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SAO PAULO CONTRACEPTIVE PREVALENCE SURVEY:

DEMOGRAPHIC MEASUREMENT

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INTRODUCTION

This working paper has two main purposes: 1) to describe and document the types of demographic measurement used in the 1978 Sao Paulo State Contraceptive Prevalence Survey and to discuss related methodological issues, and 2) to present the substantive findings with respect to fertility levels and variation, and with respect to a number of factors underlying fertility: child mortality, nuptiality, contraceptive use, abortion history, and breast-feeding.

A new method of ascertaining fertility information was employed in the Sao Paulo Survey. As in previous contraceptive prevalence surveys, one respondent was selected with equal probability out of all women 15 to 49 in each household to respond to the entire questionnaire. In addition, in Sao Paulo fertility information (number of children born alive, number of living children, and date of last live birth), age, marital status, and education was obtained for all women in the household, not just the respondent. Fertility measures have been calculated separately for all women in the household and for respondents only. The differences in these two methods are discussed in a later section of this paper.

COVERAGE OF THE SURVEY

Completed interviews were obtained for 88.5% of the households in which an eligible respondent was present or may have been present (Table 1). We include in the denominator of this rate households in which there was no contact made. No doubt, a certain percentage of these households had no eligible respondent, so that the actual completion rate is somewhat higher than 88.5%, perhaps over 90%, which would be an excellent rate for a household survey.

Completion rates are higher outside the capital city owing to more refusals and not-at-homes in the capital city. The completion rate is 96% for rural areas. While the rate of completion is, in general, quite good, the existence of non-completed interviews should be borne in mind as a possible source of bias in the survey results.

COMPARISON WITH OTHER DATA SOURCES

The distribution of women by age in the 1978 Contraceptive Prevalence Survey has a very close correspondence with that of a previous survey, the 1976 National Household Survey in which Sao Paulo State was a self-representing stratum (Table 2). Marital status also corresponds closely. The 1978 Survey had somewhat higher percent married and a lower percentage single, but the differences are slight.

Comparing the 1978 Survey with the 1976 Survey and the 1970 Census indicates a generally similar distribution of recent births by age of mother (Table 3). The 1978 Survey seems to be somewhat deficient in births to 15 to 19 year olds (6% versus 10% and 11%), perhaps related to young women being more likely to be not at home or missed in the sample or to a greater tendency to omit out-of-wedlock births in the 1978 Survey.

An internal comparison in the 1978 data also suggests that births to 15 to 19 year olds are somewhat deficient. In the absence of extreme changes in fertility and age differentials in abortion, the age distribution of women currently pregnant should closely resemble the distribution of women giving birth in the previous year. Figure 1 compares the percent distribution of women giving birth in the most recent year by age with the distribution of currently pregnant women. (Pregnant women have been assumed to have given

birth 4 months after interview on the average, so that one-third of births [4/12] at each age have been shifted to the next older single year of age.) Based on the distribution of pregnancies, there were too few births reported at age 15 to 19 and too many at 20 to 24 and 25 to 29. Above age 30 there is close agreement in the curves. This pattern is compatible with the concealment of out-of-wedlock births to young women, or the use of induced abortion in age group 15 to 19. However, later data presented in this report do not suggest a higher incidence of abortion among 15 to 19 year olds, although this may be due to misreporting of abortion. As noted before, data from other surveys show a higher percentage of births in the age group 15 to 19 than the 1978 survey (Table 3). For whatever reasons, then, the 1978 Survey seems to have a somewhat distorted distribution of births by age. Because of this and because of high levels of sampling variation for 5-year age groups, age-specific fertility rates will not be presented in this report, only aggregate fertility measures.

Cumulative fertility measures from the 1978 Survey compare very favorably with those found in the 1976 Survey and the 1970 Census. The distribution of mean number of children born alive by age is quite close in the two surveys, as is the degree of urban/rural variation (Table 4). The 1970 Census estimates are somewhat higher than the survey estimates, perhaps reflecting fertility decline in the intervening years, or the fact that Sao Paulo has a smaller percentage of rural population than either the Southeastern Region or Brazil as a whole. (The Southeastern Region includes Sao Paulo, Parana, Santa Catarina and Rio Grande do Sul States.)

Table 4 indicates that the cumulative fertility for the Southeast Region of Brazil is lower than for all Brazil. Period fertility rates, based on census data for Sao Paulo State, have also been found to be below the national average. As Table 5 indicates, this differential is apparently longstanding. (Also indicated by Table 5 is a long-term downward trend in fertility rates.) Sao Paulo State, then, appears to be different from all Brazil so that we cannot further evaluate these data by comparison with various national fertility estimates that have been made for Brazil (1).

FERTILITY ESTIMATES

Introduction

The findings of the 1978 Contraceptive Prevalence Survey with respect to fertility may be summarized briefly. Whether fertility data for all women are used or data for respondents only, the general pattern is clear. Fertility varies in the expected direction, increasing from urban to rural areas, and from high to low education. Compared to similar surveys in other Latin American populations, such as the 1975 El Salvador and the 1977 Paraguay Contraceptive Prevalence Surveys (2), fertility is at a much lower level in Sao Paulo State, and the variation is not as wide. The estimates suggest a population at an intermediate stage of demographic transition.

As mentioned earlier, the Sao Paulo State Survey contained a methodological innovation not included in previous contraceptive prevalence surveys: fertility questions were asked during the household screening section of the interview about all women in the household. The items obtained were the number of children born alive, the number of living children, and the date of last live birth. Also obtained for each woman was age, marital status, and educational attainment. Thus, fertility analysis may be performed on all women in

the household based on these items. A parallel analysis can be done using only respondents, the one woman of fertile age in each household that was selected for a complete interview. We shall refer to these estimates as "all women" and "respondent" estimates, respectively.

Fertility estimates, based on all women and on respondents, each have advantages and disadvantages. Using all women, a larger number of cases is obtained from the same number of households. One stage of selection and differential weighting is eliminated, resulting in possibly reduced variances through design effect. Further, data for all women include information for some selected respondents who did not give complete interviews, possibly resulting in lower levels of non-response bias in the all women estimates.

The data for all women in the household were provided by one household contact (any adult member of the household) during the household screening process. Data for respondents may be considered more accurate, since the women themselves provided the information. This may be important for measures of cumulative fertility, since this requires reporting births that may have occurred many years in the past.

Cumulative Fertility

The use of all women results in a 43% increase in the total number of cases, 4,019 compared to 2,803 for respondents only (Table 6). Estimates based on respondents only result in a higher level of children born alive in every age/residence category in Table 6 except one. As Figure 2 shows, there is a slight, more or less constant difference between the two estimates up to age 45 to 49 at which point the curves diverge.

It is hypothesized here that one reason respondent estimates are higher is because those respondents who did not have complete interviews were more likely to be not at home, which is associated with low fertility. Thus, those who are interviewed tend to have higher fertility. Fertility estimates based on respondents would tend to be inflated for this non-response bias, and this type of bias may explain the slight constant difference in the curves up to age group 35 to 39.

Above age group 35 to 39, the respondent data may be more accurate due to bias caused by someone other than the woman herself answering the fertility questions. Judging from the divergence in Figure 2, this error (omission of previous births) seems to be of greater magnitude than the non-response bias. Based on these considerations, it has been decided that respondent data will be used to represent cumulative fertility for the Sao Paulo State Survey.

The children born alive measures indicate that there is little difference between Sao Paulo City and other urban areas, with older women having 3 to 4 children (Table 6). In rural areas women over age 40 have 5 to 6 children on the avearage. Educational differences also exist with live births ranging from 2.5 for older women with greater than primary education to 5 or more for those who have less than primary education (Table 7).

Recent Fertility

Birth rates in the most recent year (Table 8) are based on recorded date of last live birth. The interval July 1, 1977 to June 30, 1978 was used. It was assumed the midpoint of this interval was on the average two-thirds of the year earlier and the date of interview. The births and numbers of women were adjusted accordingly. (For example, two-thirds of 20-year olds were shifted to age 19, two-thirds of births to 20-year olds were assumed to have occurred

at age 19, etc.). General fertility rates (GFR) were estimated by dividing the adjusted number of births by the adjusted number of women 15 to 44. Crude birth rates (CBR) were calculated from the GFRs using age-sex distribution data from the 1970 Census. Age-specific fertility rates were calculated, but are not shown here due to the small number of cases in some of the age-residence categories. The aggregate of the age-specific fertility rates, the total fertility rate, is reported in Table 8.

Period fertility rates based on respondent data exceed those for all women by a factor of 5% to 11%. Household members presumably know whether another household member has given birth in the past year. Bias caused by a lack of knowledge should not be important as it was for cumulative fertility. Non-response bias is likely to be more important here.

As Table 1 indicates, completed interviews were obtained in 88.5% of households in which a respondent was present or may have been present. There were 363 out of a possible 3,166 respondents for which there was not a complete interview. Through the household screening section we have fertility data for 66 of these women. This is not a representative sample of all non-respondents, but the results do suggest what non-respondents might be like. These women had lower cumulative fertility than all women with an age-standardized 0.78 mean children born alive compared to 1.98 for all women. Some of them had a reported birth in the most recent year. This group also was younger than the whole sample; 30% were in the age group 15 to 19 compared to 21% of all women. These data, while not conclusive, do suggest that 1) non-response would tend to inflate fertility estimates as previously hypothesized, and 2) the data for all women would contain less of this bias (since some of the non-respondents are included).

Figure 3 indicates that much of the difference in period fertility between all women and respondents is confined to the age groups 20-24 and 25-29, the peak childbearing years. This again suggests that it is the younger, lower fertility women, perhaps in the labor force, who are being missed through non-response. There is little difference in fertility rates above age 30 in the two estimates according to Figure 3. Based on these arguments, we have concluded that the all women estimates are more accurate for period fertility rates, and these will be used as the survey estimates.

Based on all women, the crude birth rate is estimated at 24 per 1,000 and ranges from 21 per 1,000 in Sao Paulo City to 24 in other urban areas and to 30 in rural areas. This is a very moderate level of fertility and is consistent with levels of contraceptive use found in the survey. The overall estimate of CBR of 23.9 has a 95% confidence interval of 21.5 to 26.3 assuming simple random sampling. Confidence intervals incorporating design effect will be prepared later and should be somewhat wider than this.

Recent Trends in Fertility

Comparing fertility in the most recent year with cumulative fertility can indicate whether there have been recent trends in fertility (3). The technique used is to compare the observed distribution of mean number of children ever born by age with the distribution that would be produced if fertility rates in the previous year held constant. (This technique is based on the Brass method of adjusting birth rates (4). The Brass method is concerned mainly with adjusting for respondents misstating the reference period. This is not a major concern here since the women were asked date of last live birth, not whether they had a birth "in the last year," and the population is largely

literate and likely to give accurate answers. In any case, since stable conditions are not approached in this population, the Brass method cannot be used.)

Cumulative fertility is higher than current fertility at every age and in every residence category according to this comparison (Table 9). Because children ever born measures tend to be affected by increasing under-reporting at the highest age groups through memory bias (5), one would expect, everything else being equal, that the ratios of observed to expected children ever born would decline toward the upper end of the distribution. Instead, the highest ratios tend to be at the oldest age groups.

The comparisons, then, apparently reflect real decline in fertility. Change is apparent even in rural areas. Although fertility differences exist between urban and rural areas, all areas seem to be experiencing fertility decline.

MORTALITY ESTIMATES

As a measure of child mortality, the proportions of children born alive that are surviving, by age of mother, have been used. Ordinarily, this measure would be expected to decrease uniformly with age (6). As Figure 4 shows, however, the proportions surviving increases before age group 25 to 29 and decreases thereafter. The divergence between data based on all women and respondents suggests that the respondent data is more accurate, since respondents would be more likely to know about their own non-surviving children than other household members.

There does not seem to be any consistent mortality differential by urban and rural residence based on these data (Table 10). Those with less than primary education have a lower percent surviving, but differences tend to be slight.

The irregular pattern by age may be related to the very low fertility rates at young ages in urban areas. Those who give birth at young ages in urban areas may tend to be of low status and subject to higher mortality rates. In rural areas where a higher percentage of births occur at younger ages, a more regular pattern occurs with the proportion surviving declining with age.

Nuptiality

As Table 11 indicates, the proportion married is lower in urban areas than rural, particularly below age 25. This pattern is probably due to a younger age at marriage in rural areas, and to migration patterns perhaps related to urban employment opportunities for young women. This factor contributes toward the pattern of lower urban fertility that has been observed.

Contraceptive Use

This factor is dealt with in greater detail in the main analytical report from this survey (7) but is included here since it is an important determinant of the fertility patterns observed. Contraceptive use rates are quite high for Sao Paulo State, 64% of currently married women 15 to 44 using a method of some recognized efficacy (Table 12). Variation by residence is in the expected direction but is not great. Even in the rural areas 58% were currently using a method. The most effective methods (orals, sterilization) are the most prevalent, although withdrawal is also common, the third most prevalent method

overall. In terms of contraceptive prevalence, Sao Paulo State resembles populations such as the U.S. with around 70% using more than some other Latin American populations such as El Salvador or Paraguay with 21% to 26% using, respectively.

Abortion Experience

All respondents were asked a single question about whether they had ever experienced an induced or spontaneous abortion. No attempt was made in this question to distinguish between these two types of abortion. Overall, 1 in 7 women 15 to 44 had experienced an abortion, 1 in 5 currently married women (Table 13). A separate question on whether the most recent abortion was induced was answered affirmatively in 13% of cases. Women in Sao Paulo City and other urban areas were more likely to report abortions as induced. Induced abortion is generally regarded as not being well reported on household surveys (8), so these results need to be treated carefully.

Controlling for residence, currently married women reported more abortions the less education they had (Table 14). Within educational categories, currently married women in Sao Paulo City had the highest experience, followed by women in other urban areas. The pattern in Table 14 is highly regular but difficult to interpret. It suggests that abortion is practiced more often by low status women, but urban residence is also important.

In some populations, such as the U.S., induced abortion is practiced mainly by the young and women with low parity. If this were true in Sao Paulo, it might be expected to show up in the pattern of abortion experience by age. If, on the other hand, spontaneous abortion is the main component of abortion experience in Sao Paulo, one would expect to find the highest rate of abortion

experience among women exposed longer through a larger number of pregnancies, i.e., older and rural women. The percent with abortion experience increases uniformly with age (Table 15). Above age 35 it is consistently higher for rural women. Women with less than a primary education have more abortion experience (Table 16).

The data do not suggest that induced abortion is an important component of all abortion. Experience is high where fertility (and the total number of pregnancies) is high--among rural women and the less educated--and increases with age. There is no suggestion of induced abortion being more prevalent among young or low parity women.

If reported spontaneous and induced abortions are expressed as a percent of all reported pregnancies, urban women are found to have a somewhat higher percentage of pregnancies ending in abortion (Table 17). Above age 20 there is little indication of a trend by age in this cumulative abortion rate, except that for rural women the percent is slightly higher for the oldest 2 age groups. This does not conform to previous findings elsewhere of higher rates of abortion for the lowest and highest childbearing age groups (9).

It is not possible to compute abortion rates for a recent time interval since we only have the date of last birth and date of last abortion (a woman could have had more than 1 abortion in the last year). Looking at the last 5 years in order to get sufficient cases, an abortion/live birth ratio was calculated (Table 17, right-hand column). This is the ratio of women with at least 1 abortion since July 1967 to the number of women with 1 or more live births in that interval. This period rate of abortion incidence shows more of an age pattern than the cumulative data with higher ratios above age 35. It may be that progressively greater memory bias with age has obscured age effects in the cumulative number of abortions.

We do not know what proportion of abortions or pregnancies are reported in the survey, but some degree of under-reporting should be assumed in a retrospective survey. The overall percent of abortion of 10.9% falls just inside the range reported in prospective studies of 10% to 29% (10). A previous survey in Sao Paulo City estimated that 16% of pregnancies ended in abortion (11). A higher percent of pregnancies in the 1978 Survey ending in abortion in urban areas is consistent with the higher percent of most recent abortions reported as induced (Table 13). This suggests that while induced abortion is not a major category of pregnancy outcome, it may be somewhat more prevalent in urban areas.

Abortion, spontaneous or induced, does appear to be a common occurrence in this population, a fourth of women over age 40 and 40% of rural women over 40 having had abortion experience.

Breastfeeding Practices

Lactation can also effect fertility through inhibiting ovulation. In Sao Paulo State one-fourth of respondents 15 to 44 were breastfeeding at the time of the survey (Table 18). Current lactation varies strongly by residence, although this is, in part, related to higher fertility rates in rural areas. Controlling for recency of last birth, the percent currently breastfeeding increases uniformly from Sao Paulo City to other urban to rural areas. Since breastfeeding has a negative effect on fertility, this appears to be a factor that would work toward decreasing the observed urban/rural differences. While lactation affects a large proportion of the population in Sao Paulo State, its effect on fertility is, no doubt, mitigated by the high level of contraceptive use.

CONCLUDING COMMENTS

The 1978 Sao Paulo State Contraceptive Prevalence Survey found a relatively high level of contraceptive use and, correspondingly, relatively low fertility in the population surveyed. Differences in contraceptive use and fertility were found with residence and socioeconomic variables, but the range of variation was not as wide as found in other Latin American populations.

The fertility differences that were observed, such as those between urban and rural residents, are probably due to differences in contraceptive use and nuptiality patterns. Other factors affecting fertility, such as the prevalence of spontaneous or induced abortion and breastfeeding patterns, were distributed in such a way that they would work to diminish existing fertility differences rather than supporting those differences. In any case, because of the widespread use of contraception these factors are probably not important determinants of fertility. No clearcut differences were found with respect to mortality from this survey.

This analysis suggests that obtaining fertility information for all women in surveyed households may give more accurate estimates of recent period fertility. Cumulative fertility information may be more accurate when obtained from respondents alone. We will continue to evaluate methods of estimating fertility from contraceptive prevalence surveys.

REFERENCES

1. J.W. Huguet: Demographic Estimates Based on the 1970 Population Census of Brazil. Research Document No. 5, International Statistical Programs Center, U.S. Bureau of the Census, n.d.

2. L. Morris, J.E. Anderson, R.S. Monteith, R. Kriskovich, J. Schoemaker, and O. Frutos: Contraceptive Prevalence in Paraguay. Studies in Family Planning 9, October-November 1978, 272-278; L. Morris, R.C. Rugamas, A.M. de Mendoza, and S. Taylor: Contraceptive Use and Demographic Trends in El Salvador. Studies in Family Planning 10, February 1979, pp. 43-52

3. J.E. Potter, M. Ordonez C., and A.R. Measham: The Rapid Decline in Colombian Fertility. Population and Development Review 2, September/December 1976, pp. 509-528

4. United Nationas, Department of Economic and Social Affairs, Methods of Estimating Basic Demographic Measures from Incomplete Data (New York: United Nations, 1967), pp. 73-75

5. H.S. Shryock and J.S. Siegel: The Methods and Materials of Demography. U.S. Bureau of the Census (Washington, U.S. Government Printing Office, 1973), p. 511

6. W. Brass: Methods for Estimating Fertility and Mortality from Limited or Defective Data (Chapel Hill, POPLAB, 1975), pp. 50-59

7. M.S. Nakamura and J. de Paula Barreto Fonseca: Pesquisa Estudual de Saude Materno-Infantil. Pontificia Universidade Catolica de Campinas, Faculdade de Enfermagem, January 1979

8. M.P. Potts, P. Diggor and J. Peel: Abortion (Cambridge, Cambridge University Press, 1977), pp. 22-29; p. 37

9. M.R. Bone, C.C. Standley and A. R. Omran: Family Formation and Pregnancy Outcome in A.R. Omran and C.C. Standley, eds, Family Formation Patterns and Health (Geneva: World Health Organization, 1976), pp. 151-199; World Health Organization, Special Subject: Late Fetal Deaths per 1,000 Live Births by age of Mother and Birth Order, 1956-57 and 1965-67, World Health Statistics Report 24, 1971

10. R.G. Potter, Jr., J.B. Wyon, M. Parker and J.E. Gordon: A Case Study in Birth Interval Dynamics. Population Studies 19, July 1965, pp. 81-96; L.C. Chen, S. Ahmad, M. Gesche and W.H. Mosley: A Prospective Study of Birth Interval Dynamics in Rural Bangladesh. Population Studies 28, July 1974, pp. 277-297; C.L. Erhardt: Pregnancy Losses in New York City, 1960. American Journal of Public Health 53, September 1963, pp. 1337-1352

11. M.I. Milanesi: O Aborto Provocado (Sao Paulo: Livraria Pioneira Editora, 1965)

TABLE 1

Interview Status by Strata
São Paulo Contraceptive Prevalence Survey, 1978

Household Selection:	Total State	São Paulo Municipio	Other Urban Areas	Rural Areas
Total Households:				
Number	4188	1440	1320	1428
Percent	100.0	100.0	100.0	100.0
Eligible Respondent Identified	68.6	65.6	72.3	71.0
No Eligible Respondent Identified	17.8	18.7	19.4	15.8
Vacant Households	6.6	4.9	2.7	10.7
Refusal	3.5	6.0	3.3	1.3
No Contact After 3 Visits	3.2	6.3	2.0	1.1
Other	0.3	0.4	0.4	0.1
Individual Selection:				
Total Possible Respondents*				
Number	3166	1094	1024	1048
Percent	100.0	100.0	100.0	100.0
Complete Interview	88.5	80.1	90.2	95.7
No Contact After 3 Visits	4.2	8.3	2.5	1.5
Total Refusal	4.7	8.0	4.2	1.7
Respondent Refusal	2.2	3.3	2.4	0.8
Respondent Not at Home	0.4	0.4	0.6	0.3

*Includes households with identified eligible respondent plus households with total refusal or no contact which may have had an eligible respondent.

TABLE 2

Sao Paulo State, Brazil: Percent Distribution, Women 15-49, by Age and Marital Status, 1978 Contraceptive Prevalence Survey and 1976 National Household Survey*

	1978 Survey, Sao Paulo State**				1976 National Household Survey, Sao Paulo State		
Age	Total	Sao Paulo City	Other Urban	Rural	Total	Urban	Rural
15-19	21.1	22.1	20.2	22.0	20.9	20.4	24.0
20-24	18.2	17.9	18.3	19.1	19.8	19.9	19.2
25-29	15.0	15.0	15.3	13.9	16.1	16.1	15.8
30-34	13.6	13.7	13.5	13.6	12.8	12.9	11.7
35-39	11.5	11.4	11.6	11.5	11.5	11.4	11.7
40-44	10.7	11.4	10.5	9.8	10.2	10.3	9.5
45-49	9.8	8.5	10.6	9.6	8.8	8.9	8.1
Unknown	0.1	0.0	0.0	0.5	--	--	--
TOTAL 15-49	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Marital Status							
Married	57.1	54.4	56.6	66.1	53.6	52.4	62.2
Consensual Union	2.8	2.9	2.5	3.5	3.8	3.6	4.8
Sep/Wid/Div	4.2	3.4	5.1	2.4	5.2	5.5	3.3
Single	35.8	39.0	35.8	27.8	37.4	38.6	29.7
Unknown	0.1	0.3	0.0	0.2	--	--	--
TOTAL 15-49	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*IBGE: Pesquisa Nacional por Amostra de Domicilios (PNAD)-1976-Regiao II, Sao Paulo-julho de 1978

**Based on all women in the household

TABLE 3

Brazil: Percent Distribution of Births in the Most Recent Year, All Women in the Household, by Age and Residence, Sao Paulo State and Southeast Region, 1978 Survey, 1976 National Household Survey (NHS), and 1970 Census

	Sao Paulo State, 1978 Survey				Sao Paulo State, 1976 NHS			
Age	Total	Sao Paulo City	Other Urban	Rural	Total	Urban	Rural	Southeast Region, 1970*
15-19	6.3	5.1	5.3	10.5	10.8	10.3	12.6	10.0
20-24	30.0	26.5	30.1	34.9	31.6	30.8	35.0	29.0
25-29	29.2	31.6	31.9	18.6	27.8	29.4	21.1	25.7
30-34	19.8	22.4	19.5	16.9	16.5	17.4	13.0	18.0
35-39	11.2	9.2	11.5	13.4	8.6	7.8	12.0	11.8
40-44	2.6	4.1	0.9	4.7	4.4	4.0	6.2	4.6
45-49	1.0	1.0	0.9	1.2	0.3	0.3	0.0	0.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Unweighted No. of Births:	383	98	113	172				

*Based on Julio M. Rodriguez R., "Brasil: Mortalidad y Fecundidad en los regiones Nordeste y Sudeste, 1970," CELADE, 1977, Tables 10a and 11a.

TABLE 4

Mean Number of Children Born Alive by Age Group and Residence, Sao Paulo State, Brazil: 1978 Contraceptive Prevalence Survey and 1976 Household Survey

Age Group	1978 Survey* Total	Sao Paulo Municipio	Other Urban Areas	Rural Areas
15-19	0.10	0.10	0.07	0.17
20-24	0.74	0.54	0.72	1.26
25-29	1.66	1.73	1.46	2.43
30-34	2.83	2.21	2.90	4.03
35-39	3.67	3.32	3.47	5.17
40-44	4.03	3.43	4.05	5.49
45-49	4.60	4.13	4.38	6.50

Age Group	1976 Survey** Total	Urban	Rural
15-19	0.10	0.09	0.19
20-24	0.68	0.61	1.12
25-29	1.65	1.50	2.70
30-34	2.64	2.46	3.95
35-39	3.35	3.11	4.95
40-44	4.06	3.81	5.89
45-49	4.23	3.92	6.53

1970 Census, Brazil and Southeastern Region***

Age Group	Brazil	Southeastern Region
15-19	0.12	0.09
20-24	0.98	0.80
25-29	2.38	2.08
30-34	3.77	3.25
35-39	4.77	4.13
40-44	5.23	4.53
45-49	5.48	4.76

*Based on respondents

**IBGE: Pesquisa Nacional por Amostra de Domicilio-1976, Regiao II-Sao Paulo, Julho de 1978

***Rodriguez, 19[illegible]

TABLE 5

Brazil: Estimates of Crude Birth Rate 1940-1970 and Total Fertility Rate 1970, Based on Census Data, Brazil and Sao Paulo State

CBR Time Periods	Brazil	Sao Paulo State
1940-45	44.8	36.7
1945-50	46.3	39.7
1950-55	41.2	--
1955-60	40.3	--
1960-65	39.8	32.1
1965-70	37.4	29.5
TFR 1970	5.28	3.77

Source: F.W. Oechsli and A. Adlakha, "Modernization and Natality in Brazil: Temporal and Regional Variations, 1940-1970," Unpublished paper, 1975

TABLE 6

Sao Paulo State, Brazil: Mean Number of Children Born Alive by Age and Residence, Based on Information for Respondents and for All Women in the Household, 1978 Survey

	Sao Paulo State		Sao Paulo City		Other Urban		Rural Areas	
Age	Respondents	All Women	Respondents	All Women	Respondents	All Women	Respondents	All Women
15-19	.10	.08	.10	.08	.07	.05	.17	.15
20-24	.74	.71	.54	.53	.72	.69	1.26	1.21
25-29	1.66	1.55	1.73	1.49	1.46	1.41	2.43	2.32
30-34	2.83	2.78	2.21	2.34	2.90	2.80	4.03	3.84
35-39	3.67	3.52	3.32	3.17	3.47	3.35	5.17	5.04
40-44	4.03	3.77	3.43	3.22	4.05	3.78	5.49	5.32
45-49	4.60	4.16	4.13	3.60	4.38	3.96	6.50	6.31
Number of Women:								
15-19	406	862	144	291	118	274	144	297
20-24	515	739	149	234	162	248	204	257
25-29	489	591	157	196	170	208	162	187
30-34	462	547	141	180	160	183	161	184
35-39	361	462	105	149	121	158	135	155
40-44	301	423	101	149	99	142	101	132
45-49	265	385	79	112	94	144	92	129
Unknown	4	10	0	3	0	0	4	7
TOTAL	2,803	4,019	876	1,314	924	1,357	1,003	1,348

TABLE 7

Sao Paulo State, Brazil: Mean Number of Children Born Alive by Age and Education, Based on Data for Respondents, 1978 Survey

Age Group	<Primary Complete	Primary Complete	<Primary Complete
15-19	.06	.10	.26
20-24	.41	1.07	1.37
25-29	1.16	1.54	2.65
30-34	1.91	2.57	3.71
35-39	2.90	2.77	4.83
40-44	2.50	3.55	5.26
45-49	2.51	3.29	5.93
No. of Cases			
15-19	229	89	88
20-24	225	142	148
25-29	169	134	186
30-34	118	125	219
35-39	85	103	173
40-44	60	90	151
45-49	30	78	157

TABLE 8

Sao Paulo State, Brazil: Crude Birth Rates and General Fertility Rates, by Residence, Based on Information for Respondents and for All Women in the Household, 1978 Survey

	Total			Sao Paulo City			Other Urban			Rural		
	Respondents	All Women	Ratio	Respondents	All Women	Ratio	Respondents	All Women	Ratio	Respondents	All Women	Ratio
GFR	104	96	1.08	86	82	1.05	104	94	1.11	149	142	1.05
CBR	25.9	23.9	1.08	21.1	20.1	1.05	27.0	24.3	1.11	31.8	30.3	1.05
TFR	3090	2846	1.09	2620	2480	1.06	2990	2720	1.10	4590	4243	1.08

TABLE 9

Sao Paulo State, Brazil: Children Ever Born by Age, Observed (P_i) and Expected Given Birth Rates in the Previous Year (F_i) by Residence*, 1978 Survey

Age Group	Total			Sao Paulo City			Other Urban			Rural		
	P_i	F_i	P_i/F_i	P_i	F_i	P_i/F_i	P_i	F_i	P_i/F_i	P_i	F_i	P_i/F_i
15-19	.08	.05	1.58	.08	.02	3.80	.05	.05	1.10	.15	.13	1.24
20-24	.71	.54	1.32	.53	.41	1.30	.69	.51	1.35	1.21	.96	1.26
25-29	1.55	1.34	1.16	1.49	1.11	1.35	1.41	1.28	1.10	2.32	2.05	1.13
30-34	2.78	2.09	1.33	2.34	1.74	1.36	2.80	2.06	1.36	3.84	2.93	1.31
35-39	3.52	2.57	1.37	3.17	2.10	1.50	3.35	2.53	1.32	5.04	3.65	1.38
40-44	3.77	2.77	1.36	3.22	2.29	1.40	3.78	2.67	1.42	5.32	4.09	1.30
45-49	4.16	2.84	1.47	3.60	2.38	1.51	3.96	2.71	1.46	6.31	4.23	1.49

*Based on data for all women

TABLE 10

Sao Paulo State, Brazil: Mean Proportion of Children Born Alive Surviving by Age of Mother, Residence and Education, 1978 Survey*

Age	Total	Sao Paulo City	Other Urban	Rural	-Primary Complete	Primary Complete	+Primary Complete
15-19	.91	.90	.88	.95	.95	.88	.86
20-24	.90	.93	.87	.92	.89	.94	.87
25-29	.94	.94	.95	.91	.97	.97	.90
30-34	.92	.90	.93	.91	.96	.90	.91
35-39	.90	.89	.91	.89	.96	.92	.88
40-44	.90	.90	.89	.91	.92	.91	.89
45-49	.89	.88	.90	.86	.89	.90	.88

*Based on data for respondents

TABLE 11

Sao Paulo State, Brazil: Percent of Women in Marital Union by Age and Residence, 1978 Survey

Age	Total	Sao Paulo City	Other Urban	Rural
15-19	10.2	8.9	9.1	17.2
20-24	50.3	42.3	51.2	65.4
25-29	72.1	72.5	68.7	85.6
30-34	82.2	73.3	82.0	90.2
35-39	86.4	86.6	84.2	94.8
40-44	82.4	84.6	78.9	90.9
45-49	82.0	85.7	79.8	92.3

TABLE 12

Percent of Currently Married Women Aged 15-44* Currently Using Contraception by Residence and Method, Sao Paulo State, Brazil, 1978

Method	Total State	Sao Paulo Municipio	Other Urban Areas	Rural Areas
Currently Using:	63.9	63.4	66.0	58.6
Orals	27.8	30.0	26.7	27.0
Sterilization	16.1	13.9	18.0	14.1
Withdrawal	7.3	5.9	7.3	10.5
Condom	6.6	6.9	7.3	3.3
Rhythm	5.2	4.5	6.2	3.2
Other Methods**	0.9	2.2	0.5	0.5
Not Currently Using:	36.1	36.6	34.0	41.4
TOTAL***	100.0	100.0	100.0	100.0
Number of Cases (Unweighted)	1880	546	600	734

*In this and subsequent tables, those women in stable consensual unions are included as currently married.

**Includes IUD, diaphragm, foam, jelly, and vaginal tablets.

***In this and subsequent tables, the subtotals may not add to 100.0 due to rounding

TABLE 13

Sao Paulo State, Brazil: Percent of Women 15-44 with at Least One Abortion, Spontaneous or Induced, by Marital Status and Residence, 1978 Survey

Percent	Sao Paulo State	Sao Paulo City	Other Urban	Rural
Currently in Union	21.9	24.3	20.1	22.4
Sep/Wid/Div	24.3	20.6	24.1	35.0
Single	0.8	0.4	1.1	0.6
All Marital Statuses	14.7	14.8	14.1	16.8
Percent Reported as Induced	13.3	16.0	13.5	7.0
No. of Cases (Unweighted)				
Currently in Union	1880	546	600	734
Sep/Wid/Div	84	26	40	18
Single	570	225	190	155
All Marital Statuses	2534	797	830	907

TABLE 14

Sao Paulo State, Brazil: Percent of Currently Married* Women 15-44 with at Least One Abortion, Spontaneous or Induced, by Education and Residence, 1978 Survey

Education	Sao Paulo State	Sao Paulo City	Other Urban	Rural Areas
Less than Primary	*27.5*	*31.5*	*25.4*	*25.0*
Primary Graduate	*24.2*	*27.2*	*23.1*	*20.0*
Greater than Primary	*13.7*	*17.1*	*12.8*	*8.2*
TOTAL	*21.9*	*24.3*	*20.1*	*22.4*
No. of Cases (Unweighted)				
Less than Primary	822	139	183	500
Primary Graduate	548	187	188	173
Greater than Primary	510	220	229	61
TOTAL	1880	546	600	734

TABLE 15

Sao Paulo State, Brazil: Proportion of Women with at Least One Abortion (Spontaneous or Induced) and Mean Number of Abortions, by Age and Residence, 1978 Survey

A. Proportion with at Least One	Total	Sao Paulo City	Other Urban	Rural
15-19	.01	.01	.01	.01
20-24	.10	.07	.12	.09
25-29	.16	.20	.13	.18
30-34	.22	.25	.20	.23
35-39	.25	.26	.23	.29
40-44	.25	.25	.22	.38
45-49	.29	.24	.29	.41
15-49*	.16	.17	.15	.20
B. Mean No. of Abortions Per Woman				
15-19	.01	.01	.01	.01
20-24	.11	.07	.13	.13
25-29	.26	.29	.25	.23
30-34	.33	.34	.32	.40
35-39	.51	.50	.50	.57
40-44	.41	.41	.35	.66
45-49	.61	.58	.58	.77

*Standardized for age using total distribution

TABLE 16

Sao Paulo State, Brazil: Percent with at Least One Abortion (Spontaneous or Induced) by Age and Education, Ever Married Women, 1978 Survey

Age Group	All Ever Married	Education: Primary Complete and Greater	Education: Less than Primary Complete
15-19	7.4	6.8	8.8
20-24	17.4	18.4	14.2
25-29	18.5	17.4	21.4
30-34	24.3	21.7	27.7
35-39	28.8	24.0	30.9
40-44	25.6	19.4	34.2
45-49	30.3	25.5	34.6
Number of Cases			
15-19	98	56	42
20-24	371	244	127
25-29	433	255	178
30-34	431	223	208
35-39	340	175	165
40-44	291	144	147
45-49	255	103	152

TABLE 17

Sao Paulo State, Brazil: Mean Number of Reported Pregnancies and Reported Abortions as a Percent of Pregnancies, 1978 Survey

Age Group	Total Reported Pregnancies			Reported Abortions** as a Percent of Pregnancies			5-Year Abortion/ Birth Ratio***
	Total	Urban*	Rural	Total	Urban	Rural	
1 49	2.56	2.40	3.59	10.9	11.2	9.4	31
15-19	.16	.15	.23	7.6	8.6	3.3	24
20-24	.96	.86	1.50	11.5	12.3	8.7	30
25-29	2.06	1.95	2.86	12.8	13.6	8.2	29
30-34	3.28	3.06	4.68	10.1	10.5	8.6	25
35-39	4.34	4.06	5.96	11.8	12.4	9.5	36
40-44	4.56	4.31	6.34	8.9	8.6	10.4	55
45-49	5.29	4.95	7.34	11.5	11.7	10.4	--

*Includes Sao Paulo City and other urban areas

**Spontaneous and Induced Abortions

***Ratio of women with at least one abortion in the last 5 years to women with at least one live birth in the last 5 years x 100

TABLE 18

Sao Paulo State, Brazil: Percent Currently Breastfeeding by Date of Most Recent Birth and Residence, All Women Having Births Since January 1, 1977, 1978 Survey

Date of Last Live Birth--Year	Quarter	Total	Sao Paulo City	Other Urban	Rural
1977	1	6.0	0.0	9.1	12.5
	2	13.0	4.5	12.9	25.0
	3	27.6	18.7	22.2	43.9
	4	11.7	9.5	8.3	25.6
1978	1	26.5	12.1	30.4	53.1
	2	44.1	35.7	41.2	64.0
Percent of All Women 15-44 Currently Breastfeeding		4.0	2.4	3.3	10.3
No. of Cases					
1977	1	75	24	20	31
	2	80	18	28	34
	3	90	16	25	49
	4	88	20	29	39
1978	1	77	29	19	29
	2	100	24	34	42

Fig 1 PERCENTAGE OF CURRENT PREGNANCIES AND BIRTHS IN PREVIOUS YEAR, BY AGE

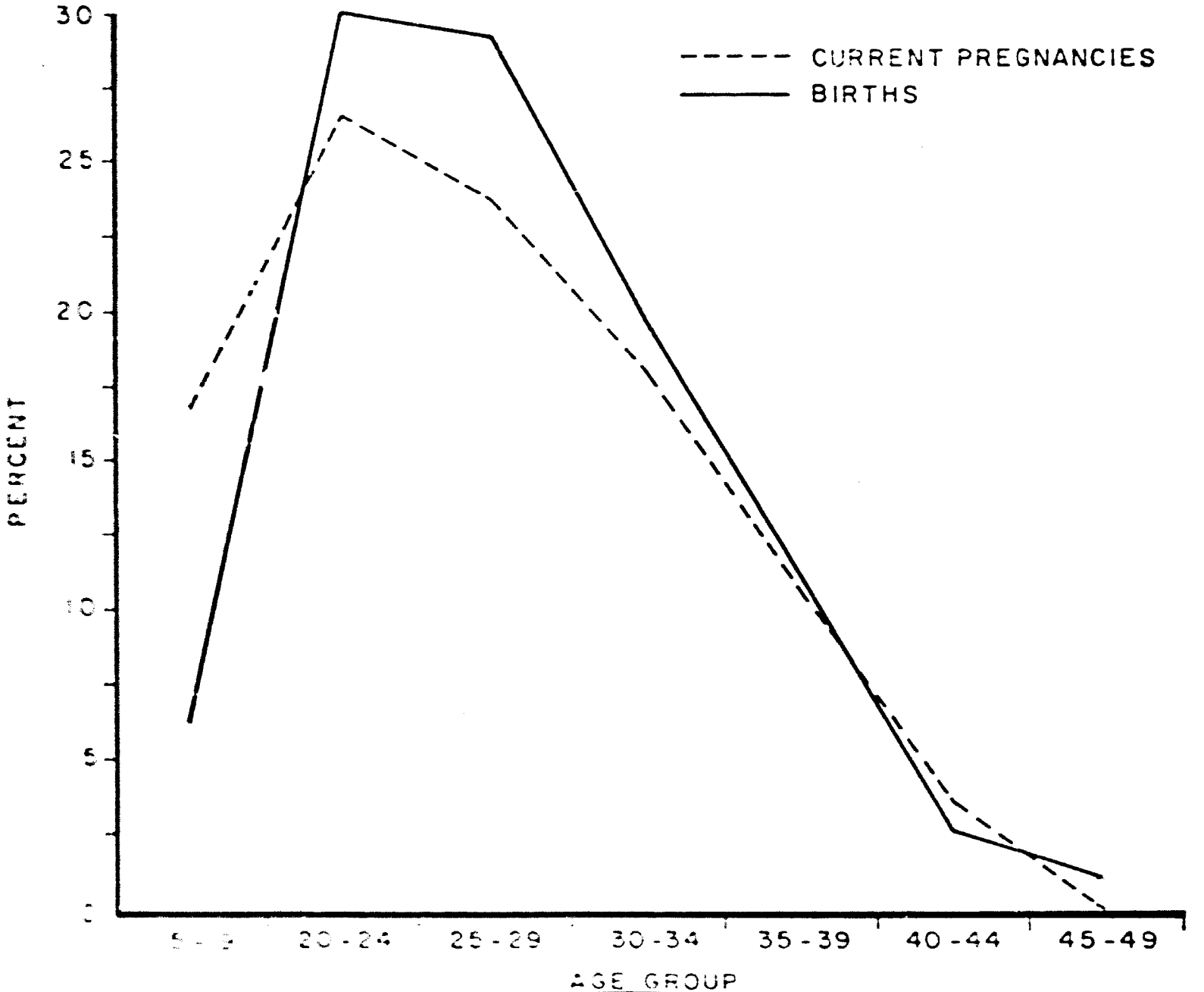

Fig. 2 MEAN NUMBER OF CHILDREN BORN ALIVE BY AGE GROUP, SAO PAULO STATE, BRAZIL, 1978

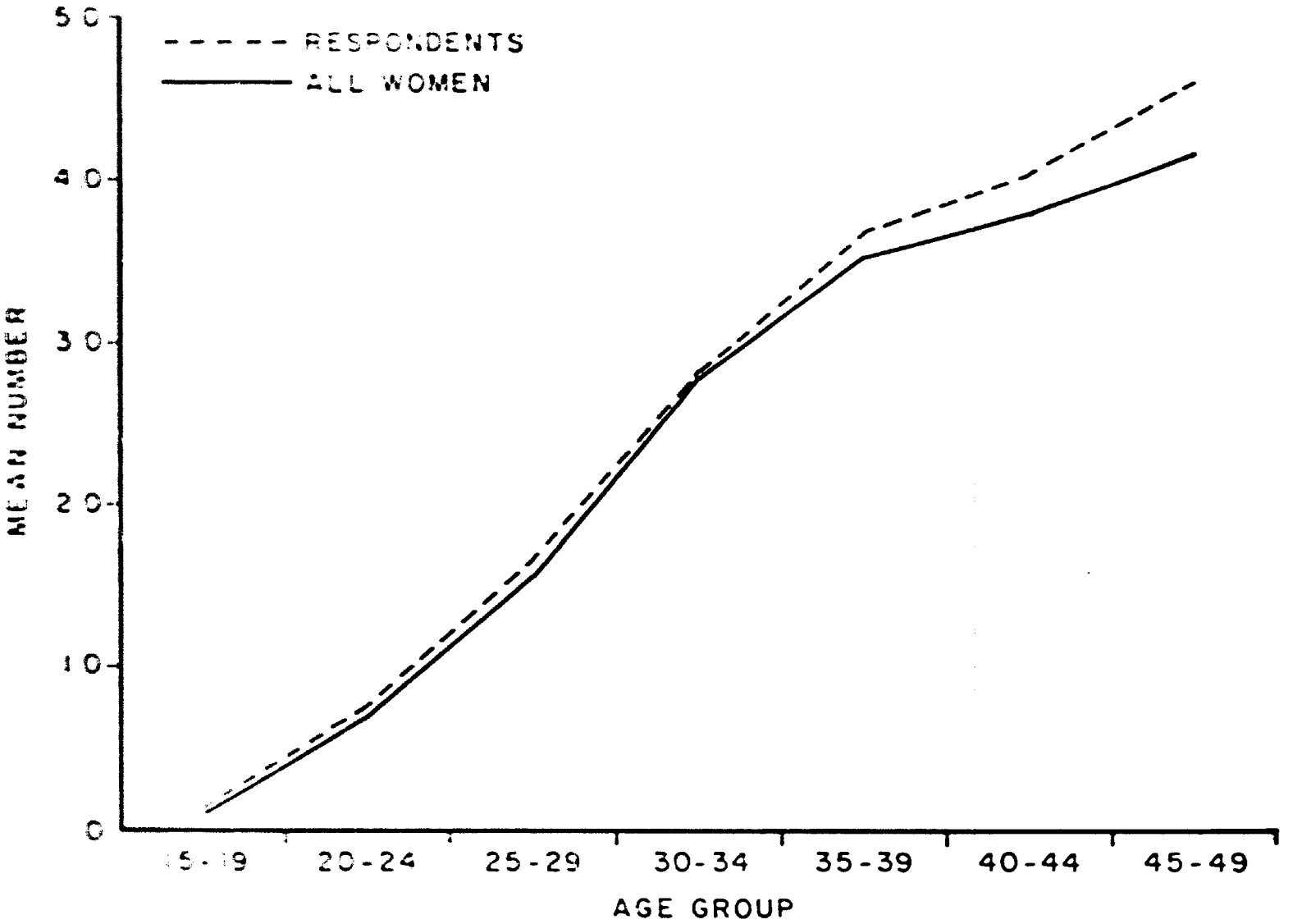

Fig 3 AGE-SPECIFIC FERTILITY RATES SAO PAULO STATE, BRAZIL, 1978

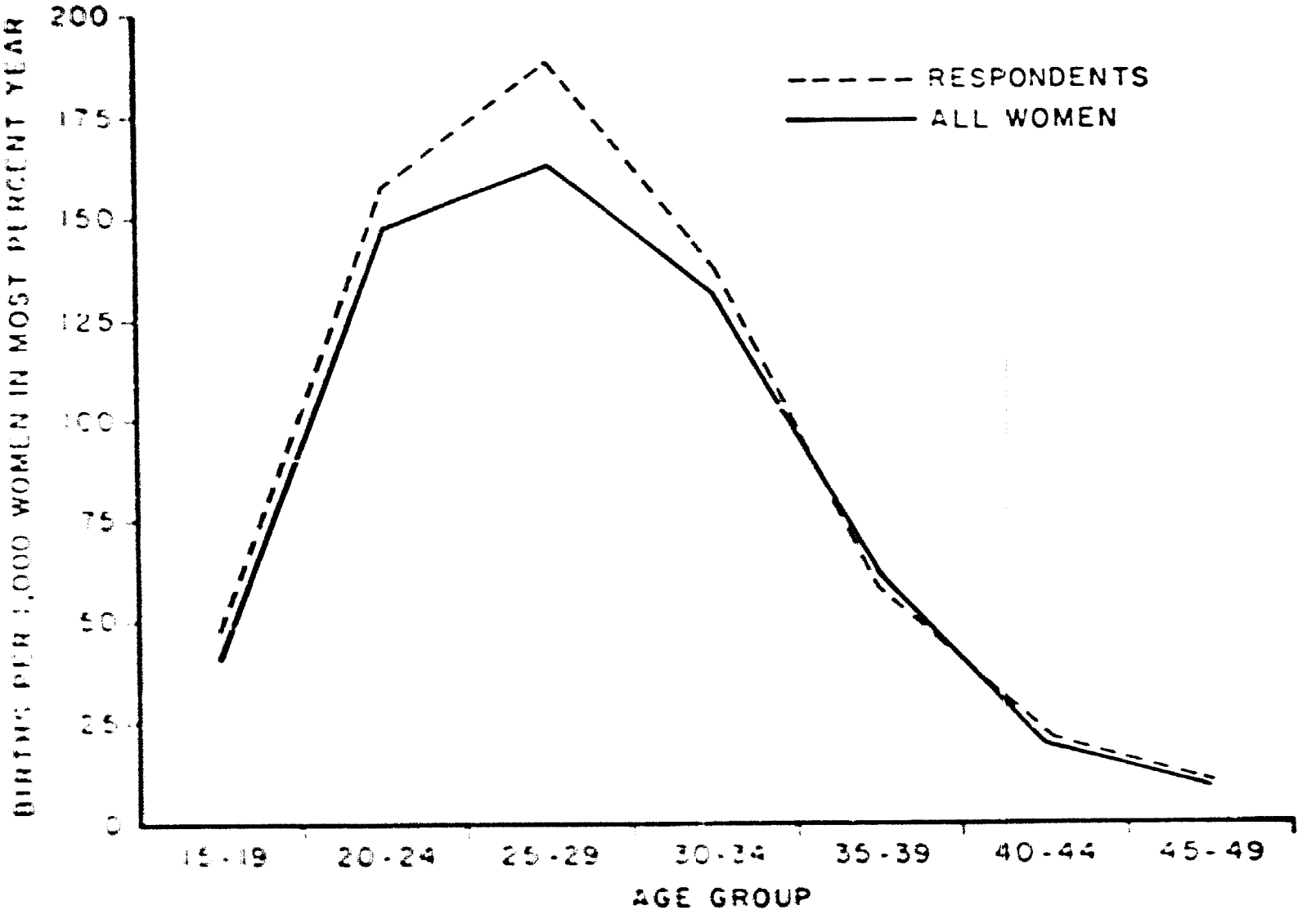
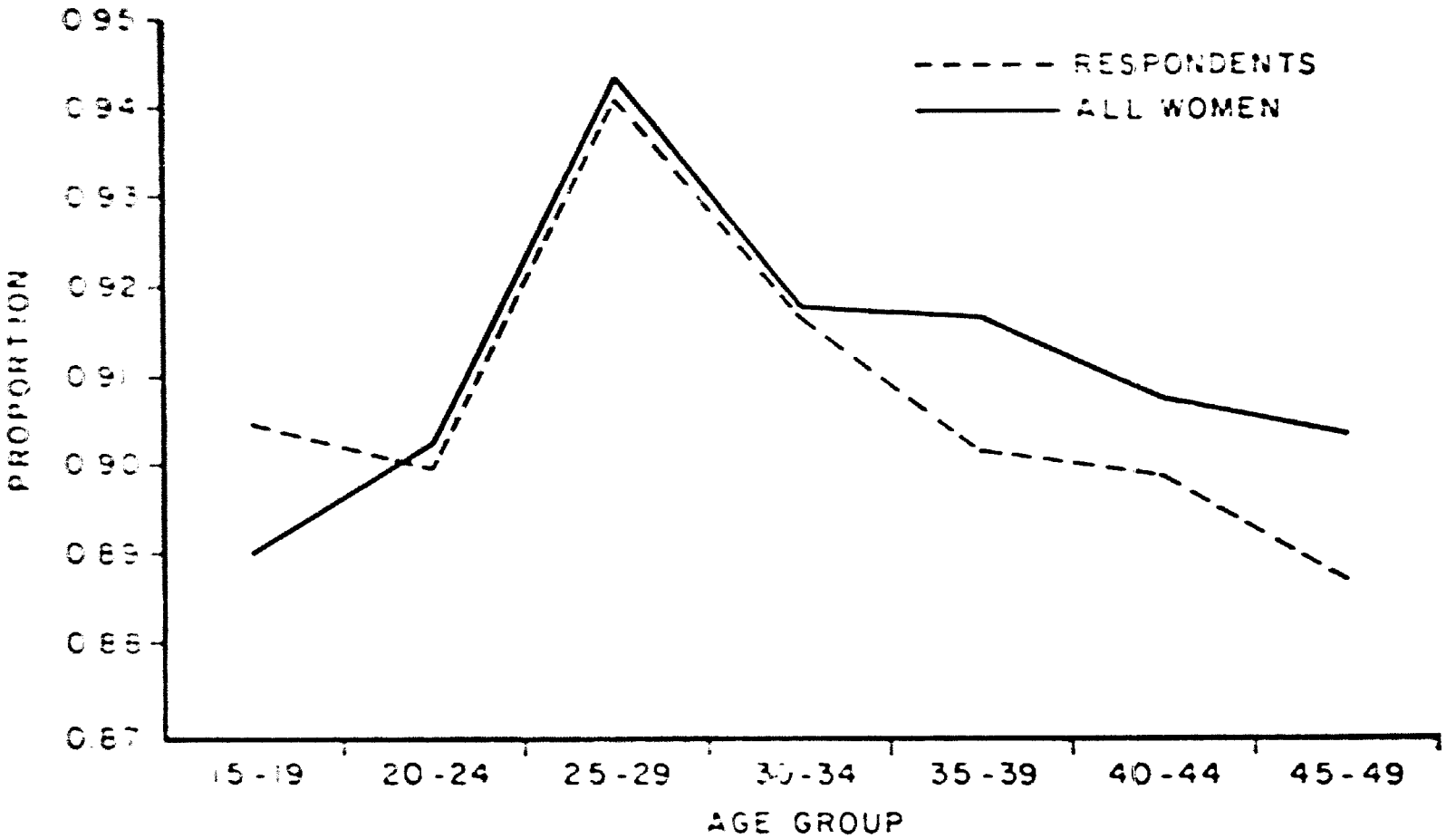
Fig 4 PROPORTION OF CHILDREN BORN ALIVE AND SURVIVING, BY AGE OF MOTHER, SAO PAULO STATE, BRAZIL, 1978