x+h)	Q_1	Q_2	Q_3	Q_4	Q_{5+}	$(\frac{w}{h}x)(a)$
0 - 4	a					1.000a
5 - 9	a	0.71a				0.903a
10 - 14	a	0.66a	0.49a			0.762a
15 - 19	a	0.78a	0.52a	0.34a		0.706a
20 - 24	a	0.76a	0.69a	0.42a	0.24a	0.664a
25 - 29	a	0.91a	0.77a	0.60a	0.23a	0.635a*
30 +	a	0.99a	0.91a	0.82a	0.28a	0.600a*

*/ Values adjusted for the sake of consistency with parities in the 25-29 and 30+ age groups.

If h_{x}^d = proportion of women with durations of union comprised between x , $x+h$;

h_{x}^u = $h_{x}^d (x+h/2)$: number of years lived in union, by the x , $x+h$ group of women;

p = general increment in parity per year of union;

d = average duration of the union;

the common value (a) is given by the equation:

$$a = pd / (h_{x}^u)(h_{x}^w)$$

which makes it possible to deduce the annual increment in parity for each duration group; these values, after multiplication by $x+h/2$, allow estimates to be formed of the average number of children per woman, by duration of union, among women who have contracted one union only.

Table 10

ESTIMATES OF AVERAGE NUMBER OF CHILDREN PER WOMAN, BY DURATION OF UNION, IN THE CASE OF WOMEN CONTRACTING ONLY ONE UNION, IN COLOMBIA, COSTA RICA AND PANAMA

Duration of union	Colombia				Costa Rica			Mexico		
	h_{x}^w	h_{x}^d	Parity		h_{x}^d	Parity		h_{x}^d	Parity	
			Expected	Observed		Expected	Observed		Expected	Observed
0- 4	1.000	0.277	1.20	1.25	0.230	1.15	1.37	0.265	1.25	1.26
5- 9	0.903	0.221	3.24	2.87	0.230	3.12	2.67	0.209	3.37	3.17
10-14	0.762	0.178	4.56	4.59	0.191	4.38	4.10	0.170	4.75	4.85
15-19	0.706	0.144	5.91	6.10	0.149	5.68	5.59	0.140	6.16	6.45
20-24	0.664	0.101	7.15	7.20	0.111	6.87	7.32	0.114	7.44	7.71
25-29	0.635	0.063	8.36	8.81	0.073	8.03	9.02	0.075	8.70	8.22
30-34	0.600	0.016	9.33	9.40	0.015	8.97	8.83	0.028	9.72	9.37
		$p=0.3536$ $d= 11.62$				$p=0.3376$ $d= 12.29$			$p=0.3628$ $d= 12.34$	

12. Intervals between date of union and first birth,
by age at first union

Admittedly information on the length of the interval between the date of the first union and that of the first birth is difficult to obtain, since there is a large group of women whose union with their partner is placed on a more permanent footing after the woman has borne her first child. Thus what is shown as the interval between date of union and first birth is the number of months that passed between the birth of the first child and the time when the union was established in a more permanent form. As a result, therefore, the intervals appear negative in cases where the permanent union was established subsequently to the birth of the child, or very short (less than seven months) when the union took place a few months after the beginning of pregnancy.

Assuming that age-specific fertility rates increase from the beginning of the fecund period up to the age of 20, for example, and then decline until the end of the period in question, the intervals between date of union and first birth -controlled by age at date of first union- are bound to show an evolution which is a "mirror" reflection of the said rates; that is, they will decrease up to the age of 20 years and increase in length thenceforward. If out of the information obtained from the surveys negative intervals are discarded and for women who have declared intervals of between 0-7 months, an average figure of 7.5 months is adopted, this gives the lengths of interval shown in Table 11.

Table 11

INTERVALS BETWEEN DATE OF UNION AND FIRST BIRTH, BY AGE AT
FIRST UNION, AMONG WOMEN WHO HAVE BEEN LIVING IN UNION
FOR FIVE YEARS, IN COUNTRIES OF THE REGION THAT
HAVE PARTICIPATED IN THE WFS PROGRAMME.

Age at date of first union	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
-15	24.9	27.8	22.6	22.0	24.5	21.4	29.9	30.6
15 - 17	19.2	19.0	18.8	(17.6)	19.3	19.0	24.1	23.4
18 - 19	16.8	18.0	17.1		17.5	17.1	22.4	23.0
20 - 21	16.3	17.1	16.8	(15.7)		17.2	22.9	26.2
22 - 24	18.0	18.8	16.8		(18.3)	15.9	24.1	24.1
25 - 29	16.7	22.9	15.7	16.5		17.4		
30+	21.1	28.2	11.9	28.6	(21.0)	18.2	(24.2)	(23.5)
Average figure	17.4	18.9	16.8	17.6	19.3	17.3	24.1	23.8

It can be seen that the longest intervals between date of union and first birth correspond to the smallest increases in parity per year of union. This may be checked by reference to Table 7, where Guyana and Jamaica show the lowest increments in parity (0.3161 and 0.2863, respectively). On the contrary, in countries where the intervals are shorter the increments in question are bigger.

If the length of the interval between date of union and first birth (x_2) is related to the increase in parity per year of union (x_1) in the case of women with only one union, through the model:

$$x_1 = a x_2^b$$

a series of expected figures is obtained, relatively similar to those observed.

Table 12

INCREASES IN PARITY PER YEAR OF UNION, OBSERVED AND EXPECTED,
AMONG WOMEN WITH ONLY ONE UNION, IN COUNTRIES OF THE REGION
WHICH HAVE PARTICIPATED IN THE WFS PROGRAMME.

Increase in parity per year of union	Colombia	Costa Rica	Dominican Republic	Mexico	Panama	Peru	Guyana	Jamaica
Observed	0.3536	0.3376	0.3507	0.3628	0.3037	0.3460	0.3161	0.2863
Expected	0.3473	0.338	0.3532	0.3454	0.3304	0.3483	0.3069	0.2963

13. Conclusions

To most of the conclusions indicated attention has already been drawn in the analysis that has been made of different variables which have a bearing on the increase in family size during the course of conjugal life.

- a) In the countries compared, the proportion of families is relatively different if it is borne in mind that the said proportion depends upon the variation in the proportion of single women. Thus, Jamaica represents the country with the largest proportion of families (95.2%) as against Costa Rica with the lowest (74.2%);
- b) If the proportion of women who are not separated, divorced or widowed is taken as an indirect means of measuring the stability (duration) of unions, Mexico records the peak figure (90.0%) in contrast to Peru, which is at the lowest extreme (80.2%);
- c) Family size may be linked to the legality of the union if its stability (or permanence) depends upon that status. In Table 3 it can be seen that the Dominican Republic and Jamaica show the largest proportion of women living in consensual union (60.1% and 57.1%, respectively), as against Mexico, where the corresponding proportion is only 13.3%;

- d) Family size depends upon the number of unions, since there is evidence that in the case of women who have contracted two unions or more, not only is a greater length of time in conjugal life accumulated but the annual increment in parity per year of union is also larger;
- e) Age at the date of the first union varies according to whether the woman has contracted one union only or two or more unions. The latter group tend to enter into union almost two years earlier than women who contract one union only;
- f) The duration of unions is systematically -throughout all the countries- longer for women with two or more unions than for women with one union only. There are no data which shed light on the duration of the first union, among women with two unions or more, on the interval of waiting before the second union or on the latter's duration. Information of this type would make it possible to ascertain, for example, whether the first union is of short duration and the second practically the same as in the case of women with one union only;
- g) The average number of children per year of union is greater among women with two unions or more. There are no data to elucidate the reason for the difference observed, such as information on the length of the interval between date of union and first birth and that of the interval between the first and the second birth, by number of unions contracted;
- h) The annual increase in parity in the first five years of a union is relatively similar in all countries, ranging from 0.4056 for Guyana to 0.4868 for Costa Rica. As a result of family planning this initial increment drops to a general average value of 0.3437 for Costa Rica and 0.3186 for Guyana, figures which represent reductions of 29.4% and 21.4%, respectively;
- i) After the fifth year of union the increase in family size declines in each successive quinquennium through reduction of the woman's fecundity and/or through the use of family planning methods. By adopting a standard reduction of the woman's reproductive potential for the reasons indicated, together with a figure for the general level of the annual increment in

parity per year of union, and with information on the stability of unions (distribution of women by years of effective duration of the union), average parity by length of duration of union can be estimated, as shown in Table 10;

- j) The information on the interval between date of union and first birth is affected by significant distortions in the declarations of respondents, owing to the fact that in a sizeable group of women the first union is formed after the birth of the first child or when the woman has been pregnant for some months (probably more than 4 months).

By the use of a geometric model for the relation between the length of the interval between date of union and first birth and the annual increment in parity per year of union, it is demonstrably possible, given information on the length of the above interval, to estimate the average yearly increase in parity, as shown in Table 12;

- k) It has not been possible to make comparisons according to the mother's place of residence whether habitual or prior to adulthood (up to the age of 15, for example). This restriction of the analysis has ruled out collateral determination of differential patterns for the increment in parity per year of union after the first life years of conjugal life. Nor has it been possible to examine the impact of family planning on the lengthening of the intervals between date of union and first birth or on the reduction of the increase in family size after the first five years of conjugal life. Lastly, the effect of such important variables as permanent sterility of the woman, duration of breast-feeding, sub-fecundity and the practice of abortion has not been dealt with in the present document.