2022–2023 Washtenaw County Area Jewish Community Study

Methodological Overview

Jewish Federation of Greater Ann Arbor

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THE 2022-23 WASHTENAW COUNTY AREA JEWISH COMMUNITY STUDY: METHODOLOGICAL OVERVIEW

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OVERVIEW OF STUDY METHODOLOGY

Definitions used in this overview:

- **SAMPLING FRAME:** A sampling frame is the starting point. It is the full list of all households that could receive a survey invitation.
- **SAMPLE:** The sample is the subset of households from the frame that received an invitation to take the survey.
- **ADDRESS-BASED SAMPLE (ABS):** A sample that is drawn from a set of addresses in the geographic area of interest in the study.
- **RESPONDENTS:** Respondents are the households who were eligible to take the survey and completed it (eligible because someone in the household was Jewish and lived in the geographic area).
- **WEIGHTING:** The process of adjusting the information provided by the respondents so that they represent the full sampling frame.

Sampling Frame

The sampling frame is the full list that is used for identifying potential survey respondents. For this survey, the sampling frame was the list of all mailing addresses in Washtenaw County (plus selected ZIP codes outside the county) as provided by the USPS. Note that this list included businesses and other non-household units. In total, there were 336,954 addresses included.

At the same time, Jewish organization lists were collected and deduplicated. In total, 5,670 local households with mailing addresses were identified. This is not a separate frame, but is a subset of the full frame, because all of these addresses appear in the sampling frame.

Sample

Starting with a frame allows us to draw an Address-Based Sample (ABS), a sample of addresses drawn from the frame of all addresses. This approach allows us to represent all households in the geographic area. To get a sufficient number of eligible responses, we need to make sure that the sample includes enough households that are likely to be Jewish. However, to represent the full area, we need to ensure that every household has the possibility of being randomly selected to take the survey. This sample design balanced these competing needs within the cost constraints of the study.

The design drew an ABS sample by classifying all of the addresses on the frame into groups, or strata, based on our estimate of how likely they were to be Jewish. We then drew a sample from each one of these strata to invite to take the survey.

We created the groups using these three methods:

1. Organization list: All of the households in organization lists were treated as high-likelihood Jewish. This is the organization list sample.

2. Jewish density: Looking at the distribution of households on organization lists, we determined which census block groups (geographies smaller than ZIP codes) had the highest ratio of Jewish

households, medium ratio, and lowest ratio. These were called high, low, medium density block groups. Addresses were classified into high, medium, or low based on the block group they were located in. The groups are the low, medium, and high density ABS sample.

3. Predictive model: A random sample of households drawn from the full frame were run through a statistical model that assessed the likelihood that they are Jewish. This statistical model was built using known datasets of Jews and non-Jews using machine learning. Among 63,858 households selected from the full frame to run through the model, 2,368 were predicted as likely Jewish. See below for an explanation of the predictive model. This set of households is the predictive model sample, which was also divided by geography into high/medium/low density.

By using the steps above, we identified the groups in the table below. Column 2 shows the size of each group. Column 3 shows the number of addresses drawn from each group to create the main survey sample. For those groups that are smaller in size and/or of high priority to understand, the entire group was drawn into the main survey sample. For larger groups, we selected a random sample of the frame for the main survey sample.

In total, the survey sample included 85,872 addresses.

NOTE: In addition to the 5,670 households that appeared in organization lists and were included in our main sample, there were another 984 households that appeared on the organization lists without a mailing address. Lacking the mailing address, we could not determine if they were local and could not incorporate them into the main sample. These email-only cases were kept separately in a supplemental sample. The main sample excludes these email-only households and the full sample includes them.

Name of group/stratum	Frame	Sample	Ineligible	Eligible responses	Response rate
Organization list sample	5,670	5,670	246	840	21.3%
Predictive model, High density	1,126	1,126	67	18	7.9%
Predictive model, Medium/low density	1,242	621			
High density ABS	20,674	10,417	675	25	1.0%
Medium/low density ABS	308,242	68,038			
TOTAL	336,954	85,872	988	883	2.8%
Supplemental email-only sample	984	984	23	72	9.8%
TOTAL FULL SAMPLE	337,938	86,856	1,011	955	1.4%

Respondents

In total, we received 883 eligible responses for the main sample and an even larger number of ineligible responses—those came from respondents who lived outside of the area or were not Jewish. As expected, a very large share of ABS responses were ineligible. Other categories of non-response (e.g., unreachable, bad addresses, incompletes) are listed in Table A3 in the Appendix.

Response rates shown in the table above are calculated using a technical formula that accounted for both ineligible and eligible responses. This is the norm for response reporting in professional survey research.[1] (Note that response rates are not calculated simply by dividing the number of responses by the sample size.)

Weighting

The survey weighting process using a mathematical process that adjusts the survey responses to stand in for the entire population of Jewish households in the study area. The first stage of weighting involved adjusting the responses so they were representative of the stratum from which they were drawn. The second stage of weighting adjusted the respondents to match the known characteristics of the local Jewish population, as established by the Cohen Center for Modern Jewish Studies' American Jewish Population Project and the community's administrative data.

Final weights account for the following factors:

- What % of the strata was sampled
- What % responded and was eligible
- The demographics of the respondents in each group (age, gender, race, level of education, geography)
- Administrative data (counts of synagogue member, Federation donor, PJ library household, students)

Predictive modeling to identify Jewish households

NORC has developed a groundbreaking method to identify households that have characteristics of interest for survey research. This method, known as predictive modelling, uses big data and machine learning to predict the likelihood that a given household has the characteristic of interest. NORC has used this technique in other projects to successfully target household members by age, income, race/ethnicity, insurance status, smoking status, whether there is a child in the household, country of origin, disability status, language status, and other metrics. They have also used predictive modelling in previous studies of US Jewish communities to identify households that are likely to include a Jewish person.

Predictive modelling works by utilizing a very large "training dataset" of households that have provided information about themselves, including whether anyone in the household is Jewish. NORC supplements this dataset with a set of 1,200 "Big Data" metrics that are available from consumer research, voter registration, census, and other governmental data. They utilize machine learning algorithms to learn which of these variables have effective prediction power in identifying Jewish households. A wide range of predictors have surfaced in these data, including patterns of international travel, educational attainment, geography, first and last name patterns, religion flags provided by consumer vendors, charitable giving, specific interest in hobbies, financial patterns, geography, and voter participation. Because these algorithms look at all of these predictors together, it does not overly rely on any single predictors, such as having a Jewish last name. Consequently, predicted households span a very wide range of "Jewish types": for example, those with and without distinctive names, those with and without high education, those living in core geographies versus outlying areas.

For this study, NORC applied the predictive model to the ABS sample that had been selected for the survey. The result was a metric that predicted, for each household, how likely it was that someone in the household was Jewish. Households that were considered to be "likely Jewish"— exceeding a cutoff defined after running the model— were assigned to the predictive model stratum.

[1] AAPOR RR3, see https://aapor.org/standards-and-ethics/standard-definitions/