APPENDIX A: SURVEY METHODOLOGY

The Pew Research Center completed interviews with 3,475 Jewish respondents, including 2,786 Jews by religion and 689 Jews of no religion. Interviews were also conducted with an additional 1,716 respondents who were determined to be eligible for the survey but who were not categorized as Jews by religion or Jews of no religion. Interviews were conducted by telephone (landlines and cellphones) between Feb. 20 and June 13, 2013, by the research firm Abt SRBI. Interviews were conducted in English and Russian. After taking into account the complex sample design, the margin of error on the 3,475 completed interviews with Jews is +/- 3.0 percentage points at the 95% level of confidence. The margin of error for Jews by religion is +/- 3.4 percentage points, and the margin of error for Jews of no religion is +/- 6.2 percentage points. This appendix describes how the study was designed and executed.

Margins of Error

Group	Sample size	Plus or minus ___ percentage points
All U.S. Jews	3,475	3.0
Jews by religion	2,786	3.4
Jews of no religion	689	6.2
Men	1,677	4.1
Women	1,798	4.3
Ages 18-49	1,271	5.1
18-29	446	8.1
30-49	825	6.5
Ages 50+	2,189	3.3
50-64	1,044	4.8
65+	1,145	4.2
College graduate+	2,447	3.4
Post-grad degree	1,008	5.2
BA/BS	1,439	4.6
Some college	568	7.0
High school or less	445	8.3
Republican	592	6.5
Democrat	1,845	4.1
Independent	889	6.0
Married	2,125	3.6
Spouse Jewish	1,489	4.2
Spouse not Jewish	636	6.3
Not married	1,346	4.8
Orthodox	517	9.1
Ultra-Orthodox	326	12.9
Modern	154	12.4
Conservative	659	6.5
Reform	1,168	4.8
No denomination	908	5.9

The margins of error are reported at the 95% level of confidence and are calculated after taking into account the design effect based on the survey weights [$1+CV^2$]. The actual margin of error for many of the survey's questions will be smaller than indicated here when the bootstrap weights (described below) are used to calculate standard errors. The bootstrap weights were used to evaluate the statistical significance of all claims made in the body of the report.

These margins of error apply to estimates of the attitudes and beliefs of the groups indicated. These are not the margins of error for the estimates of the size of the Jewish population.

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Determining Eligibility for the Study

One of the first and most important decisions made in planning for this study of U.S. Jews was determining who would be eligible to participate in the survey. That is, who is Jewish?

There is no single, clear answer to this question. Of course, those whose religion is Judaism are widely considered Jewish. But being Jewish is not primarily or even necessarily a matter of religion. Many people consider themselves Jewish by virtue of their ancestry or ethnicity, even if they do not believe in or practice Judaism as a religion. And some previous studies have counted as Jews people who do *not* think of themselves as Jewish, if they were raised Jewish or had a Jewish parent.

Because there is no scholarly consensus on who exactly qualifies as Jewish, and no clear demarcation of where the line dividing Jews and non-Jews lies, this study takes a broad approach in determining eligibility. The full interview was offered to anyone who described themselves as Jewish or partially Jewish by religion, to anyone who identified themselves as Jewish or partially Jewish *aside* from religion, and to anyone who was raised Jewish or partially Jewish or had a Jewish parent – even if they do not think of themselves as Jewish.

The first question used to determine eligibility for the study inquired about respondents' religion, as follows:

ASK ALL:

RELIG What is your present religion, if any? Are you **[READ LIST; DO NOT READ MATERIAL IN PARENTHESES; IF RESPONDENT GIVES ANY INDICATION OF BEING A MESSIANIC JEW OR PART OF THE "JEWS FOR JESUS" MOVEMENT OR A "COMPLETED JEW" CODE AS 15 AND BE SURE TO RECORD THIS AS THEIR VERBATIM SPECIFIED RESPONSE]**?

INTERVIEWER: IF R VOLUNTEERS "nothing in particular, none, no religion, etc." **BEFORE REACHING END OF LIST, PROMPT WITH:** and would you say that's atheist, agnostic, or just nothing in particular?]

1 Protestant (Baptist, Methodist, Non-denominational, Lutheran, Presbyterian, Pentecostal, Episcopalian, Reformed, Church of Christ, Jehovah's Witness, etc.)
2 Roman Catholic (Catholic)
5 Jewish (Judaism)
6 Muslim (Islam)
7 Buddhist
8 Hindu
9 Atheist (do not believe in God)
10 Agnostic (not sure if there is a God)
11 Something else **(SPECIFY:_____)**
12 Or nothing in particular
13 **[VOL. - DO NOT READ]** Christian
15 **[VOL. - DO NOT READ]** Jewish and Christian (including Protestant, Catholic, Baptist, etc.; also includes "Messianic Jew," "Jews for Jesus," and "Completed Jew") **(SPECIFY CHRISTIAN IDENTITY:_____)**
16 **[VOL. - DO NOT READ]** Jewish and something else **(SPECIFY WHAT SOMETHING ELSE IS:_____)**
99 **[VOL. - DO NOT READ]** Don't Know/Refused

Anyone identifying themselves as Jewish (RELIG=5) or as partially Jewish (RELIG=15,16) was deemed eligible for the survey, and was immediately skipped into the main body of the survey questionnaire. Anyone who did not describe themselves as Jewish or partially Jewish by religion was asked a second screening question:

ASK IF NOT JEWISH IN RELIG (RELIG≠5,15,16):

Q.A4 ASIDE from religion, do you consider yourself Jewish or partially Jewish, or not? **[INTERVIEWER NOTES: RESPONDENTS VOLUNTEERING "culturally Jewish" SHOULD BE COUNTED AS JEWISH. FOR ALL RESPONDENTS INDICATING THEY ARE JEWISH OR PARTIALLY JEWISH, PROBE TO DISTINGUISH BETWEEN "Yes, Jewish" and "Yes, partially Jewish." DO NOT READ MATERIAL IN PARENTHESES]**

1 Yes
2 Yes, partially Jewish (includes "half Jewish")
3 No, do not
9 Don't know/refused **(VOL.)**

Anyone identifying themselves as Jewish (Q.A4=1) or partially Jewish (Q.A4=2) *aside* from religion was deemed eligible for the survey, and immediately skipped into the main body of the survey questionnaire. Anyone who did not describe themselves as Jewish or partially Jewish in response to this second screening question received a third and final screening question:

ASK IF NOT JEWISH IN RELIG AND NOT JEWISH IN Q.A4 (RELIG≠5,15,16 AND Q.A4>2):
Q.A5 And did you have a Jewish parent or were you raised Jewish or partially Jewish – or not? [**DO NOT READ MATERIAL IN PARENTHESES]**

1 Yes (includes partially Jewish/raised Jewish and something else/mother or father was partially Jewish)
2 No
9 Don't know/refused **(VOL.)**

Anyone answering this question affirmatively (Q.A5=1) was deemed eligible for the survey. All other respondents were determined to be ineligible for the survey. Ineligible respondents were asked whether any adults residing in their household met these criteria for eligibility, and in these cases an attempt was made to speak with the eligible household member. Half of the ineligible respondents were asked a short series of questions about their demographic characteristics, to facilitate weighting of the data as described below. The other half of the ineligible respondents were thanked for their time and participation in the screening interview, and were asked no further questions.

Knowing that there is no consensus on how exactly to answer the question of who is a Jew, researchers at the Pew Research Center's Religion & Public Life Project took this broad approach in the hopes of maximizing the usefulness of the data for scholars who might seek to analyze them according to their own preferred approaches to delineating the boundaries of the Jewish population. In this report, the analyses focus on two subgroups of eligible respondents, *Jews by religion* and *Jews of no religion*.

- *Jews by religion* includes those people who say they are Jewish (and Jewish alone) by religion (RELIG=5). The survey included 2,786 interviews with Jews by religion.

- *Jews of no religion* includes those people who describe themselves as atheist, agnostic or "nothing in particular" (or as Jewish *and* atheist/agnostic/nothing in particular) when asked about their religion, but who have a Jewish parent or were raised Jewish and still consider themselves Jewish or partially Jewish (in Q.A4). The survey included 689 interviews with Jews of no religion.

These two groups together constitute, for the purposes of the analyses included in this report, the U.S. Jewish population.

In addition to interviewing Jews (i.e., Jews by religion and Jews of no religion), the survey also included interviews with people we have not considered Jewish in this report, but who have a Jewish background or indicate some other connection with the U.S. Jewish community.

- *People of Jewish background* are those who have a Jewish parent or were raised Jewish but who, today, either identify with a religion other than Judaism (most say they are Christian in response to RELIG) or say they do *not* consider themselves Jewish in any way (in RELIG and Q.A4). The survey included 1,190 interviews with people of Jewish background.

- *People with a Jewish affinity* are those who are not Jewish by religion (RELIG≠5) and who neither have a Jewish parent nor were raised Jewish but who nevertheless say they consider themselves Jewish in some way (primarily in Q.A4, though this category also includes a small number who indicated they practice both Judaism and another religion in RELIG). Some in this group have Jewish ancestry (though none have Jewish parents). Many others say they consider themselves Jewish because Jesus was Jewish, because they have a Jewish spouse or other Jewish family, because they have many Jewish friends or acquaintances, or because they think of themselves as Jewish for other reasons. The survey includes interviews with 467 people with a Jewish affinity.

The survey also included interviews with 38 respondents who did not fall into any of the four categories described above. These respondents indicated in the *screening* interview that they had a Jewish parent or were raised Jewish (in Q.A5), but then in their subsequent responses to questions in the main body of the questionnaire (which were used to categorize respondents into the four groups described above) suggested that they were not raised Jewish and did not have a Jewish parent. Finally, 21 respondents were interviewed who were ultimately excluded from the analyses reported here because they indicated they live outside the geographic area covered by the survey.

In total, 5,191 respondents were deemed eligible for the study and received the full questionnaire. This includes 3,475 Jews (2,786 Jews by religion and 689 Jews of no religion), along with 1,716 other respondents (1,190 people of Jewish background, 467 people of Jewish affinity, 38 people who did not fall into any of these analytical categories, and 21 people who indicated they reside outside the geographic area covered by the sampling plan). While the

study describes the characteristics of people of Jewish background and people with a Jewish affinity in Chapter 7, this report focuses mainly on the Jewish population.

Sample Design

Stratification and Sampling

Jews constitute a rare population in the U.S. In the year leading up to this study (2012), the Pew Research Center for the People & the Press conducted 12 nationally representative surveys among 25,051 respondents who were asked about their religious affiliation; just 2.0% of them described themselves as Jews by religion.[27] This low incidence means that building a probability sample of U.S. Jews is difficult and costly. Had we sought to interview 2,786 Jews by religion (which is the number of interviews we obtained with Jews by religion as part of this study) simply by calling and interviewing a national sample of adults, we would have had to conduct screening interviews among nearly 140,000 respondents (139,300 respondents multiplied by 2.0% we would expect to be Jewish by religion=2,786 Jews by religion).

In devising our sampling plan, we first sought to determine whether we could improve the efficiency with which we could contact and interview Jewish respondents by concentrating a disproportionately large amount of our calling in those areas where many Jews live and less calling in those areas where few Jews reside. We began by analyzing the geographic distribution of the Jews by religion who have been interviewed in Pew Research Center surveys conducted since 2000.[28] The Pew Research Center database we analyzed included more than 150 nationally representative surveys conducted among more than a quarter of a million respondents who were asked about their religious affiliation. These data provided a good sense of where Jews live, and even provided a rough sense of the Jewish share of the population within many states and counties around the country.

But even with such a large number of surveys and respondents to work with, there were many U.S. counties where the Pew Research Center had conducted too few interviews to provide a reliable sense of the Jewish share of the population. To help overcome this limitation, analysts at Abt SRBI supplemented the Pew Research Center database with county-level information on

[27] The 2% figure reported here comes from *unweighted* data. Of the 25,051 respondents interviewed in 2012, 502 identified themselves as Jews by religion. Estimates of the share of the population that is Jewish reported in Chapter 1 of this report are based on *weighted* data that have been adjusted to ensure they represent the demographic and geographic characteristics of the nation as a whole.

[28] Ideally, we would have looked not just at the geographic distribution of Jews by religion, but also at the geographic distribution of Jews of no religion, people of Jewish background, and people with a Jewish affinity. But while many surveys, including our own, ask about religion and thus permit analysis of the Jewish by religion population, very few surveys ask questions that would enable researchers to identify members of these other analytical categories. Thus, the analyses that informed our sampling plan were restricted to the Jewish by religion population.

gender, age, race, education, income and other important variables. The database was also supplemented with county-level information about Jewish educational organizations, kindly provided by JData.com (a project of the Cohen Center for Modern Jewish Studies at Brandeis University). Finally, county-level information about the presence (or absence) of synagogues (obtained from a commercial list) and the incidence of Jewish names (provided by Survey Sampling International) was appended to the Pew Research Center database.

Using all of this information, Abt SRBI statisticians used small area estimation (SAE) techniques to formulate a statistical model that produced an estimate of the Jewish share of the population for each county in the U.S. SAE techniques are commonly used to produce estimates at low-level geographies for which limited data are available in Census Bureau programs. Prominent examples of estimates based on SAE techniques include the Small Area Income and Poverty Estimates (at state, county and school district levels), the Small Area Health Insurance Estimates (at state and county levels) , and the National Cancer Institute Small Area Estimates for Cancer Risk Factors & Screening Behaviors (at state and county levels).

We used the estimates of the Jewish by religion share of each county's population – along with information on the Orthodox Jewish share of the Jewish population (from the 2000-2001 National Jewish Population Study) and information on the share of the population that was born in the former Soviet countries of Belarus, Moldova, Russia and Ukraine (from the American Community Survey) – to divide the country into eight geographic units, or strata. Cellphone numbers were associated with strata based on analysis of the location of rate centers. The strata ranged from an excluded stratum, at the low end, to Orthodox and Russian strata at the high end.

- *Excluded stratum* - There are 1,431 counties in which the small area estimates suggest that Jews by religion account for less than 0.25% of the population, and where no survey conducted by the Pew Research Center (since 2000) or included in a large database of surveys compiled by the Steinhardt Social Research Institute at Brandeis University had ever reached a Jewish respondent, [29] and where there were no Jewish educational institutions (according to JData.com), and where there were no synagogues

[29] Researchers at the Steinhardt Social Research Institute at Brandeis University have compiled a massive database of surveys conducted by a variety of organizations, for the purposes of an ongoing meta-analysis of data on U.S. Jewry and American religious affiliation more broadly. Brandeis kindly provided information on those counties in which their database does not include any Jewish respondents. This database consists of 248,458 adults that were not included in the Pew Research Center database.

(according to the commercial list obtained by Abt SRBI).[30] These 1,431 counties constitute the excluded stratum. **For this survey, no calls were made to phone numbers associated with counties in the excluded stratum.** Counties in the excluded stratum are home to less than 10% of the total U.S. adult population, and we estimate that counties in the excluded stratum are home to less than 1% of the Jewish by religion population. We were purposefully conservative in assigning counties to the excluded stratum, because we aimed for the survey to cover as much of the U.S. Jewish population as possible. Counties could be assigned to the excluded stratum only in the absence of any indication that Jews reside in the county. All counties where the Pew Research Center has interviewed even one Jewish respondent in the past 12 years are in one of the included strata described below, as are all counties represented in the Brandeis database of surveys, all counties that are home to a synagogue or Jewish educational center and all counties where the SAE estimates suggest that 0.25% or more of the county's population is Jewish by religion.

- *Very low density stratum* – The very low density stratum consists of counties (excluding census tracts included in the Russian stratum, described below) where the small area estimates suggest that Jews by religion account for 0.25%-1.49% of the county population. The very low density stratum also includes counties where Jews by religion are estimated to account for less than 0.25% of the county's population if those counties are home to a Jewish educational institution, a synagogue or a Jewish respondent in previous Pew Research Center surveys or surveys included in the Brandeis database. There are 1,574 counties in the very low density stratum.

- *Low density stratum* – The low density stratum consists of counties where the small area estimates suggest Jews by religion account for 1.5%-2.9% of the county's population, excluding census tracts included in the Russian stratum. There are 80 counties in the low density stratum.

- *Medium density stratum* – This stratum includes counties with an estimated Jewish by religion incidence rate of 3.0%-4.9%, excluding census tracts covered by the Russian stratum. There are 32 counties in the medium density stratum.

[30] Based on analyses conducted prior to the commencement of interviewing for the survey. In expanding their database subsequent to the finalization of the sampling plan, Brandeis researchers identified a very small number of Jews in counties located in the excluded stratum. Brandeis researchers also identified one county in the excluded stratum that is home to a Jewish educational institution. The Religious Congregations and Membership Study indicates that there are 11 U.S. counties that are home to a synagogue that did not appear on the commercial list of synagogues used in designing the sampling plan.

- *High density stratum* – The high density stratum consists of counties where the small area estimates suggest Jews by religion account for 5.0%-9.9% of the population, excluding counties covered by the Orthodox stratum and census tracts covered by the Russian stratum. There are 17 counties in the high density stratum.

- *Very high density stratum* – This stratum includes six counties where we estimate that Jews by religion constitute 10% or more of the county's population, excluding counties in the Orthodox stratum and census tracts in the Russian stratum.

- *Orthodox stratum* – One key goal of the study is to permit analysis of Orthodox Jews. To ensure we obtained a sufficiently large number of Orthodox Jews to permit this kind of analysis, we defined the Orthodox stratum as those counties (excluding tracts covered by the Russian stratum) where Jews by religion account for at least 5% of the population (according to the SAE models), and where Orthodox Jews account for 35% or more of the Jewish by religion population (according to the 2000-2001 NJPS). There are three counties in the Orthodox stratum – Kings and Rockland counties in New York, and Ocean County in New Jersey.

- *Russian stratum* – Another key goal of the study is to permit analysis of Russian Jews, defined as those Jews who were born in the former Soviet Union (FSU) or who had at least one parent who was born in the FSU. The Russian stratum, unlike the other strata, is defined at the level of the census tract rather than at the county level. It includes census tracts where 10% or more of the population was born in Russia, Belarus, Moldova or Ukraine, according to the American Community Survey (ACS). The Russian stratum was dialed only within the landline frame, as it was not possible to match cellphone numbers to census tracts.

Once the strata were defined, we used an algorithm to optimally allocate the expected number of completed interviews across strata in such a way that we maximized the size of the sample while minimizing the study's design effect, which is an estimate of the loss in statistical power that occurs when a sampling plan deviates from a simple random sampling approach. The sample allocation was updated approximately every two weeks in the period the survey was in the field, based on the results obtained from completed interviews.

The accompanying table illustrates the way sample was allocated across strata. It shows that we oversampled high-density Jewish areas and undersampled areas where Jews are less concentrated. For example, 16% of screening interviews were conducted in the Russian, very high and Orthodox strata, which collectively are home to just 3% of the U.S. population. And

nearly half of interviews conducted with Jews by religion (1,267 of the 2,786) come from these top three strata, which we estimate are home to roughly one-in-five Jews by religion. At the other end of the spectrum, just 35% of screening interviews and less than one-in-twenty (192 out of 2,786) interviews with Jews by religion come from the very low strata, which is home to 56% of the U.S. population and roughly 20% of the Jewish by religion population.

Though we oversampled high-density Jewish areas and undersampled areas where Jews are less concentrated, Jews from heavily Jewish areas *do not* represent a disproportionately large share of our final, weighted sample. Once data collection was complete, the data were statistically adjusted, or weighted (as described below), to ensure that Jews from various parts of the country are represented in their proper proportions. Even though Jews by religion from the three top strata represent nearly half of all the interviews we conducted (1,267 out of 2,786), Jews from these areas represent just 22% of our final, weighted sample, very similar to the estimates produced during the planning phase of the project (21%). This approach to sampling – developing a stratification plan and oversampling high-density strata, and then making statistical adjustments so that the various strata are represented in their proper proportions in weighted estimates – is very common in survey research involving rare populations.

Ultimately, by oversampling areas of high Jewish concentration and undersampling areas where Jews are less concentrated, we were able to meet the study's goals with far fewer screening interviews than would have been necessary had we used a simple national sampling approach. We conducted a total of 71,151 screening interviews, which is roughly half the number of screening interviews that would have been required to obtain the same number of completed interviews with Jewish-by-religion respondents without stratifying the sample. Of course, the degree of disproportionate sampling employed here comes at a cost in statistical power. Estimates based on this sample of 2,786 Jews by religion do not have the same precision as would estimates based on interviews with 2,786 Jews selected via simple random sampling. We have accounted for this loss in statistical power in all of the margins of error and tests of statistical significance presented throughout this report. More details are available below in the description of how the survey data were weighted.

2013 Pew Research Center Survey of U.S. Jews – Summary of Sampling Plan

		----------*EXPECTATIONS*----------			----------*SURVEY RESULTS*----------			
Stratum	# of counties	Estimated share of Jewish by religion population[1]	Share of U.S. population	Estimated Jewish by religion incidence rate[1]	# of Landline screeners[2]	# of cell-phone screeners[2]	# of interviews with Jewish by religion respondents[3]	Weighted % of Jewish by religion respondents[3]
Russian	n/a	1.0%	0.2%	n/a	1,297	0	286	3%
Orthodox	3	6.2%	1.0%	5% or higher	2,751	1,655	445	7%
Very high	6	14.3%	2.1%	10% or higher	2,794	3,113	536	12%
High	17	19.2%	5.2%	5% - 10%	5,113	3,760	537	15%
Medium	32	20.6%	9.9%	3% - 5%	6,013	5,042	415	21%
Low	80	17.7%	15.8%	1.5% - 3%	9,124	5,875	375	20%
Very low	1,574	20.1%	56.1%	0.25% - 1.5%	14,088	10,526	192	22%
Excluded	1,431	0.9%	9.7%	> 0.25%	0	0	0	0%
		100.0%	100.0%		41,180	29,971	2,786	100%

[1]Estimates of the share of the Jewish by religion population residing within each stratum and of the county-level estimated Jewish-by-religion incidence rate come from statistical models using small area estimation techniques, which are described in the accompanying text.
[2]The reported number of screeners conducted within each stratum reflects the number of screening interviews conducted with people reached at phone numbers associated with each stratum.
[3]Estimates of the stratum in which Jewish-by-religion respondents reside are computed by matching respondents' self-reported zipcode with a county of residence, with two exceptions: the estimate of the proportion of people residing in the Russian stratum is based on respondents' telephone numbers, since it was not possible to match zipcodes to census tracts; and those respondents who declined to provide a zipcode are assumed to live in the stratum with which their telephone number is associated.

The table below reports the number of completed interviews obtained within each analytical category, by frame and stratum. It also reports the weighted estimate of the share of each group's population that lives within each stratum. The table shows that Jews of no religion are found in many of the same places as Jews by religion, though Jews of no religion are somewhat more concentrated in the lower strata and less concentrated in the higher strata as compared with Jews by religion. In stark contrast, those in the Jewish background and Jewish affinity categories are geographically distributed quite differently than are Jews (including both Jews by religion and Jews of no religion). Half of the people in the Jewish background category covered by the survey reside in the very low stratum, as do fully two-thirds of those in the Jewish affinity category. By comparison, just one-quarter of Jews reside in the very low stratum.

Completed Interviews by Type and Stratum

	Very low	Low	Medium	High	Very high	Orthodox	Russian	TOTAL
NET Jewish								
No. of landline interviews	155	339	331	457	429	334	332	=2377
No. of cell interviews	135	180	212	205	195	171	0	=1,098
WEIGHTED % in stratum	24%	22%	20%	15%	10%	7%	2%	=100%
Jews by religion								
No. of landline interviews	112	264	258	389	375	309	286	=1,993
No. of cell interviews	80	111	157	148	161	136	0	=793
WEIGHTED % in stratum	22%	20%	21%	15%	11%	7%	3%	=100%
Jews of no religion								
No. of landline interviews	43	75	73	68	54	25	46	=384
No. of cell interviews	55	69	55	57	34	35	0	=305
WEIGHTED % in stratum	32%	26%	19%	13%	5%	4%	1%	=100%
People of Jewish background								
No. of landline interviews	159	170	124	90	65	48	40	=696
No. of cell interviews	159	109	81	70	49	26	0	=494
WEIGHTED % in stratum	50%	23%	14%	6%	4%	2%	1%	=100%
People of Jewish affinity								
No. of landline interviews	91	45	42	46	20	15	8	=267
No. of cell interviews	86	31	32	28	13	10	0	=200
WEIGHTED % in stratum	68%	11%	9%	8%	3%	1%	0%	=100%

Source: Pew Research Center Survey of U.S. Jews, Feb. 20-June 13, 2013. Estimates of the stratum in which Jewish by religion respondents reside are computed by matching respondents' self-reported zip code with a county of residence, with two exceptions: the estimate of the proportion of people residing in the Russian stratum is based on respondents' telephone numbers, since it was not possible to match zip codes to census tracts; and those respondents who declined to provide a zip code are assumed to live in the stratum with which their telephone number is associated.

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Analysis of Survey Coverage

Surveys conducted by the Pew Research Center and other organizations in recent years provide a wealth of good information on the geographic distribution of the U.S. population that is Jewish by religion. Based on this information, we were quite confident that our sampling plan would cover virtually 100% of the Jewish-by-religion population. But much less information is available about the geographic distribution (and other characteristics) of other groups interviewed as part of this survey. We did not have a good sense of how many Jews of no religion, people of Jewish background and people with a Jewish affinity reside in the excluded stratum, and were thus excluded from the current survey.

To help shed light on this question, we placed a series of questions on 13 ongoing weekly omnibus surveys conducted by Social Science Research Solutions (SSRS). The questions were administered only to respondents reached at phone numbers associated with the excluded stratum. In total, the questions were administered to 1,513 respondents in the excluded stratum.

The omnibus questions were designed to mimic the screening questions used for the 2013 survey of U.S. Jews, so as to provide a rough sense of the share of the population in the excluded stratum that falls into each of the analytical categories described above (Jews by religion, Jews of no religion, people of Jewish background, people with a Jewish affinity). However, the questions placed on the omnibus survey are *not* identical to the questions used to categorize respondents into the analytical groups that result from the main survey. For example, the question that inquired about religious affiliation is a standard, open-ended item that SSRS places on all of its omnibus polls. The omnibus question about Jewish upbringing was a single item (identical to Q.A5), rather than the more detailed questions about Jewish background that were included in the body of the Jewish survey questionnaire (CHRELIG, Q.H15, Q.H16) and that were ultimately used instead of Q.A5 to define the analytical categories. And furthermore, due to a change in programming, the question about Jewish upbringing was not asked of all omnibus respondents for the entirety of the period in which omnibus surveys were conducted. For the first eight weeks of omnibus interviewing, respondents were asked if they were raised Jewish or had a Jewish parent (Q.A5) *only* if they did not personally self-identify as Jewish themselves. To identify respondents of Jewish background from those first eight weeks of surveys, we rely instead on an open-ended item that asked self-identified Jewish respondents in what way they consider themselves Jewish, in response to which they can volunteer that they were raised Jewish or had a Jewish parent.

With these caveats in mind, it is possible to estimate the share of the population residing in the excluded stratum that would have been eligible for the survey of U.S. Jews. The omnibus

surveys found no Jews by religion residing in the excluded stratum, providing reassurance that the survey of U.S. Jews covered virtually all of the U.S. Jewish by religion population. The omnibus surveys also found very few Jews of no religion. Just two out of 1,513 respondents (0.2% of weighted respondents) in the excluded stratum identified themselves as having no religion while saying they do think of themselves as Jewish *aside* from religion and indicating that they were raised Jewish or had a Jewish parent. These results provide strong evidence that the 2013 Pew Research Center survey of U.S. Jews covered virtually all of the Jewish population, defined as Jews by religion and Jews of no religion.

More respondents in the excluded stratum appear to fall into the other two analytical categories. Of those we interviewed in the excluded stratum, 1% are people of Jewish background. Given our estimate that 1.2% of the adult population of the included strata are people of Jewish background, and since we know that 90% of the adult population resides in the included stratum while 10% live in the excluded stratum, this suggests that the 2013 survey of U.S. Jews covered roughly 92% of the people of Jewish background category. Of those we interviewed in the excluded stratum, 3% qualify for the people of Jewish affinity category. Given our estimate that 0.6% of the adult population of the included strata are people with a Jewish affinity, this suggests that the 2013 survey of U.S. Jews covered roughly 66% of the people of Jewish affinity population. So while the survey covers virtually all of the Jewish population, it is less comprehensive in its coverage of non-Jews who have a Jewish background and especially in its coverage of people with a Jewish affinity.

Questionnaire Development and Testing

The main goal of this study is to provide a broad overview of the characteristics, attitudes and experiences of U.S. Jews. The questionnaire needed to cover a wide range of topics but be short enough that respondents would be willing to complete the interview. Among the key topics the survey aimed to explore were Jewish identity (what does it mean to be Jewish?), attachment to and views of Israel, religious beliefs and practices, and social and political values. The survey also sought to obtain information about all of the people in the respondent's household, to enable Pew Research Center demographers to estimate the total size of the U.S. Jewish population. Many questions were drawn from previous Pew Research Center surveys of the general population, so that the characteristics and attitudes of Jews can be compared with other groups. Some questions were drawn from or modeled after previous surveys of U.S. Jews, to permit rough over-time comparisons.

The interview began with two general questions that asked respondents about their level of satisfaction with their community and whether they are a homeowner. Following these introductory items, respondents were asked the screening questions described above (RELIG, Q.A4, Q.A5). Respondents whose answers to these questions indicated they were eligible for the survey proceeded immediately to the substantive portion of the questionnaire. Respondents who were not eligible for the survey themselves were asked, "Are there any other adults in your household who are Jewish or had a Jewish parent or were raised Jewish or partially Jewish?" In those households where the respondent answered this question affirmatively, the interviewer asked to speak with the youngest randomly selected male or female who is Jewish or was raised Jewish; in 280 households, interviews were conducted with someone other than the original respondent. Half of the ineligible respondents who indicated that no one in the household was eligible for the survey were asked a short set of demographic questions to be used for weighting. The other half of ineligible respondents in households with no eligible respondents were thanked for their time, and interviewers ended the conversation at that point.

As soon as a respondent provided an answer indicating they were eligible for the survey, they were read this script: "As mentioned before, this survey is being conducted for the Pew Research Center. We have some questions on a few different topics, and as a token of our appreciation for your time, we would like to send you $50 at the completion of this survey. We will publish a report of the survey's findings later this year, and would also be glad to send you a copy if you would like." Following this introduction, respondents were asked a series of questions about their opinions on several topics: President Obama, homosexuality, the proper size and role of government, the degree to which various groups face discrimination in the

U.S., U.S. support for Israel and the Israeli/Palestinian conflict. At the conclusion of this series, respondents were told: "Just to give you a little more background before we continue, the Pew Research Center conducts many surveys of different groups in the United States. Earlier, you mentioned that you (are Jewish/are partially Jewish/had a Jewish parent or were raised Jewish). Now I have some questions about the views and experiences of (Jews in the United States/people in the U.S. with a Jewish background). I think you will find these questions very interesting."[31] The logic for revealing the principal research focus of the study – a practice not common in survey research – was that respondents would quickly discover that the study was focused on Jews and people of Jewish background, and that there would be a greater chance of establishing trust and rapport by revealing the intent of the study before asking questions specific to Jews.

Question Order Pilot Test

Some previous surveys of Jews reverse the order of the screening questions we employed, asking respondents first whether they consider themselves Jewish (in any way) and only later asking about religious affiliation. In order to preserve our ability to compare Jews by religion to other religious groups (e.g., Catholics, Protestants, etc.), our predisposition was to ask RELIG as the first screening question, since no other Pew Research Center surveys ask respondents a yes-or-no question about identifying with a group before asking RELIG.

To better understand question order and wording effects that might exist, we conducted a brief pilot study Nov. 14-18, 2012, among 1,513 respondents from a commercially available list of people with ethnically Jewish names. One-third of respondents were first asked a slightly modified version of RELIG and then a slightly modified version of Q.A4. One-third of respondents received these questions in reverse order. And one third of respondents were first asked a (slightly modified) version of RELIG followed by an expanded version of Q.A4, which read "ASIDE from religion, some people think of themselves as Jewish or partially Jewish for other reasons. For example, you might have a Jewish mother or father, or you might have been raised Jewish, or you might think of yourself as a non-religious Jew or a secular Jew. With that in mind, do you consider yourself Jewish or partially Jewish, or not?" The expanded version of Q.A4 was designed to test whether listing examples of the ways in which someone might think of themselves as Jewish would result in a different estimate of the size of the Jewish population.

The pilot test turned up no evidence that the wording or order of these questions would significantly impact estimates of the size or characteristics of the Jewish population.

31 Some respondents were told this was a survey of Jews before reaching this point in the interview, if they had asked specifically for more information about the nature and purpose of the study.

Pretests

Two pretests of the full questionnaire were conducted. The first was fielded Feb. 4-5, 2013, on landlines and cellphones, among 73 respondents who had identified as Jewish by religion in previous Pew Research Center surveys. The second pretest was fielded Feb. 11, 2013, on landlines and cellphones, among 78 respondents who had identified as Jewish by religion in previous Pew Research Center surveys. Revisions to the questionnaire were made in light of the results of both pretests.

Survey Administration

The administration of the survey posed a variety of challenges and involved a very large volume of interviewing. Abt SRBI devoted 40,654 interviewer hours to the study over a 16-week time frame, with the bulk of this spent screening for this rare population. A total of 71,151 households were screened, with 1,175,367 unique numbers dialed over the field period. This was accomplished by deploying 642 English-speaking and four Russian-speaking interviewers.

Some of the Russian-speaking interviewers were hired especially for this project, after first having their Russian language ability tested by an accredited vendor. All of the newly hired Russian-speaking interviewers went through the standard Abt SRBI initial training process that all interviewers must complete. In total, 218 interviews were conducted in Russian and 4,973 in English.

An incentive of $50 was offered to eligible respondents near the beginning of the survey, but only after they had answered the screening questions to establish their eligibility. Incentives were offered based on two main considerations. First, the survey entailed a substantial time commitment for respondents. The average length of a completed interview was 25 minutes. Second, incentives repeatedly have been shown to increase response rates, which is a critical consideration in studies of rare populations where substantial effort is devoted to locating qualified respondents. Most respondents (84%) provide a name and address for receiving the incentive payment.

All eligible respondents who were unwilling or unable to complete the interview during the initial call were sent, where possible, a letter explaining the purpose and scope of the study and inviting them to complete the interview. A total of 377 such letters were mailed out; Russian-speaking respondents who received this letter received it in both English and Russian.

Additionally, all of the landline numbers that were sampled were matched to addresses, and the names were run through an algorithm to flag cases with likely Russian ethnic names. Advance letters written in both English and Russian were sent to all addresses flagged as being associated with someone with an ethnically Russian name, explaining the purpose of the survey and soliciting participation. In total, 292 of these letters were mailed out. Additionally, Russian-speaking interviewers were assigned to call these respondents.

A seven-call design was employed for both landline and cellphone numbers with no callback limit for eligible households. One attempt was made to convert soft screener refusals in the landline sample, with no conversion attempts for soft screener refusals in the cellphone frame.

Calls were not made on Fridays or Saturdays or during Jewish holidays with Sabbath-like restrictions on work (Passover and Shavuot), except for callbacks when the respondent specifically requested to be called during these times.

The screening effort yielded a response rate of 24% for the landline sample and 14% for the cellphone sample, using the Response Rate 3 definition devised by the American Association for Public Opinion Research (AAPOR). The overall (combined) response rate for the study is 16%. This response rate takes into account both the screening interviews and the rate at which interviews were completed with eligible respondents. Detailed AAPOR sample disposition reports are provided at the end of this appendix.

Weighting

Several stages of statistical adjustment (weighting) were needed to account for the use of multiple sampling frames (landlines and cellphones) and the oversampling of high-density Jewish areas, and to adjust for differential levels of nonresponse. The weighting proceeded in seven steps.

Step One

Step one corrects for the fact that we oversampled some strata and undersampled others. This weight, called the design weight, is computed at the household level. Design weights are calculated for all eligible and ineligible households, including qualified refusals and callbacks. This includes adjustments for the percentage of residential numbers that completed screeners in the stratum. All households of known eligibility are included in order to facilitate household nonresponse adjustments, which are discussed next. The form of the weights largely follows those used for previous Pew Research Center surveys. Specifically the base weight for each frame (bw_h) is:

$$bw_h = \frac{N_h}{n_h} \times \frac{R_h}{S_h}$$

Where N_h is the number of telephone numbers in the frame in stratum h, n_h is the number of telephone numbers sampled and dialed, R_h is the number of telephone numbers that are determined to be residential, and S_h is the total number of contacts that were screened.

Step Two

Step two is a nonresponse adjustment that weights up those households where we successfully obtained a completed interview with an eligible respondent after originally speaking with a respondent who was ineligible, to stand in for the (disproportionately large number of) households where we did not obtain a completed interview after the initial respondent was ineligible but indicated another adult was eligible. This step also weights up households where we obtained a completed interview (with either an eligible respondent or an ineligible respondent) to stand in for those households where we did not obtain a completed interview (including non-contacts, breakoffs and refusals, and those households where the screening interview was completed but the demographic questions were not asked).

The adjustment takes place within cells formed by frame ($g = 1,2$, where $g = 1$ for the landline frame and $g = 2$ for the cellphone frame), stratum and eligibility ($j = 1 \ldots J$). Households are classified into the following eligibility groups:

1. Initial respondent was eligible;
2. Initial respondent was ineligible, other adult in household was eligible;
3. No eligible adult in household;
4. Unknown eligibility, where the screening questions to determine eligibility were not completed.

In addition, cases are classified into completion types ($k = 1,2, \dots, K$), consisting of:

1. Completed interview with eligible respondent;
2 Completed screener with ineligible respondent, demographics asked;
3. Completed screener with ineligible respondent, demographics not asked;
4. Did not complete screener or main interview.

Nonresponse-adjusted weights are calculated in two steps. First, the base weights of all the cases with known eligibility for the main survey were spread to all the completed cases, by the cells formed by the combination of frame g, stratum h and eligibility status $j = 1,2,3$. Additionally, the base weights of cases with unknown eligibility were distributed among the contacted cases, within the cells formed by the combination of frame g and stratum h. For eligible households, weights are calculated as:

$$nw_{ghj} = bw_{ghj} \times \frac{n_{ghj,k=1,4}}{n_{ghj,k=1}}$$

For ineligible households, weights are calculated as:

$$nw_{ghj} = bw_{ghj} \times \frac{n_{ghj,k=2,3,4}}{n_{ghj,k=2}}$$

where:

n_{ghj} = The number of cases in frame by stratum by eligibility cells where ($i = 1,2, \dots, n$). These weights are only assigned to cases where $k < 3$.

Step Three

Step three computes frame integration weights, in which the landline and cellphone frames are integrated using the single frame method. This step weights dual users (i.e., people who are reachable on both landlines and cellphones) downward, since people with both landlines and cellphones have a higher probability of selection. It also weights households who have access to multiple cellphones downward, since they too have a higher probability of selection.

The frame integration weights (*iw*) are calculated within frame by stratum by eligibility cells for dual user households as:

$$iw_{ghji} = \frac{1}{\frac{1}{nw_{ghj,g=1}} + \frac{1}{nw_{ghj,g=2}/t_i}}$$

for cellphone only households as:

$$iw_{ghji} = \frac{nw_{ghj,g=cell}}{t_i}$$

and for landline only households as:

$$iw_{ghji} = nw_{ghj,g=ll}$$

where t_i is the number of cellphones in the ith household, capped at four, and represents the multiplicity correction adjusting for the higher probability of selection of a household with several cellphones. Thus the weight for landline households remains the nonresponse adjustment weight, the cellphone weight is the nonresponse adjustment weight divided by the number of household cellphones to adjust for the higher probability of selection of such households, and the dual user weight is the inverse of the sum of the inverse of the cellphone and landline frame integration weights.

Step Four

Step four is a multiplicity adjustment that corrects differential probabilities of within-household selection based on household size. People residing in households with few adults get weighted down because they have a higher probability of being selected than people residing in households with many adults. More specifically, these weights are calculated as:

$$rw_{ghji} = iw_{ghji} \times a_i$$

where a_i is equal to the number of eligible adults in the ith household, capped at three. For ineligible households, this is the total number of adults, as all adults are eligible to be the respondent. For eligible households, this is the total number of eligible adults (i.e., those who are Jewish by religion, consider themselves to be Jewish, or have a Jewish parent or were raised Jewish).

Step Five

Step five is a respondent raking step, which adjusts the characteristics of respondents (including both eligible respondents and ineligible screenouts) to match known characteristics of the covered population for phone usage, education, census region, stratum, age, gender and race/ethnicity. More specifically, the respondent raked weights adjust respondent base weights to national norms (except for excluded counties and people who do not speak one of the survey's languages, English and Russian) on household telephone usage (landline only, dual

user, cellphone only), education (high school graduate or below, some college or associate's degree, bachelor's degree, some graduate study or graduate degree), census region (Northeast, South, Midwest, West), stratum (Orthodox, very high density, high density, medium density, low density, very low density), age x sex (18-24, 25-34, 35-44, 45-54, 55-64, 65+ years old x male, female), and race and ethnicity (white non-Hispanic, black non-Hispanic, Asian non-Hispanic, other non-Hispanic, Hispanic).

Estimates are based on the 2011 ACS public use microdata sample (PUMS), subset to the population covered by the survey. Namely, the characteristics of the cases retained in ACS for target computations are adults who speak English well or who speak Russian, and who reside in the counties corresponding to the seven included strata of the survey. The lowest level of geography available in ACS PUMS is that of public use microdata areas (PUMAs). They were recoded into counties using the fractions of 2010 populations provided by the Missouri Census Data Center.

Estimates of telephone usage were derived from National Health Interview Survey (NHIS) public use data using small area estimation methodology similar to that used in Battaglia et. al. (2010)[32]:

- A multinomial logistic regression with three categories (cell only; landline only; dual use) was fit to NHIS 2010 data weighted by NHIS weights, and a range of demographic variables as predictors;
- ACS 2011 PUMS were used to generate predictions using identically defined demographic variables;
- PUMAs in ACS 2011 data were recoded into counties using the fractions of 2010 populations provided by Missouri Census Data Center;
- Strata-level estimates were obtained by summarizing the NHIS-model-based phone usage estimates with ACS weights multiplied of the fraction of PUMA in a given county, if applicable.

[32] Battaglia, M. P., Eisenhower, D., Immerwahr, S., and Konty, K. (2010). Dual-Frame Weighting Of RDD And Cell Phone Interviews At The Local Level . Proceedings of the Survey Research Methods Section, The American Statistical Association, Alexandria, VA. Available at http://www.amstat.org/sections/srms/proceedings/y2010/Files/400102.pdf.

Step Six

Step six is the creation of household weights. Creating the household weight makes it possible to develop estimates of the size of the Jewish population.

The first step in creating the household weight is to undo the multiplicity adjustment described in step four. This is accomplished by dividing the weight from step five by the number of adults eligible to serve as respondents. In eligible households, this is the number of eligible adults. In ineligible households, it is the total number of adults. This weight is assigned to all household members, without any trimming of the weights.

Characteristics of the households surveyed are then raked to known parameters for telephone usage and household size. Specifically, household weights (hw_i) are raked to the interactions:

> Household telephone usage x stratum;
>
> Numbers of adults per household (0, 1, 2, 3, 4+) and numbers of children per household (0, 1, 2, 3, 4+) x stratum (1-6);
>
> Numbers of adults per household (0, 1, 2, 3, 4+) and numbers of children per household (0, 1, 2, 3, 4+) x Census region (1-4).

Estimates of adults and children per household were derived from ACS public use files. Household size cells were collapsed within the interaction of number of adults and children per household to avoid raking cells consisting of fewer than 100 households. The cap was set at 4+ children and 4+ adults. A procedure was set up to automatically identify cells with fewer than 100 cases; merge the cells with different number of adults and zero children, if needed; or merge the cells with a fixed number of adults and varying number of children, if needed, starting from the (less frequent) larger households, going down in the household size categories, and stopping once the size of the collapsed cells exceeded 100.

Step Seven

Step seven is a second round of raking of the respondent weights (to the same targets used in step five as well as to parameters derived from the household weights) combined with a trimming of the weights. More specifically, the household weights made it possible to develop raking parameters for the interaction of age, sex and the analytical categories used in this report (Jews by religion in one category and the combined set of Jews of no religion, people of Jewish background and people with a Jewish affinity in another). The motivation for this step is that respondent selection (i.e., asking to speak to the youngest male/female in landline interviews and with the person answering the phone in cellphone interviews) may be associated with divergence between the characteristics of eligible adults in eligible households and the characteristics of respondents.

In this step, the respondent weights also are trimmed so that no one respondent carries too much influence in the survey's estimates, and to help reduce the design effect introduced by the weights. The level of trimming was set at the trimming point that minimized mean square error (MSE), where $MSE = B^2 + V$, B is bias, and V the variance of the weights. B^2 was calculated from the weights in a manner similar to variance as the average deviation of a trimmed weight from its untrimmed counterpart:

$$B^2 = \frac{\sum_{i=1}^{n}\left(wt_i^T - wt_i^U\right)^2}{n}$$

where wt_i^T is the trimmed weight of the ith completed interview and wt_i^U is the untrimmed weight of the ith completed interview.

Bootstrap Weights

Due to the complex design of the study, formulas commonly used in RDD surveys to estimate margins of error (standard errors) are inappropriate. Such formulas would understate the true variability in the estimates. Accordingly, we created a set of replicate weights using Rao-Wu-Yue survey bootstrap methodology.[33] First, we created 256 sets of bootstrap frequencies which typically ranged between 0 and 9-10. These were created independently within frame-by-stratum combinations, reflecting the independent selection of phone numbers between them. Then, for each set of the bootstrap frequencies, the steps of the main weighting scheme were followed as described above. A statistical software package designed for complex survey data, Stata V11, was used to calculate all of the standard errors and test statistics in the study.

[33] See Rao, J.N.K., C.F.J. Wu and K. Yue. 1992. "Some Recent Work on Resampling Methods for Complex Surveys." Survey Methodology 18: 209-17. See also Kolenikov, S. 2010. "Resampling Variance Estimation for Complex Survey Data." Stata Journal 10(2): 165-99.

Producing Population Estimates

The Pew Research Center 2013 survey of U.S. Jews was designed primarily to explore the attitudes, experiences and beliefs of Jewish Americans. Estimating the size of the Jewish population was of secondary importance. Therefore, certain elements of the survey's design are less than ideal for producing population estimates and must be taken into account in making those estimates. For example, as described above, in an effort to reach Jewish respondents more efficiently and thus boost the size of the sample for analysis, the survey did not conduct interviews in parts of the country where previous studies indicate there are very few Jews by religion. In total, the current survey covered geographic areas that are home to roughly 90% of the U.S. adult population. Additionally, as a landline and cellphone survey conducted in English or Russian, this survey was unlikely to reach those living in institutionalized group quarters (e.g., prisons) and those who do not speak Russian or English.[34] Analysis of census data suggests that adults who reside within the geographic strata covered by the survey but who live in institutionalized group quarters or who do not speak Russian or English well enough to complete the survey account for 6% of the U.S. population. Thus, for purposes of producing population estimates, about 84% of the U.S. population is covered by the survey, while 16% of the population is not covered (either because they live in the excluded strata or were otherwise unlikely to be able to participate in the survey).

At the same time, the current survey of U.S. Jews has certain strengths that are atypical of most surveys and that may enhance its usefulness for estimating the size and demographic characteristics of the U.S. Jewish population. First, the survey was offered not only in English but also in Russian, ensuring that Russian-speaking Jews are represented. Second, the survey did not conduct interviews on the Jewish Sabbath (Friday evenings and Saturdays) or on Jewish holidays, thus avoiding a possible undercount of Jews who might be unwilling or unavailable to participate in a survey on those days. And third, the survey can help determine the share of the population that is Jewish aside from religion; most national surveys do not ask questions about Jewish ancestry or other kinds of Jewish identity. Despite its limitations, therefore, the survey should be seen as a valuable source of data that, together with other studies, can help provide an understanding of the size of the U.S. Jewish population.

To facilitate population estimates, the survey collected data on the number of adults in each household and the number of children in each household. In households with at least one person with some type of Jewish identity, information was collected about the Jewish identity of all other adults in the household as well as the age and sex of all adults with some type of

[34] Adults living in non-institutionalized group quarters such as college dorms and military barracks are assumed to be part of the sample universe, particularly the cellphone frame.

Jewish identity. Additionally, information was collected about the age and Jewish identity of all children in households with at least one adult who was eligible for the survey. Using these data, each adult in every surveyed household was categorized as a Jew by religion, a Jew of no religion, a person of Jewish background or a person with Jewish affinity, or as having none of these attributes.

This information was then used to produce an incidence rate estimating the share of the population covered by the survey that is Jewish. Overall, 2.6% of respondents *in the survey* are Jewish, including 2.0% who are Jews by religion and 0.6% who are Jews of no religion. An additional 1.2% of respondents are people of Jewish background, and 0.6% are people of Jewish affinity. To produce initial population figures, these incidence rates were multiplied by 2011 American Community Survey estimates of the number of non-institutionalized adults living in the included strata who speak Russian or English well or very well. (The 2011 ACS was used because it is the most recent year for which official population data are available with the level of geographic detail needed to produce these estimates.) The initial figures, based solely on the survey's results, indicate that there are 4.0 million adult Jews by religion and roughly 1.1 million Jews of no religion covered by the survey, along with 2.4 million people of Jewish background and 1.2 million people of Jewish affinity. (Note: All population estimates discussed in this section and throughout the report have been rounded to the nearest 100,000. As a result, some figures may not sum exactly to the totals or subtotals indicated.)

These initial figures were adjusted by adding estimates of the number of Jews among people residing in areas not covered by the survey. Researchers at Brandeis University have conducted a sophisticated statistical analysis of hundreds of surveys designed to identify the attributes of localities that are home to above-average and below-average proportions of Jews. Using the resulting statistical models, they estimate that 72,000 Jews by religion reside in counties not covered by the survey. This total was added to the survey's estimate of the number of adult Jews by religion, and a proportionate total was added to the survey's estimate of the number of adult Jews of no religion.[35]

Next, an adjustment was made to account for those who could not participate in the survey due to a language barrier. Other Pew Research Center surveys conducted in Spanish suggest that 0.1% of respondents who complete interviews in Spanish are Jews by religion. Multiplying this rate (0.1%) by the number of people with a potential language barrier residing in counties covered by the survey yields an estimate that there may be 12,000 Jews by religion missed by the survey. This total was added to the survey's estimate of the number of adult Jews by

[35] The survey finds that there are roughly 28% as many adult Jews of no religion as adult Jews by religion; therefore roughly 20,000 adult Jews of no religion (.28 x 72,000) were added to the Jews of no religion estimate.

religion, and a proportionate total was added to the survey's estimate of the number of adult Jews of no religion.[36]

Finally, Census Bureau data suggest that 3.2 million adults reside in institutionalized settings (within sampled strata) and thus may not have been covered by the survey. Based on the assumption that the Jewish share of the population in these institutions is roughly the same as the Jewish share of the overall population, an additional 60,000 Jewish-by-religion adults (2.0% of 3.2 million adults) were added to the Jewish-by-religion population and 16,000 to the Jews-of-no-religion population.

In total, the estimated size of the Jewish population is based on the number of Jewish adults suggested by the results of the survey, combined with these sample adjustments, which have the cumulative impact of adding about 147,000 adults to the Jews-by-religion count and about 41,000 adults to the Jews-of-no-religion count. No adjustments were made to the survey's estimates of the size of the Jewish background and Jewish affinity categories.

Counts including adjustments for coverage were then divided by national population totals from the 2011 ACS to produce national incidence rates. For example, approximately 4.0 million adult Jews by religion reside in the sampling frame. With adjustments, there are an estimated 4.2 million adult Jews by religion, representing 1.8% of the total adult population of 238 million adults in the 2011 ACS.

Coverage adjustments for children followed assumptions detailed above for adults and added 39,000 to the count of children living in Jewish households.

Like all survey-based estimates, the population estimates reported here are subject to a margin of sampling error. Additionally, assumptions that must be made in the course of weighting the data and adjusting population totals to account for those areas not covered by the survey may introduce additional error in estimating the population totals. As a result, the estimates reported here should be seen as approximations.

[36] Analysis of ACS data suggests that 5.7% of U.S. adults, or 12.0 million people, who speak English less than well and who do not speak Russian reside in areas covered by the survey. Multiplying 12.0 million adults by 0.1% yields a Jewish-by-religion adjustment of about 12,000, and a corresponding Jews-of-no-religion adjustment of about 3,000 (.28 x 12,000).

Assessing Bias and Other Error

A key question in assessing the validity of the study's findings is whether the sample is representative of the Jewish population. If Jews who are difficult to locate or reluctant to be interviewed hold different opinions than those who are more accessible or willing to take part in the survey, a bias in the results could occur. For most well-designed surveys, nonresponse does not inevitably result in serious biases.[37]

To assess nonresponse bias in this survey, we compared respondents in households who completed the survey easily with respondents with whom it was more difficult to obtain a completed interview. Comparisons were made between respondents reached within the first few attempts and those who required substantially more attempts. Comparisons also were made between respondents who completed the interview and those who began the interview but were unwilling to complete it.

This analysis indicates that there are few large differences between amenable and accessible respondents and those who were harder to interview. After weighting, there are only modest differences in Jewish incidence rates between respondents who were reached easily and those who were more difficult to reach; 2.5% of respondents from whom a completed interview was obtained on the first call attempt were Jewish, as were 2.9% of those reached with two to four call attempts and 2.4% of those reached on the fifth call attempt or later.

Survey Incidence Rates, by Call Attempt

	First call	2-4 calls	5+ calls
	%	%	%
NET Jewish	**2.5**	**2.9**	**2.4**
Jews by religion	1.9	2.2	1.9
Jews of no religion	.6	.6	.6
Jewish background	**1.3**	**1.4**	**1.0**
Jewish affinity	**.5**	**.5**	**.5**
Not Jewish in any way	**95.7**	**95.2**	**96.0**
	100	**100**	**100**
N	26,689	30,142	11,394

Source: Pew Research Center 2013 Survey of U.S. Jews, Feb. 20-June 13 2013. Based on those who completed either the main interview (for eligible respondents) or the screening interview with demographics (for ineligible respondents). Call attempts refer to the attempt on which a respondent was first successfully contacted.

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The analysis also examined differences between Jews (i.e., Jews by religion and Jews of no religion) who completed the interview after five or more call attempts and Jews who completed the interview in four call attempts or fewer. On most questions, differences between Jews who were difficult to reach and those who were easier to reach were modest (less than five percentage points).

[37] Scott Keeter, Carolyn Miller, Andrew Kohut, Robert M. Groves, and Stanley Presser. "Consequences of Reducing Nonresponse in a National Telephone Survey." *Public Opinion Quarterly*, 64, 2000: 125-148.

Nonresponse bias also can be assessed by comparing the opinions expressed early in the questionnaire by respondents who did *not* complete the interview with the views of those who did complete the interview. The share of respondents who qualified for the survey because they described themselves as Jewish or partly Jewish by religion (in RELIG), because they described themselves as Jewish aside from religion (in Q.A4), or because they have a Jewish background (in Q.A5) was about the same among eligible respondents who completed the entire interview and those who broke off before completing the interview.

Eligible respondents who completed the screener but eventually broke off were more likely to refuse to answer the questions that they were asked. They were also somewhat more satisfied with the way things are going in the country, but slightly less likely to approve of President Obama's handling of the nation's policy toward Israel and Iran. Overall, the differences were modest and non-systematic.

Supplemental Surveys

In order to make comparisons with the general public, the Pew Research Center conducted several supplemental surveys throughout the course of the field period. Some of the questions from those surveys have not been previously published, and are being released in conjunction with this survey of U.S. Jews.

General Population Survey, June 12-16, 2013:

The first of these surveys was conducted by telephone June 12-16, 2013, among a national sample of 1,512 adults, 18 years of age or older, living in all 50 U.S. states and the District of Columbia (758 respondents were interviewed on a landline telephone, and 754 were interviewed on a cellphone, including 394 who had no landline telephone). The survey was conducted by interviewers at Princeton Data Source under the direction of Princeton Survey Research Associates International. A combination of landline and cellphone random digit dial samples were used; both samples were provided by Survey Sampling International. Interviews were conducted in English and Spanish. Respondents in the landline sample were selected by randomly asking for the youngest adult male or female who is now at home. Interviews in the cell sample were conducted with the person who answered the phone, if that person was an adult 18 years of age or older. For more details about the Pew Research Center's basic survey methodology, see: http://people-press.org/methodology/.

The combined landline and cellphone sample is weighted using an iterative technique that matches gender, age, education, race, Hispanic origin and nativity and region to parameters from the 2011 Census Bureau's American Community Survey and population density to parameters from the Decennial Census. The sample also is weighted to match current patterns of telephone status and relative usage of landline and cellphones (for those with both), based on extrapolations from the 2012 National Health Interview Survey. The weighting procedure also accounts for the fact that respondents with both landline and cellphones have a greater probability of being included in the combined sample and adjusts for household size among respondents with a landline phone. Sampling errors and statistical tests of significance take into account the effect of weighting. The margin of error for the total sample is plus or minus 2.9 percentage points.

Newly released results from the survey are available in Appendix C.

General Population Survey, June 13-16, 2013:

The second newly published survey conducted to provide general population comparisons was conducted by telephone June 13-16, 2013 among a national sample of 1,004 adults 18 years of

age or older living in the continental United States (501 respondents were interviewed on a landline telephone, and 503 were interviewed on a cellphone, including 256 who had no landline telephone). The survey was conducted by interviewers at Braun Research under the direction of Princeton Survey Research Associates International. A combination of landline and cellphone random digit dial samples were used; both samples were provided by Survey Sampling International. Interviews were conducted in English. Respondents in the landline sample were selected by randomly asking for the youngest adult male or female who is now at home. Interviews in the cell sample were conducted with the person who answered the phone, if that person was an adult 18 years of age or older. For more details about the Pew Research Center's basic survey methodology, see: http://people-press.org/methodology/.

The combined landline and cellphone sample is weighted using an iterative technique that matches gender, age, education, race, Hispanic origin and region to parameters from the 2011 Census Bureau's American Community Survey and population density to parameters from the Decennial Census. The sample also is weighted to match current patterns of telephone status, based on extrapolations from the 2012 National Health Interview Survey. The weighting procedure also accounts for the fact that respondents with both landline and cellphones have a greater probability of being included in the combined sample and adjusts for household size among respondents with a landline phone. Sampling errors and statistical tests of significance take into account the effect of weighting. The margin of error for the total sample is plus or minus 3.7 percentage points.

Newly released results from the survey are available in Appendix C.

Screening Surveys in Excluded Stratum, March 6-May 22, 2013:
As described above, in an effort to estimate the share of the population in the excluded stratum that might have been eligible for the survey of U.S. Jews, we placed a series of questions on 13 ongoing weekly telephone omnibus surveys conducted by Social Science Research Solutions (SSRS). The questions were administered only to respondents reached at phone numbers associated with the excluded stratum. In total, the questions were administered to 1,513 respondents (953 respondents were interviewed on a landline telephone, and 560 were interviewed on a cellphone) in the excluded stratum between March 6 and May 22, 2013. A combination of landline and cellphone random digit dial samples were used; both samples were provided by Marketing Systems Group. Interviews were conducted in English and Spanish. Respondents in the landline sample were selected by randomly asking for the youngest adult male or female who is now at home. Interviews in the cell sample were conducted with the person who answered the phone, if that person was an adult 18 years of age or older.

The combined landline and cellphone sample is weighted using an iterative technique that matches gender, age, education, race, Hispanic origin and region to parameters from the 2011 Census Bureau's American Community Survey and population density to parameters from the Decennial Census. The sample also is weighted to match current patterns of telephone status, based on extrapolations from the 2012 National Health Interview Survey. The weighting procedure also accounts for the fact that respondents with both landline and cellphones have a greater probability of being included in the combined sample and adjusts for household size among respondents with a landline phone. Sampling errors and statistical tests of significance take into account the effect of weighting. The margin of error for the total sample is plus or minus 2.8 percentage points.

Results from the survey are available in Appendix C.

Sample Disposition Reports

Landlines

	Very Low Density	Low Density	Medium Density	High Density	Very High Density	Orth-odox	Russian	Totals
Total phone numbers used	241,213	184,703	128,031	112,271	67,332	45,344	22,374	801,268
Completes and Screen-Outs (1.0/1.1)	14,088	9,124	6,013	5,113	2,794	2,751	1,297	41,180
Partial Interviews (1.2)	0	0	0	0	0	0	0	0
Refusal and break off (2.1)	19,208	13,328	9,456	8,611	5,084	4,522	2,627	62,836
Non Contact (2.2)	13,977	12,422	7,964	7,018	4,522	2,866	1,306	50,075
Other (2.3)	1,325	1,164	1,045	996	470	499	587	6,086
Unknown household (3.1)	20,913	17,035	12,810	11,289	7,843	4,613	1,948	76,451
Unknown other (3.2, 3.9)	5,132	3,782	2,777	2,625	1,824	1,637	848	18,625
Not Eligible (4.0)	166,570	127,848	87,966	76,619	44,795	28,456	13,761	546,015
e	0.226	0.220	0.218	0.221	0.223	0.272	0.297	0.224
Response Rate 1	0.189	0.160	0.150	0.143	0.124	0.163	0.151	0.174
Response Rate 2	0.189	0.160	0.150	0.143	0.124	0.163	0.151	0.174
Response Rate 3	0.259	0.225	0.216	0.206	0.186	0.223	0.195	0.242
Response Rate 4	0.259	0.225	0.216	0.206	0.186	0.223	0.195	0.242
Cooperation Rate 1	0.407	0.386	0.364	0.347	0.335	0.354	0.288	0.392
Cooperation Rate 2	0.407	0.386	0.364	0.347	0.335	0.354	0.288	0.392
Cooperation Rate 3	0.423	0.406	0.389	0.373	0.355	0.378	0.331	0.411
Cooperation Rate 4	0.423	0.406	0.389	0.373	0.355	0.378	0.331	0.411
Refusal Rate 1	0.257	0.234	0.236	0.242	0.226	0.268	0.305	0.249
Refusal Rate 2	0.353	0.328	0.339	0.347	0.338	0.366	0.395	0.346
Refusal Rate 3	0.395	0.370	0.386	0.396	0.395	0.425	0.452	0.390
Contact Rate 1	0.464	0.415	0.412	0.413	0.370	0.460	0.524	0.443
Contact Rate 2	0.635	0.581	0.593	0.593	0.556	0.630	0.679	0.616
Contact Rate 3	0.712	0.655	0.675	0.677	0.649	0.731	0.775	0.695

Note: Outcome rates and e in the total column are weighted for stratum probabilities of selection (N_h/n_h).

Cellphones

	Very Low Density	Low Density	Medium Density	High Density	Very High Density	Orth-odox	Totals
Total phone numbers used	125,253	69,436	69,367	50,456	39,892	19,695	374,099
Completes and Screen-Outs (1.0/1.1)	10,526	5,875	5,042	3,760	3,113	1,655	29,971
Partial Interviews (1.2)	0	0	0	0	0	0	0
Refusal and break off (2.1)	22,661	13,668	12,812	10,099	8,276	3,999	71,515
Non Contact (2.2)	31,265	17,134	15,638	11,433	8,940	4,833	89,243
Other (2.3)	598	607	751	693	670	368	3,687
Unknown household (3.1)	6,785	4,200	4,310	2,466	2,145	1,034	20,940
Unknown other (3.2, 3.9)	5,214	3,400	3,765	3,060	2,561	1,344	19,344
Not Eligible (4.0)	48,204	24,552	27,049	18,945	14,187	6,462	139,399
e	0.574	0.603	0.559	0.578	0.597	0.627	0.579
Response Rate 1	0.137	0.131	0.119	0.119	0.121	0.125	0.132
Response Rate 2	0.137	0.131	0.119	0.119	0.121	0.125	0.132
Response Rate 3	0.146	0.140	0.130	0.129	0.131	0.134	0.142
Response Rate 4	0.146	0.140	0.130	0.129	0.131	0.134	0.142
Cooperation Rate 1	0.312	0.292	0.271	0.258	0.258	0.275	0.297
Cooperation Rate 2	0.312	0.292	0.271	0.258	0.258	0.275	0.297
Cooperation Rate 3	0.317	0.301	0.282	0.271	0.273	0.293	0.305
Cooperation Rate 4	0.317	0.301	0.282	0.271	0.273	0.293	0.305
Refusal Rate 1	0.294	0.305	0.303	0.320	0.322	0.302	0.300
Refusal Rate 2	0.315	0.326	0.331	0.346	0.348	0.324	0.322
Refusal Rate 3	0.348	0.367	0.374	0.389	0.394	0.368	0.359
Contact Rate 1	0.438	0.449	0.440	0.462	0.469	0.455	0.443
Contact Rate 2	0.470	0.481	0.480	0.499	0.507	0.488	0.476
Contact Rate 3	0.519	0.540	0.543	0.560	0.574	0.555	0.531

Note: Outcome rates and *e* in the total column are weighted for stratum probabilities of selection (N_h/n_h).

Combined

	Very Low Density	Low Density	Medium Density	High Density	Very High Density	Orth-odox	Russian	Totals
Total phone numbers used	366,466	254,139	197,398	162,727	107,224	65,039	22,374	1,175,367
Completes and Screen-Outs (1.0/1.1)	24,614	14,999	11,055	8,873	5,907	4,406	1,297	71,151
Partial Interviews (1.2)	0	0	0	0	0	0	0	0
Refusal and break off (2.1)	41,869	26,996	22,268	18,710	13,360	8,521	2,627	134,351
Non Contact (2.2)	45,242	29,556	23,602	18,451	13,462	7,699	1,306	139,318
Other (2.3)	1,923	1,771	1,796	1,689	1,140	867	587	9,773
Unknown household (3.1)	27,698	21,235	17,120	13,755	9,988	5,647	1,948	97,391
Unknown other (3.2, 3.9)	10,346	7,182	6,542	5,685	4,385	2,981	848	37,969
Not Eligible (4.0)	214,774	152,400	115,015	95,564	58,982	34,918	13,761	685,414
e	0.437	0.456	0.434	0.430	0.463	0.490	0.297	0.441
Response Rate 1	0.150	0.138	0.126	0.126	0.122	0.135	0.151	0.142
Response Rate 2	0.150	0.138	0.126	0.126	0.122	0.135	0.151	0.142
Response Rate 3	0.169	0.156	0.146	0.145	0.140	0.153	0.195	0.161
Response Rate 4	0.169	0.156	0.146	0.145	0.140	0.153	0.195	0.161
Cooperation Rate 1	0.336	0.312	0.291	0.280	0.273	0.296	0.288	0.320
Cooperation Rate 2	0.336	0.312	0.291	0.280	0.273	0.296	0.288	0.320
Cooperation Rate 3	0.344	0.323	0.305	0.296	0.289	0.315	0.331	0.331
Cooperation Rate 4	0.344	0.323	0.305	0.296	0.289	0.315	0.331	0.331
Refusal Rate 1	0.285	0.289	0.287	0.299	0.300	0.293	0.305	0.287
Refusal Rate 2	0.322	0.327	0.332	0.345	0.344	0.332	0.395	0.326
Refusal Rate 3	0.358	0.367	0.376	0.390	0.394	0.381	0.452	0.365
Contact Rate 1	0.445	0.441	0.433	0.449	0.446	0.456	0.524	0.443
Contact Rate 2	0.502	0.499	0.500	0.517	0.512	0.517	0.679	0.503
Contact Rate 3	0.559	0.562	0.567	0.585	0.587	0.592	0.775	0.563

Notes: Outcome rates and *e* are based on summed weighted totals of landline and cellphone frame. Eligibility is based on responses to the screener interview.