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Influence of Literacy and Education on the Quality of Age Returns*

Introduction

IN underdeveloped countries such as India, where a majority of the population is illiterate, the age returns from censuses and surveys suffer from mis-statement on account of ignorance of age, negligence in reckoning the correct age, deliberate mis-statement, and mis-understanding of the question. It is generally believed that the accuracy of age returns will improve over time with the spread of literacy and education among the masses. Implicit in this belief is a hypothesis that the age returns are more accurate when the informant is literate and educated than when he is illiterate. This paper tests the hypothesis with the help of the data available from a field survey conducted by the Demography Section of the Department of Economics, University of Bombay.

Data

A Demographic Survey of Selected Villages of Kutch and Ratnagiri Districts in Gujarat and Maharashtra States respectively, was conducted in 1966 with the main objective of studying the selectivity and other aspects of migration to and from rural areas. The survey covered 26 selected villages in the two districts together, and collected socio-economic and demographic information for 2,131 households with 10,260 members. The name of the infor-

{Thanks are due to Miss V.C. Mariwalla, Miss Shailaja Murthy, and Mr. D.A. Salunkhe for assistance in compiling the necessary data from individual household schedules and estimating the various indices presented here.

mant was also recorded for a possible study of biases in reporting. According to these data, the head of the households was the informant in 1,425 or two-thirds of the households, and a member other than the head for 469 or 22 per cent of the households. For the remaining 237 or 11 per cent of the households, the informant was not recorded or, in a few cases, the informant was not a member of the household and therefore his literacy status could not be ascertained from the schedules.

The literacy and educational status of the informants was as follows : (a) illiterate : 1,264 (59%) ; *(b)* literate without education : 46 (2%) ; (c) had attended primary school (i.e. standards 1 to 7) : 512 (24%) ; *(d)* had attended secondary school (i.e. standards 8 to 11) : 45(2%); *(e)* S. S. C. and above: 27 (1%) ; (/) "not known" : 237 (11%). In view of the small number of informants with primary and higher educational attainment, all the households excluding those with "informant not known", were divided into two broad groups : (a) 1,264 households, with 5,990 members, where informant was illiterate, and *(b)* 630 households, with 3,308 members, where informant was literate. From the reported ages of the members of the households, single year age distributions have been compiled separately for 5,990 and 3,308 members whose ages had been reported by illiterate and literate informants respectively.

To evaluate the relationship between literacy and education of the population on the one hand and the quality of age returns on the other, standard indices of the accuracy of age reporting, such as Whipple's Index, Bachi's Index, Myer's Index, and Age Ratio Score, have been calculated for the two groups of members.

Results

Figure 1 shows the single-year age pyramids for ages 10 to 69 of the two groups of members whose ages were reported by illiterate and literate informants. Age returns in the 0-9 range usually suffer from not only mis-statement but also omission, and those ia the 70 and over group, from smallness of numbers. Hence, single-year age distributions in the 0-9 and 70 plus groups are not shown in the age pyramid. In fact, some of the indices calculated .here are also based on the distributions in the 10 to 69 age range.

Our survey population was exposed to substantial out-migration but to the

best of our knowledge, it has been more or less a continuous process. Also, there is little reason to expect major year-to-year fluctuations in the birth rate or the number of births. Therefore, the saw-tooth variations *in* the

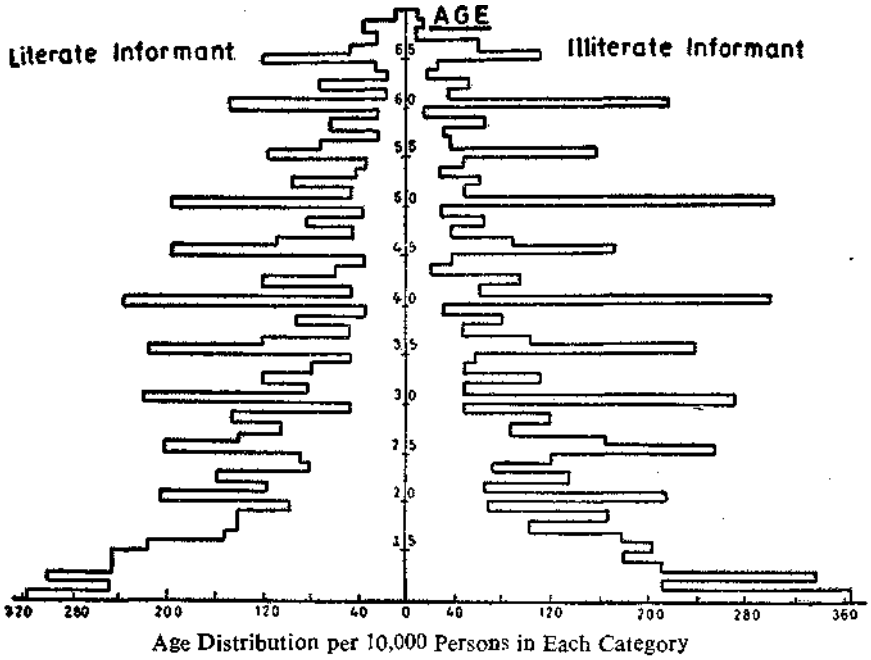

Fig. 1—Single-Year age Pyramid of Persons with age as reported by Literate and Illiterate Informants

single-year age pyramid are almost entirely due to the well-known digit preference, because of which ages of an unusually large proportion of persons are reported in multiples of 10 and 5, while other ages, specially those ending with digits 1 and 9, close neighbours of digit 0, are systematically avoided. Since exact ages are not known or remembered, approximations are made in units of five years.

Figure 1 indicates that while the age reporting by both illiterate and literate informants suffered from digit preference, it was less marked among persons whose ages were reported by literate informants. This impression is confirmed by the indices of age accuracy, presented in Table 1.

The logic of these indices, methods of their estimation, and the range of their variation are described in detail in the United Nations Manual on the

Methods of Appraisal of Quality of Basic Data for Population Estimates published in 1955. While different indices show different values, for each of them a higher value connotes larger inaccuracy in age reporting. These indices support the hypothesis that the age-reporting by literate informants is comparatively less inaccurate than by illiterate informants. Interestingly, the relative difference in the values of different indices for the two groups of persons is virtually the same.

TABLE 1—INDICES OF AGE ACCURACY FOR PERSONS WHOSE AGES WERE REPORTED BY LITERATE AND ILLITERATE INFORMANTS IN THE SURVEY AND FOR THE POPULATION ENUMERATED BY THE 1961 CENSUS OF INDIA

Index of Age Accuracy	*Survey*		*All-India 1961 Census*
	Literate Informant	*Illiterate Informant*	
Whipple's Index	203	245	285
Bachi's Index	24.4	30.0	39.4
Myer's Index	39.0	49.2	60.2
Age Ratio Score	81.3	99.7	157.0

The implication is that, with the progress of literacy and education, the quality of age returns is expected to improve. Surprisingly, however, the quality of age returns in the successive Indian censuses since 1951 has deteriorated in spite of rapid progress in literacy and education, as evident from Table 2.

TABLE 2—LITERACY RATES AMONG MALES AND FEMALES AGED 10 AND OVER AND INDICES OF ACCURACY OF AGE RETURNS IN SUCCESSIVE CENSUSES : INDIA ; 1951, 1961 AND 1971

Year	*Per cent Literate Among Persons Aged 10 and Over*		*Indices of Age Accuracy*			
			Myer's Index®		*Whipple's Index*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
1951	29.6	9.3	57.4	61.4	247	258
196/	43.6	15.5	70.7	75.1	282	294
1971	49.2	22.1	78.1	80.3	302	308

@Based on Single-year age returns in the age range 20-59, following S. P. Jain's estimation for 1951 and 1961 in *Census of India, Paper No. 2 of 1963,1961 Census, Age Tables,* p. 7.

Discussion

Why should literate and educated persons report their own ages and of their family members more accurately than the illiterate persons ? First, literacy and education enable a person to reckon his age in terms of numbers. Even when he is unable to report his exact age, he can still report his age more accurately by tracing the chronology of important events in his life. Seeond, a literate and educated person faces the necessity of remembering his age. The best example is the recording of age when he enters school and then at successive intervals of time as he moves from primary to secondary and then to tertiary education. Most of the literates and educated seek wage employment in the organised sector where also age is recorded. Third, a significant proportion of the literate and educated belong to higher castes among which it is generally customary to maintain a horoscope for each member of the family, and if these horoscopes can be traced during surveys, it may be possible to record exact age. In developed countries, accurate reporting of age is made possible not only by the birth certificates but also the annual celebration of birthdays, which is relatively rare in rural India although it is slowly spreading among the urban elite.

Conclusion

Our data pertain to a small sample but they confirm the hypothesis that age reporting is comparatively more accurate when the informant is literate than when he is illiterate. It seems reasonable to expect, therefore, that with the increasing spread of literacy and education, the accuracy of age-reporting will improve. It is surprising, however, that the quality of age returns in the successive Indian censuses since 1951 has deteriorated in spite of rapid growth of literacy and education. This unexpected trend needs further investigation.