

ESTIMATING JEWISH POPULATION FROM JEWISH BIRTHS

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JEWISH federations need reasonably reliable information on the size and geographic distribution of the Jewish population within the areas they serve. They need this information both in program-planning and as an aid in fund-raising.

The most accurate (but also the most costly) method of estimating the Jewish population is through a properly drawn probability sample of the population which is large enough and distributed in such a way that the sampling error is kept down to a tolerable minimum. Such a sample can yield information not only on the Jewish population size, but also on various population attributes such as socio-economic characteristics and data pertaining to the nature and forms of Jewish identification.

The fact that a sample survey of the population is the most accurate method does not mean, however, that it is necessarily always the best method to use in practice. It may be better to use indirect and less costly methods if they provide data of sufficient reliability for practical decision-making purposes. It may be wiser to employ scarce research talent and funds for research into agency programs than to place primary emphasis on broad population research that may be interesting per se but that often does not lead to any decisions.

The principal indirect methods that

have been used in estimating Jewish population are the death-rate method, the "Yom Kippur method," and the distinctive Jewish name method. In each of these, a certain numerator (deaths, children absent from school on Yom Kippur, or possessors of distinctive Jewish names) is divided by an assumed denominator that represents, hopefully, the ratio of the numerator to the Jewish population.

In all of these methods, the numerator is subject to two types of errors:

Type 1 errors, by which persons are included in the numerator who do not belong there (non-Jewish decedents buried by Jewish undertakers, non-Jewish children in Jewish areas who take a holiday on Yom Kippur because their Jewish friends have taken the day off, or non-Jews who have supposedly distinctive Jewish names), and

Type 2 errors, by which persons are excluded from the numerator who ought to be included (Jewish decedents buried by non-Jewish undertakers, children in Jewish families who attend school on Yom Kippur, or Jews with distinctive Jewish names who change the spelling of their names in such a way that they are not picked up in the listing).

In addition, all these indirect methods are surrounded with considerable

uncertainty in choosing the proper denominator by which the numerator is to be divided. Sizeable errors may be made in selecting the denominator. Jewish death rates may not be the same as in the general white population; the ratio of Jewish school children to the total Jewish population may not be the same as the similar ratio among all whites; and the ratio of distinctive Jewish names to all Jewish names may not be the same as in a list of Jewish Federation contributors or some other known list of Jews.

Obtaining Information on Jewish Births

The Jewish population of Cook County, Illinois, as of 1963, has been estimated by using a new indirect method—Jewish births, divided by assumed Jewish birth rates. As for the numerator in this formula, it is believed that births are subject to an extremely small error of the kinds described above. The probability that a mother will tell a hospital that she is Jewish when in fact she is not may be regarded as a zero probability—although the possibility of clerical error in entering religious data in hospital records can never be completely excluded. Similarly, a type 2 error in births may also be regarded as having approximately zero probability of occurrence. There may be mothers born as Jews who deny their Jewishness to a hospital registrar, but if they no longer identify themselves as Jews, they are correctly excluded from the Jewish population count.

Estimated Jewish Births in Cook County

It is estimated that 3,322 children were born in 1963 to Jewish mothers who resided in Cook County. These births represent 3.82 percent of all white births that occurred to Cook County residents

in 1963. This percent, in turn, is derived from a numerator of 639 Jewish births and a denominator of 16,720 white births in a 20 percent sample of all white births to Cook County residents in 1963.

The sample of births was drawn by the Illinois Department of Public Health (at the request of the Jewish Federation) and sorted out by hospital of birth. In this connection, it is worthy of note that the percent of white births occurring in hospitals in 1963 was 99.1 percent in the whole State of Illinois, 97.8 percent in the City of Chicago, and 99.6 percent downstate. In view of these data one may assume that practically all Jewish births occur in hospitals.

Each of the 66 hospitals in Illinois that had 50 or more sample births was asked to review its sample list and return it to the Jewish Federation with coded information on the religious preference of each baby's mother.

The sample list showed for each baby: its name, date of birth, birth certificate number, and place of residence (in coded form). The hospital was asked to circle for each baby one of the following letters that was printed on the sample list at the federation's request:

C	—	Catholic
P	—	Protestant
J	—	Jewish
O	—	Other
N	—	No stated preference
U	—	Unknown

Each hospital was offered a payment of 10¢ for each completed line. Of the 66 hospitals that were contacted, 56 responded by providing the requested information. The other 10 hospitals were either too short-staffed to conduct the necessary record search or refused to do so on the grounds that release of the requested information would violate confidentiality.

The first task in considering the reported sample data was to account for the 10 hospitals that did not provide the requested information and an additional 45 hospitals that were not asked to supply information because they each had fewer than 50 sample births. These two groups of hospitals had 2,860 sample births, and it was assumed that the Jewish proportion of births in this segment of the sample was 0.421 percent (the same as the percent that occurred in the 46 reporting hospitals that each had fewer than ten Jewish births in its sample listing).

A serious error would have occurred if it had been assumed that the Jewish percent of births in the nonreporting hospitals had been the same as the Jewish percent of births in the totality of reporting hospitals. Jewish births tend to be concentrated in a small number of hospitals—those that are located in areas of heavy Jewish population and those that are operated under Jewish auspices. Hospitals under Jewish auspices have large complements of Jewish doctors on their staff, even though they may no longer be located in areas of Jewish population density.

In the Cook County sample, ten hospitals that each had ten or more Jewish births in the sample accounted for more than 92.5 percent of the total reported Jewish births.

Jewish Birth Rate

There is a wealth of evidence indicating that the Jewish birth rate is lower than the rate for the general white population. This inference can be clearly drawn from the 1957 Census sample survey of the religious affiliation of individuals and from a variety of local Jewish population studies. In all of these, the ratio of young persons to the total population is distinctly lower among Jews than among the white population in general.

For local estimating purposes, however, it would be hazardous to assume that the Jewish birth rate, relative to the general white birth rate, is the same as in the nation as a whole or the same as in other cities that happen to have conducted studies.

Instead, an estimate of the Jewish birth rate in Cook County was computed by first considering the 1960 population under one year of age in the 13 census tracts in Chicago that were known to have a high Jewish population. In each of these tracts 20 percent or more of the total population were persons of Russian stock, that is, they were either born in Russia or had one or both parents born in Russia. In 1960, the ratio of total white population to those under one year of age was 72.4 in these selected tracts, 1.56 times as great as the comparable ratio of 46.4 in the white population of Cook County as a whole. For 1963, the Jewish population/birth ratio was estimated as 1.56 times the general white population/birth ratio of 49.2, or 76.8. (The reciprocal of this ratio is .013 or a Jewish birth rate of 13 per thousand, 64 percent as great as the general white birth rate). Thus, the total Jewish population of Cook County as of 1963 was estimated as 3,322 births times the ratio of 76.8+, or 255,257.

Distribution of Estimated Jewish Population by Area

Obviously, the Jewish birth rate is not the same in all areas of Cook County. It was assumed that variations in Jewish birth rates were positively correlated with variations in total white birth rates. Thus, as a first step in estimating the distribution of the total County Jewish population between Chicago and the suburbs, the Jewish births in each area were multiplied by the estimated white population/birth ratios of 50.9+ for Chicago and 46.7+ for the suburbs

to yield first approximation estimates of 104,492 Jews in Chicago and 59,522 in the suburbs. The predetermined total of 255,257 Jews in the County was then distributed between Chicago and the suburbs in the proportions represented by the first approximation estimate.

This same kind of procedure was then followed separately for each community area within Chicago and for each suburb outside of Chicago that had 10 or more sample Jewish births in 1963.

The extent to which the resulting local area estimates correspond to the actual Jewish population cannot be determined except by comparison with estimates that might be made through some other survey and estimating procedure. This has not been done and is not being planned. Most Jewish community leaders who have seen the estimated data agree (on the basis of their experience and impressions) that the estimates appear reasonable.

The following represent some examples of how the data may be used:

—They may be used by Jewish community centers in projecting plans for new Centers in areas of heavy Jewish population that are insufficiently served at present. (Data on the other side of the coin, excess Center capacity in relation to a dwindling Jewish population in their areas, are best obtained from actual data on Center utilization rather than from estimated data on the Jewish population in nearby neighborhoods).

—Similar use of the data may be made by the Jewish Family and Community Service in relation to the establishment of district offices.

—The area estimates may be useful in planning facilities for Jewish education. In this connection, the estimates of Jewish births, by area, can be accepted as a reasonably reliable predictor of demands on Jewish educational facilities, some years hence, provided that one also has knowledge of the proportion of Jewish children in various age groups who are likely to participate in the various forms of Jewish education that are offered.

—The data may be helpful in designing sample surveys in particular areas.

On the other hand, Jewish institutions (like hospitals and Homes for the aged, for example) that have large capital investments and that do not depend on the immediate local neighborhood for their clientele are not likely to be affected in their planning for the future by estimated data on the distribution of the Jewish population by community area. Such institutions will continue to remain where they are even though there are no longer any Jews in the immediately neighboring area.

The specific local area estimates are not, of course, of interest to the general reader outside the Chicago area. However, the nature of Jewish population concentration within the Chicago area may be of some general interest. Sixty percent of the estimated Jewish population is concentrated in five community areas of Chicago plus three suburbs, in each of which it is estimated that at least 25 percent of the total population is Jewish. In these eight areas taken together, it is estimated that the Jewish population represents 51.6 percent of the total population. In one community area of Chicago (West Ridge) and in one of the suburbs (Skokie), around 70 percent of the total population was estimated to be Jewish.

Implications of Birth Data For Future Jewish Population

If the estimate of 3,322 Jewish births in Cook County in 1963 is correct, and if this number of births occurred each year, this would presage a stationary Jewish population of 235,000 in the County. This is the population size that would be indicated by the United States Life Tables for 1963, which indicate that 100,000 white births a year would support a stationary population of 70,078,161.

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The concept of a stationary population is one in which the number of persons in any given age group would never change because, when one individual left an age group by dying or by growing older, his place would immediately be taken by someone entering from the next lower age group. Of course, population changes resulting from migration are not taken into account in this concept.

If the Jewish birth rate in Cook County is the same as in the United States as a whole, the birth data would suggest an eventual stationary Jewish population in the United States of 5,211,000 (22.174 times as great as the eventual stationary population for Cook County; this ratio represents the total Jewish population of the United States divided by the estimated Jewish population of Cook County).

Supplementary Data on Jewish Births

Additional information on the sample Jewish births was obtained through an analysis of a duplicate set of punched cards that were supplied by the Illinois Department of Public Health. Some of the items that were obtained from these data include the facts:

- That 91.6 percent of the Jewish mothers were born in the United States, including 71.3 percent born in Illinois and 20.3 percent born elsewhere.
- That 1.1 percent of the births were recorded as illegitimate, compared with 2.8 percent for all white births in Illinois in 1963.
- That the median age of Jewish mothers was 25.2 years, slightly younger than the median age of 25.7 for all white mothers in Illinois. Jewish childbearing women were much more heavily concentrated at age 25-34 than other white mothers. At the

youngest age (under 20) only 3.5 percent of the sample Jewish births occurred to mothers this young, compared with 11.0 percent of all Illinois white births.

- That the average Jewish birth order was 2.19, which was substantially smaller than the minimum estimate of 2.82 for all Illinois white births. Only 11.4 percent of the Jewish births were fourth or higher order births, compared with 28.8 percent for all Illinois white births.

Implications for Jewish Population Estimating in Other Cities

It is believed that estimating Jewish population from Jewish births is a reasonably reliable procedure, provided:

- that the cooperation of the public health department can be obtained in selecting a large sample of white births sorted out by hospital
- that the cooperation of the hospitals can be obtained in identifying those babies in the sample who have Jewish mothers
- that there are sizeable areas in the city with a heavy Jewish population from which the Jewish birth rate and the relation of the Jewish birth rate to the general white birth rate can be approximated.

In any event, there is no doubt about the economy and expeditiousness of this procedure. The total out-of-pocket expense to the Jewish Federation of Metropolitan Chicago for the whole project described here was only \$1,147.50, consisting of a payment of 10¢ for each name on the sample list that the hospitals had to look up in order to determine the religious preference of the baby's mother.

No payment at all was made to Jewish federation hospitals, to hospitals where federation staff searched the hospital records, or to some hospitals which chose to search their records without charge.