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Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files

Despite sparseness of telephone numbers, a national registration-based poll yielded estimates on par with a parallel random-digit-dial poll

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Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files

Despite sparseness of telephone numbers, a national registration-based poll yielded estimates on par with a parallel random-digit-dial poll

A new telephone survey experiment finds that, despite major structural differences, an opinion poll drawn from a commercial voter file can produce results similar to those from a sample based on random-digit-dialing (RDD). The study intentionally pushed the boundaries of current polling practices by employing a voter file and a registration-based sampling (RBS) approach as the basis of a full national sample. While voter files are widely used for election surveys at the state and local level, relatively few pollsters have employed them for national surveys. As a result, there are few settled best practices for how to draw national samples from voter files and how to handle missing phone numbers.

The study also tackles the question of how successful voter files are in representing Americans as a whole, including those who are *not* registered to vote. This research was possible because voter file vendors are increasingly trying to provide coverage of all U.S. adults, including those who are not registered to vote, by combining state voter rolls with other commercially available databases.

On the large majority of survey questions compared (56 of 65), RBS and RDD polls produced estimates that were statistically indistinguishable.¹ Where the polls differed, the RBS results tilted somewhat more Democratic than the RDD results.

An analysis of survey participation among registered voters in the RBS sample found that any partisan differences between RDD and RBS surveys are unlikely to be the result of too many Democrats responding. In fact, the set of confirmed registered voters who participated in the RBS survey were somewhat more Republican than the national voter file as a whole in terms of their modeled partisanship (38% vs. 33%, respectively).² The routine demographic weighting applied to the sample corrected most of this overrepresentation.

Viewed comparatively, the study found several notable advantages to national sampling using the voter file. One such advantage of RBS is the ability to compare the partisan leanings of people who respond to a poll to those who do not – giving researchers some sense as to whether the





¹ By chance alone, the RDD and RBS polls would be expected to differ on roughly three of 65 questions. The statistical test applied here compares the RDD and RBS estimates for the first answer category on each question, excluding demographics and split-formed items.

² The same pattern is observed if party registration rather than modeled party affiliation is used.

nonresponders are significantly different from those who are answering. By comparison, little is known about those who do not respond to RDD surveys. RBS is also less expensive to conduct

Despite missing phone numbers on the RBS sampling frame, estimates were on par with RDD

Comparison of the RDD and RBS samples

	RDD	RBS	Advantage
What share of U.S. adults had a chance of being called? (coverage rate)	 97%	 <54%	RDD
What share of U.S. registered voters had a chance of being called? (coverage rate)	 97%	 60%	RDD
Demographic representation	Proportionally too many college grads, whites and seniors before weighting (approximate design effect 1.4)	Same pattern as RDD but more acute (approximate design effect 2.2)	RDD
Based on benchmark items, how accurate were estimates for U.S. adults ?	3.9 pts. avg. bias	3.3 pts. avg. bias	About even
Based on benchmark items, how accurate were estimates for U.S. registered voters ?	4.4 pts. avg. bias	4.3 pts. avg. bias	About even
Response rate	6% (AAPOR RR3)	8% (AAPOR RR3)	About even
Cost	Roughly 25% higher than RBS (per hour)	—	RBS
Ability to assess nonresponse error	Poor. All that is known about refusers to the poll are characteristics of the area where their phone number is assigned	Excellent. Turnout history, modeled partisanship and more are available for respondents and refusers	RBS

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018.

RDD coverage rates come from the 2017 National Health Interview Survey.

"Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

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because the phone numbers that are available are more likely to be in service. Two-thirds (66%) of the numbers dialed in the RBS survey were working and residential, versus fewer than half (44%) of those dialed in the RDD survey.

The major limitation of RBS for telephone polling is the absence of a phone number for wide swaths of the public. Unlike RDD samples, which are based on telephone numbers, RBS samples are based on lists of people who may or may not have an associated telephone number on the file. In the national voter file used in this study, a phone number was available for 60% of registered voter records and 54% of the nonregistered adult records. A key finding is that this low coverage rate did not translate into inferior estimates, relative to RDD. On 15 questions where benchmark data were available from government surveys, the RBS and RDD polls showed similar levels of accuracy on estimates for all U.S. adults and also in a companion analysis that examined five benchmark questions for registered voters. When the RBS and RDD estimates differed from the benchmarks, they both tended to overrepresent adults who are struggling financially. For example, the American Community Survey finds that about one-in-ten U.S. adults (10%) do not have health insurance, but this rate was 13% in the RDD survey and 14% in the RBS.

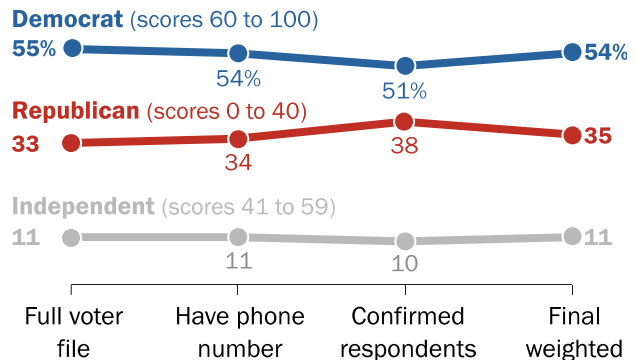
The RDD survey was conducted according to Pew Research Center's [standard protocol](#) for telephone surveys. Interviewing occurred from April 25 to May 1, 2018, with 1,503 adults living in the U.S., including 376 respondents on a landline telephone (25% of the total) and 1,127 on a cellphone (75%). The parallel RBS survey interviewed 1,800 adults, with 884 interviewed on a landline (49%) and 916 interviewed on a cellphone (51%) using a seven-call protocol, which was also used for the RDD survey. Interviewing began April 25 and concluded on May 17, 2018. Both surveys included interviews in English and Spanish.

Other key findings:

- **Whites reached by RBS were more Democratic than those reached by RDD.**
Among non-Hispanic whites, partisanship was evenly split in the RBS survey (46% identified

Nonresponse tilted RBS sample more Republican; largely fixed by weighting

Modeled partisan leaning for RVs in RBS study



Source: "Full voter file" and "Have phone number" figures come from 1% sample of national voter file. Figures for confirmed respondents and final weighted come from RBS survey conducted April 25-May 17, 2018.
"Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

PEW RESEARCH CENTER

with or leaned to the Republican Party, 46% identified with or leaned to the Democratic Party), while in the RDD there was a 16-point Republican advantage (53% Republican, 37% Democrat). The pattern was reversed for Hispanics.

- **Presence of phone numbers on the RBS frame varies substantially by state.** In the national registered voter file used for this study, the share of records with a phone number ranged from a low of 30% in Alaska to a high of 84% in Indiana. This phenomenon has [long been discussed](#) by survey researchers and has greater implications for state and local surveys than national ones.³
- **Both RBS and RDD surveys recorded a low response rate.** One of the purported advantages of RBS surveys is their efficiency. Unlike RDD surveys, which rely on lists of potentially working telephone numbers, RBS surveys leverage lists of actual Americans. In addition, RBS surveys typically focus on registered voters, a population that tends to be more cooperative with survey requests than those who are unregistered. The overall response rate was 8% for the RBS survey versus 6% for the RDD survey.
- **The RBS survey required more weighting than the RDD survey.** While the pool of adults responding to both the RDD and RBS surveys contained proportionally too many college graduates, non-Hispanic whites and older adults, the severity of these imbalances was more acute for the RBS survey. For example, while 19% of U.S. adults are ages 65 and older, this rate was 42% in the RDD sample and 49% in the RBS sample, prior to weighting. Consequently, despite its larger sample size, the margin of error for the RBS survey was larger than that of the RDD survey (3.4 and 3.0 percentage points, respectively).

Overview of study methodology

As part of a multi-year examination of commercial voter files – lists of U.S. adults that combine state voter registries with other public and commercial databases – Pew Research Center conducted parallel national telephone surveys to compare voter files with random-digit-dialing as a sample source. A comparison of results from the two sources is the subject of this report. Among the goals of the study is to determine whether commercial voter files (RBS) could provide data of comparable or better quality than RDD at similar or lower cost. The parallel surveys employed nearly identical questionnaires and were conducted in roughly the same time period (April and May of 2018). The questionnaires included content typical of Pew Research Center political surveys, along with several measures of economic, demographic and lifestyle characteristics for which government statistics are available as a benchmark.

³ Although not a focus of this report, voter files also [vary by state](#) in the quality of information available about the voters' partisan leanings.

Despite their name, commercial voter files are not limited to registered voters. As research and targeting using these voter files has become more widespread, voter file vendors are increasingly trying to provide coverage of all U.S. adults, including those who are not registered to vote. Accordingly, assessing their suitability as a source for producing a representative sample of the entire U.S. adult population is a key objective of this study.

To obtain the RBS samples for this study, Pew Research Center purchased samples consisting of 1% of the total number of records separately in the registered voter and nonregistered adult databases from L2, a nonpartisan commercial voter file vendor. From these two 1% files, smaller samples were drawn for survey administration. An effort was made to locate a telephone number for all records that did not already have one attached. Telephone numbers were ultimately available or located for 73% of individuals in the RBS registered voter sample and for 55% of those in the RBS nonregistered sample.

Linking named individuals in the voter files to the obtained survey respondent makes it possible to take advantage of important information on the files, most notably an individual's history of turnout in previous elections. For those reached on a landline, the survey asked for the sampled person by name before proceeding with the interview. If the named person was not living in the household, the interview ended. Due to greater effort and expense involved in obtaining cellphone respondents, researchers took a different approach with the cellphone respondents. Respondents reached on a cellphone were administered the entire interview and asked to confirm their name at the end. More than six-in-ten cellphone respondents (62%) confirmed being the person named on the sampled record. Following the interview, an effort was made to locate those who did not confirm their name (N=351, or 38% of all cellphone respondents) in the L2 databases. In total, 36 of these 351 respondents were located under a different telephone number. Including the 884 landline respondents, a total of 1,485 of the 1,800 respondents have an associated record in either the registered voter or nonregistered database.

The RDD and RBS samples were weighted to match national population parameters for sex, age, race, Hispanic origin, region, population density, telephone usage and self-reported voter registration status. Voter registration is not typically used by Pew Research Center as a weighting variable for its RDD surveys but was employed here in order to ensure that the RDD and RBS samples were identical with respect to this important indicator of political engagement.⁴

⁴ Because the relative shares of the RBS sample drawn from the registered and nonregistered databases are arbitrary, the resulting level of self-reported voter registration is not necessarily representative of the actual level in the population.

Limitations and caveats

While this report provides evidence that RBS samples can produce results comparable to RDD samples, several limitations of this study should be noted. First of all, it is a single experiment with an RBS sample from a single vendor. An RBS sample from a different vendor might produce somewhat different results.⁵

While RBS samples are widely used for election polling in individual states and localities, there have been relatively few national RBS surveys like the one conducted here.⁶ As a consequence, there are few widely accepted best practices for national surveys among practitioners. Pew Research Center researchers made a number of choices in designing the RBS study that might differ from what other researchers would choose to do. For example, RBS pollsters typically sample only records that have a phone number on file, but this RBS sample was selected without regard to presence of a phone number. This enabled us to test whether there would be a material benefit from sampling records that could be matched to a phone number with greater effort. This RBS survey also sampled 21% of its respondents from the vendor's national database of unregistered adults. We are not aware of any other RBS polls that have sampled nonregistered cases.

Despite efforts to ensure that the RBS and RDD survey efforts were identical in all respects other than the samples used, some differences occurred. The field period for the RBS study was 16 days longer than for the RDD survey, due mainly to limits on availability of interviewer labor. In addition, the ratio of cellphone to landline respondents was 75%-to-25% in the RDD survey and 50%-50% in the RBS survey, as the majority of telephone numbers available in voter files are landlines.

⁵ A recent Center [study](#) explored differences between five voter file vendors in the accuracy of data they were able to match to a national sample of adults (specifically the 3,985 adults active in the American Trends Panel).

⁶ While Pew Research Center is not aware of other studies comparing RBS and RDD for national polling, a number of comparative studies have been done at the state level. These include: Donald P. Green and Alan S. Gerber. 2006. "Can Registration-Based Sampling Improve the Accuracy of Midterm Election Forecasts?" *Public Opinion Quarterly* 70:197-223; Warren Mitofsky, Joel Bloom, Joseph Lenski, Scott Dingman, and Jennifer Agiesta. 2005. "A Dual Frame RDD/Registration-Based Sample Design: Lessons from Oregon's 2004 National Election Pool Survey." *Proceedings of the Survey Research Methods Section of the American Statistical Association*, Alexandria, VA: 3929-3936; Joseph Shipman and Jay H. Leve. 2006. "Gunfight at the Cleveland Mayoral Primary Corral: RBS Vs RDD in a Head-to-Head Test." *Proceedings of the American Association for Public Opinion Research, 2006 Annual Conference*: 1-17.

1. RBS and RDD polls yield broadly similar pictures of the public's mood

Commercial voter files are used predominantly as sampling sources for surveys of registered voters, but most of the major vote file vendors say that their databases provide coverage of the nonregistered as well. The sample used in this study is drawn from both registered voter (RV) and nonregistered (non-RV) databases marketed by the vendor. This section of the report compares general public samples from random-digit-dial and registration-based sources.

The RDD and RBS samples produce similar results across a wide range of topics. Reported party affiliation, approval of Donald Trump and two measures of electoral engagement – 2016 general election turnout and attention to news about the 2018 elections – are very similar in the two samples.⁷ On two other measures of attention to news about foreign affairs (the Iran nuclear agreement and negotiations with North Korea), respondents in the RBS sample were slightly more likely than those in the RDD sample to say they had heard “a lot” about these issues.

On a few items, there is a slight tendency for the RDD sample to produce more conservative attitudes and pro-Republican responses, but the differences tend to be quite small. For example, self-described conservatives make up 36% of

Political estimates from RDD and RBS surveys differ slightly

% of general public

	All RDD interviews	All RBS interviews
<i>Partisan identification</i>		
Rep/Lean Rep	40	38
Dem/Lean Dem	47	50
Difference	D+7	D+12
<i>Trump approval</i>		
Approve	38	36
Disapprove	53	56
<i>Political ideology</i>		
Conservative	36	29
Moderate	33	34
Liberal	24	29
<i>Follow news about elections</i>		
Very/fairly closely	49	51
Not too/not at all closely	51	48
<i>Self-reported 2016 vote</i>		
Voted	59	59
Did not vote	41	41
Unweighted n	1,503	1,800

Notes: RBS and RDD figures are weighted. RBS figures that differ significantly from the RDD figures **in bold**.

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018.

“Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files”

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⁷ In order to remove one potential source of difference between the RDD and RBS samples, the self-reported registered voter share in each sample was weighted to match a national parameter for voter registration and so is identical in the two samples. This was done because the registered voter share in the RBS sample is somewhat arbitrary depending, in part, on what proportion of the total sample is drawn from the RV vs. non-RV databases.

the RDD sample, compared with 29% of the RBS sample.⁸ And more respondents in the RDD than the RBS sample say the Republican Party has good policy ideas and high ethical standards. The share saying the U.S. has a responsibility to accept refugees was also lower in the RDD sample (51%) than the RBS sample (56%).

But for the most part, partisan and policy differences between the samples are quite modest. Notably, there is no difference between the estimates produced in the two surveys in opinion about the proper size of government, a key political orientation that has defined the division between Republicans and Democrats for [decades](#). Respondents in both samples are roughly evenly divided over whether we need a bigger or a smaller government.

On a range of specific issues, from support for free trade, to views about increased racial and ethnic diversity, to the U.S.'s proper role abroad, RBS and RDD samples produce equivalent estimates. For example, the share who said free trade is a good thing for the country is nearly identical in the RBS survey and the RDD survey (around 55% in each). Similarly, there is little difference between the surveys in views about whether the U.S. does too much, too little or about the right amount to solve the world's problems. Views on the death penalty, tariffs and renewable energy hardly differ between the samples.

Even for the small number of items on which statistically significant sample differences are observed, the main conclusions one would draw about the shape of public opinion would be similar, regardless of which sample provided the data.

On most key policy measures, RBS and RDD surveys did not differ

% of general public

	All RDD interviews	All RBS interviews
<i>Free trade is a...</i>		
Good thing	55	54
Bad thing	30	33
<i>In terms of solving the world's problems...</i>		
U.S. does too much	30	29
U.S. does too little	33	36
U.S. does right amount	29	28
<i>Prefer...</i>		
Smaller government, fewer services	45	43
Bigger government, more services	46	48
<i>Increased diversity makes the U.S...</i>		
A better place to live	57	60
A worse place to live	9	6
Doesn't make much difference either way	31	32
<i>The U.S. ___ to accept refugees</i>		
Has a responsibility	51	56
Does not have a responsibility	43	37
Unweighted n	1,503	1,800

Notes: Figures are weighted. RBS figures that differ significantly from the RDD figures **in bold**.

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018.

"Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

PEW RESEARCH CENTER

⁸ Political scientists have shown that self-reported ideology is a flawed measure of Americans' political attitudes. That said, study focuses on the differences between RBS and RDD, and the difference observed on ideology comports with other patterns in the data.

RBS figures for registered voters tended to tilt more Democratic than those from RDD

When the samples are narrowed to include only registered voters, somewhat larger political differences emerge. Given that this RBS survey interviewed a broader sample than is typical in practice (e.g., including 385 interviews from a database of nonregistered adults), two sets of weighted registered voter estimates are presented.

The “self-described” RV estimates are based on all RBS survey respondents (whether from the registered or nonregistered databases) who reported being registered to vote at their current address. These estimates provide the best apples-to-apples comparison with the RDD survey, which used the same criterion to define RVs. The “confirmed” RV estimates are not based on self-reporting, but on whether the respondent was identified in the voter file as being registered and confirmed that they were the person named on the file. The confirmed RV estimates presumably come closer to common practice among pollsters using RBS because the estimates are restricted to registered voter file sample.

The RDD and RBS surveys paint somewhat different pictures of registered voter sentiment on the upcoming midterm election. Both surveys (conducted in the spring) show more support for Democratic congressional candidates than Republican

ones, but the estimates from the RDD survey suggest a smaller Democratic advantage than estimates from the RBS survey. Among RVs from the RDD survey, 48% choose or lean toward the Democratic candidate, while 44% choose or lean Republican. Among self-described RVs from the RBS survey, 53% choose or lean toward the Democratic candidate, while 39% choose or lean

Registered voters from RBS were slightly more conservative than those from RDD

% of registered voters

	RDD survey	RBS survey	RBS survey
	Self-described	Self-described	Confirmed
<i>Trump approval</i>			
Approve	41	38	39
Disapprove	53	56	55
<i>Partisan identification</i>			
Rep/Lean Rep	45	41	43
Dem/Lean Dem	47	52	50
Difference	D+2	D+11	D+7
<i>Political ideology</i>			
Conservative	40	33	34
Moderate	30	36	34
Liberal	25	27	28
<i>2018 House vote</i>			
Republican candidate	44	39	42
Democratic candidate	48	53	50
Difference	D+4	D+14	D+8
Unweighted n	1,221	1,595	1,165

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. RBS figures that differ significantly from the RDD figures **in bold**.

“Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files”

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Republican. Results for confirmed RVs in the RBS survey fell in between (50% favoring the Democrat; 42% favoring the Republican).

And while political ideology is a fraught measure,⁹ it showed a similar pattern. RVs from the RDD poll were more likely to describe their views as conservative (40%) than the confirmed RVs from the RBS poll (34%).

On most policy questions, there was no discernable gap between the RV figures coming from the two polls, as differences fell within the margin of error. The RDD and RBS samples produced highly similar registered voter figures for questions about free trade, unions, the death penalty, the proper size of government and more.

On the few policy items that were appreciably different across samples, the RBS estimates were more liberal than those from RDD. The share of registered voters expressing support for the U.S. developing alternative energy sources over expanding production of oil, coal and natural gas was 69% in the RBS poll versus 64% in the RDD poll. Confirmed RVs from RBS were also more likely to say that the U.S. has a responsibility to accept refugees (57%) than those from RDD (51%).

RDD and RBS produce similar figures for registered voters on policies

% of registered voters

	RDD survey Self-described	RBS survey Self-described	RBS survey Confirmed
<i>Priority for U.S. energy supply should be...</i>			
Alternative sources	64	69	69
Oil, coal, natural gas	24	21	20
<i>The U.S. ___ to accept refugees</i>			
Has a responsibility	51	54	57
Does not have a responsibility	44	39	37
<i>Free trade is a...</i>			
Good thing	54	53	53
Bad thing	32	33	34
<i>Decline of unions is...</i>			
Mostly good for working people	37	33	33
Mostly bad for working people	52	56	54
<i>Prefer...</i>			
Smaller government, fewer services	50	46	47
Bigger government, more services	41	45	43
Unweighted n	1,221	1,595	1,165

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. RBS figures that differ significantly from the RDD figures **in bold**.

“Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files”

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⁹ Kinder, Donald R. and Nathan P. Kalmoe. 2017. “Neither Liberal nor Conservative: Ideological Innocence in the American Public.” Chicago: University of Chicago Press.

Why do the RBS estimates tilt slightly more Democratic than those from RDD?

On paper, structural aspects of registration-based sampling seem to make it more effective for reaching Republicans than Democrats. Generally speaking, people must be registered to vote in order to be interviewed in an RBS survey. Studies, including this one, have long found that Republicans and those who lean Republican are more likely to be registered to vote than Democrats and Democratic leaners (72% vs. 64%, respectively, in the RDD survey). Furthermore, phone numbers on the voter file can get out-of-date, especially when people move. A 2016 Center survey found that Republicans are less likely than Democrats to have moved within the last five years (34% vs. 40%, respectively). A person's chance of getting selected for an RDD survey, by contrast, is not tied to their registration status or how long they've lived at their home.

The results from this study showing an RBS sample that tilts, if anything, slightly more Democratic than an RDD sample run counter to these structural considerations. So, what's going on?

There is no clear answer. Much of that difference between the RDD and RBS results stems from white non-Hispanic adults. Among whites, partisanship is evenly split in the RBS survey (46% identify with or lean to the Republican Party, while 46% identify with or lean to the Democratic Party). The RDD survey shows a 16-point Republican advantage (53% Republican vs. 37% Democrat).

The pattern is reversed for Hispanics. While Hispanics in both surveys are more likely to identify with or lean Democratic than Republican, the RDD survey produces a larger Democratic

Whites interviewed in RBS poll were more Democratic than those from RDD poll

% of general public

	Whites		Blacks		Hispanics	
	RDD	RBS	RDD	RBS	RDD	RBS
<i>Partisan identification</i>						
Rep/Lean Rep	53	46	9	6	17	31
Dem/Lean Dem	37	46	78	87	62	52
Difference	R+16	--	D+69	D+81	D+45	D+21
<i>Trump approval</i>						
Approve	48	42	13	10	21	28
Disapprove	44	50	82	81	67	65
<i>2018 House vote (among RVs)</i>						
Republican candidate	53	47	6	8	33	32
Democratic candidate	39	46	83	88	59	59
Difference	R+14	R+1	D+77	D+80	D+26	D+27
<i>Voted in 2016</i>	68	66	66	60	27	33
Unweighted n	1,006	1,341	148	139	193	146

Notes: RBS and RDD figures are weighted. RBS figures that differ significantly from the RDD figures **in bold**.

Sources: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018.

"Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

PEW RESEARCH CENTER

advantage than the RBS survey. Among self-identified Hispanics, there is a 45-point partisan gap in favor of Democrats in the RDD survey (62% Democratic vs. 17% Republican), compared with a 21-point gap in the RBS survey (52% Democratic vs. 31% Republican). Put another way, Hispanics in the RBS survey are nearly twice as likely as Hispanics in the RDD survey to identify as Republicans (31% vs. 17%). But the Hispanic population is one-quarter the size of the white population in the U.S., so patterns among whites tend to outweigh patterns among Hispanics in estimates for the entire adult population. There was no clear explanation as to why whites reached by RBS differed from those reached by RDD. A look at the educational and regional distributions within the two samples of whites revealed no major differences.

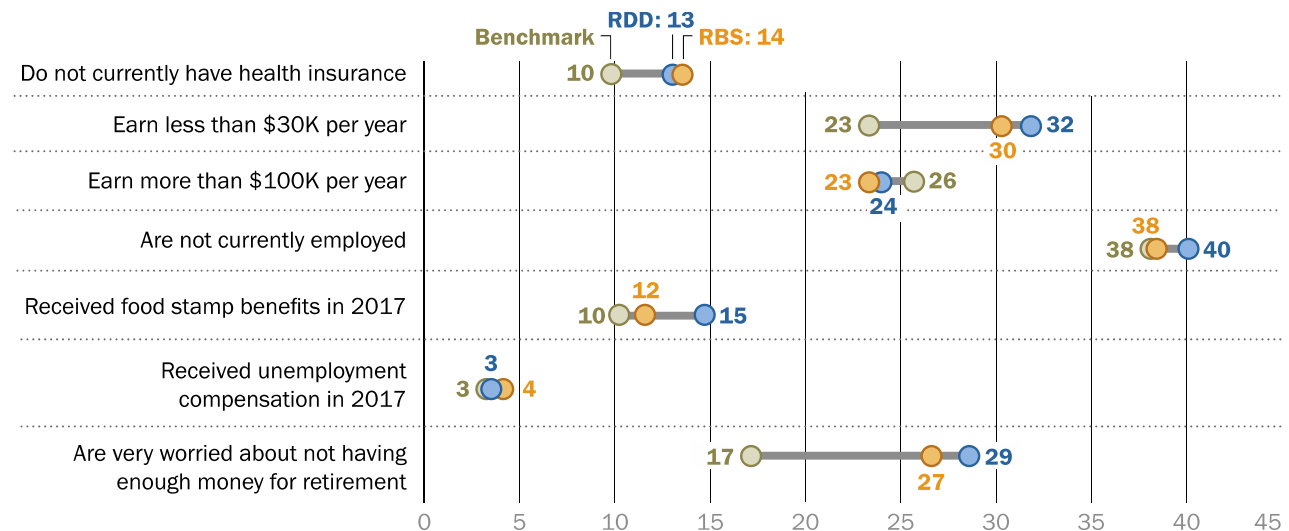
2. RBS and RDD surveys show similar levels of accuracy when compared with population benchmarks

To gauge the accuracy of estimates from the RDD and RBS samples on nonpolitical topics, the surveys included a number of questions that are also measured in high-quality federal surveys with high response rates.¹⁰ This study measures accuracy by looking at how closely the weighted RDD and RBS telephone survey estimates match up with 15 benchmarks for the U.S. adult population from the federal surveys. The benchmarks cover a range of respondent characteristics, attitudes and behaviors such as health insurance coverage, smoking, use of food stamps, employment status and sleep habits.

Overall, estimates from the RBS survey were very similar to those from the RDD survey. The mean absolute difference from government benchmarks was 3.3 for the RBS and 3.6 percentage points for the RDD surveys.¹¹ None of the RBS estimates was significantly different from the RDD estimates on the benchmark items.

Both RBS and RDD polls overrepresent adults who are struggling financially

% who say they ...



Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. Benchmark estimates from the 2016 American Community Survey or 2017 CPS Annual Social and Economic Supplement.
 “Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files”

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¹⁰ For example, the response rate for the sample adult module of the National Health Interview Survey is 54%.

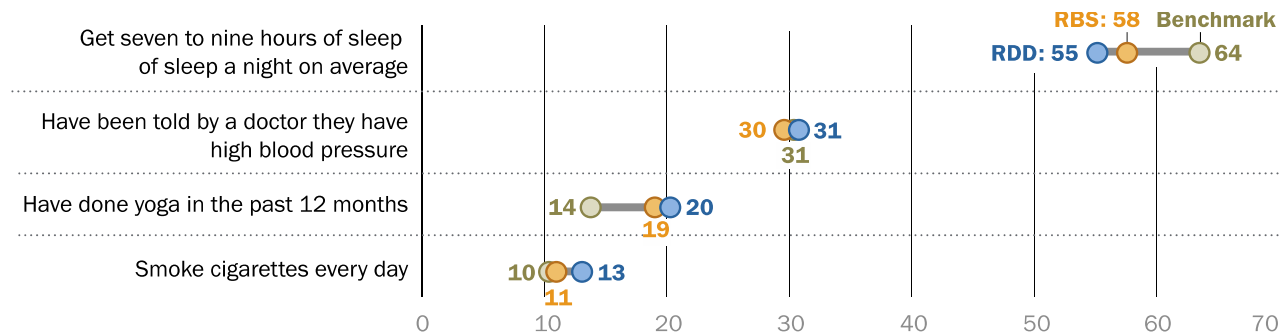
¹¹ These averages consider all substantive answer categories.

When the RBS and RDD estimates departed from the benchmarks, they tended to overrepresent adults who are struggling financially. According to the American Community Survey, about one-in-ten U.S. adults (10%) do not have health insurance, but this rate was 13% in the RDD survey and 14% in the RBS. Similarly, 30% of RBS respondents and 32% of RDD respondents reported an annual family income less than \$30,000. The benchmark from the American Community Survey, a high response rate survey conducted by the Census Bureau, is 23%. And compared with a government survey, many more telephone survey respondents (in both samples) said they were “very worried” about not having enough money for retirement.

There were also a few discernable departures from population benchmarks on a mix of lifestyle items. Both the RDD and RBS surveys overrepresented adults who live alone, average less than seven hours of sleep per night, and have practiced yoga at least once in the past 12 months.

RBS and RDD polls yield similar estimates on health measures

% who say they ...



Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. Benchmark estimates from the 2016 American Community Survey or 2017 CPS Annual Social and Economic Supplement.

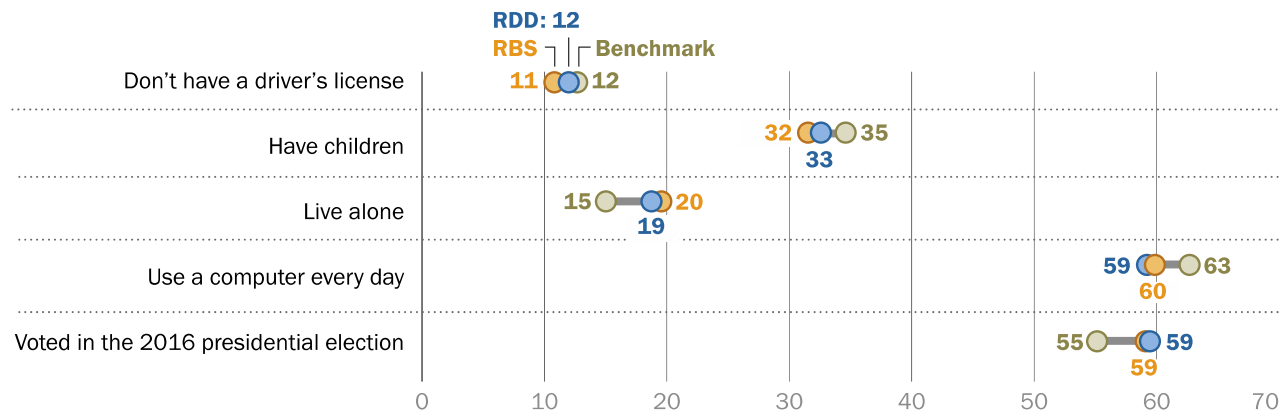
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But on about half (seven) of the 15 benchmarks, the RDD and RBS surveys both captured the benchmark value within the telephone surveys’ margin of error. For example, both surveys were highly accurate on the share of American receiving unemployment benefits, the share not employed and the share diagnosed with high blood pressure.

On key demographic and lifestyle benchmarks, RBS and RDD surveys closely align

% who say they ...



Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. Benchmark estimates from the 2016 American Community Survey or 2017 CPS Annual Social and Economic Supplement.
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The study also found highly similar levels of accuracy from the RBS and RDD surveys for subgroup estimates. For example, RDD and RBS estimates for Hispanic adults diverged from Hispanic benchmarks by an average of 4.8 and 4.7 percentage points, respectively, across the measures examined. RDD and RBS estimates for non-Hispanic blacks diverged from benchmarks by 5.6 and 6.3 percentage points, respectively. Indeed, the clearest finding from this analysis is that the RDD and RBS surveys produced highly similar estimates on these 15 questions with reliable, known population values.

Registered voter estimates from RDD and RBS show similar levels of accuracy

The study also compared the accuracy from the RDD versus RBS surveys for estimates based on registered voters (RVs). There are fewer benchmark variables available for this analysis than for the analysis above looking at estimates for all adults. That’s because the source of benchmarks for RVs is the Current Population Survey (CPS) Voting and Registration Supplement, which does not ask about topics such as computer usage, concern about saving for retirement, or smoking.

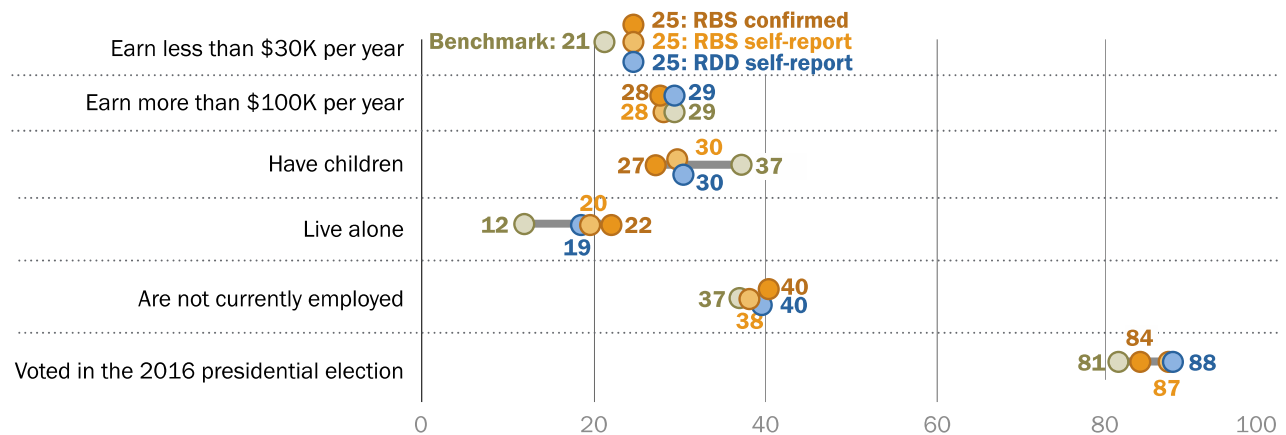
On the five questions where RV benchmarks are available, the study finds very similar levels of accuracy for the RDD and RBS surveys. Both surveys come within 3 or 4 percentage points of the

RV benchmark for employment but underrepresent those with children and overrepresent those living alone.

As with the benchmarks for the entire adult population, this RV analysis suggests that both the RBS and RDD surveys slightly overrepresent adults struggling financially. For example, the CPS

RBS and RDD polls yield similar estimates for registered voters on benchmark questions

% who say they ...



Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. Benchmark estimates from the 2016 American Community Survey or 2017 CPS Annual Social and Economic Supplement.

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benchmark shows that one-in-five RVs (21%) have annual family income under \$30,000, but in both the RDD and RBS surveys that share was one-quarter (25%).

Caveats about benchmarks

Assessing bias in surveys requires an objective standard to which the findings can be compared. In election polling, this standard is the outcome of the election – at least for measures of voting intention. Administrative records, such as the number of licensed drivers, can provide others. But most benchmarks are taken from other surveys. Aside from the number of licensed drivers, the benchmarks used here are drawn from large government surveys conducted at considerable expense and with great attention to survey quality. But they are nevertheless surveys and are subject to some of the same problems that face surveys like the two telephone surveys examined here.

Government surveys tend to have very high response rates compared with surveys with opinion polls conducted by commercial vendors or nonprofit organizations like Pew Research Center. Accordingly, the risk of nonresponse bias is generally thought to be lower for these government surveys, though it still exists. More relevant is the fact that all surveys, no matter the response rate, are subject to measurement error. Questions asked on government surveys are carefully developed and tested, but they are not immune to some of the factors that create problems of reliability and validity in all surveys. The context in which a question is asked – and the questions that come before it – often [affects responses](#) to it. Given that this study selects benchmarks from more than a dozen different government surveys, it is impossible to re-create the exact context in which each of the questions was asked. Similarly, all survey items may be subject to some degree of response bias, most notably “social desirability bias.” Especially when an interviewer is present, respondents may sometimes modify their responses to present themselves in a more favorable light (e.g., by overstating their frequency of voting). All of these factors can affect the comparability of seemingly identical measures asked on different surveys, though government surveys may be affected by the same forces.

One other issue is that benchmarks are generally unavailable for questions about attitudes and behaviors that the government does not study. As a result, this analysis uses benchmarks for only a subset of the questions asked on the survey. Moreover, Pew Research Center’s work – and the work of other polling organizations conducting political and social research – tends to focus on subjects and questions other than the ones for which benchmarks are available.

3. Performance of the samples

One of the claimed advantages of RBS surveys is their efficiency. Unlike RDD surveys, which rely on lists of *potentially* working telephone numbers, RBS surveys use lists of *actual* Americans. Despite these structural differences, this study found little advantage for the RBS sample in terms of efficiency. The overall response rate was 8% for the RBS survey versus 6% for the RDD survey.

What's more, at least one design decision led the RBS response rate in this study to be higher than what is typically seen in practice. When pollsters conduct RBS surveys, they often find it cost-prohibitive to require that the person they interview match the name of the voter file record sampled for the survey. We required that matching for this study, though only for landline cases. Discussions with the survey vendor and with other pollsters suggested that the match rate would be too low when calling cellphone numbers to attempt matching.

If there had been no matching requirement in this study, the response rate for RBS landline cases is projected to have been approximately 4% (rather than the observed 11%), pushing the overall RBS response rate down to a projected 5% (rather than the observed 8%).¹²

A look at the cellphones dialed in the RBS and RDD surveys provides a more apple-to-apples comparison. In both surveys, when calling a cellphone number, interviewers attempted to complete the survey with whomever answered the phone provided that the person was age 18 or older. The cellphone response rate was 6% in both surveys.

Stepping outside the RBS comparison for a moment, the response rate to the RDD survey is noteworthy on its own. The last [Pew Research Center study](#) to drill deep into RDD data quality found that, in 2016, the average response rate to the Center's RDD surveys was 9%. The RDD response rate in this study was 6%. While the rate fluctuates from survey to survey, the 6% found here is indicative of a general decrease in RDD response rates over the last two years. Identifying the causes of that decline is beyond the scope of this study, though there have been multiple

Little difference between RBS and RDD response rates

Response rate (%)

Registration-based (RBS) study	8
RBS cellphones	6
RBS landlines	11
Random-digit-dial (RDD) study	6
RDD cellphones	6
RDD landlines	7

Note: Rates use the AAPOR RR3 formula. Overall rates average the cellphone and landline components proportional to the number of completed interviews. Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. "Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

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¹² See the [appendix](#) for a discussion of why dropping the matching requirement is projected to have hurt the RBS response rate.

reports about the recent increase in telemarketing to cellphones and the effects of [technology designed to combat it](#).

Characteristics of the raw, unweighted samples

When no statistical weighting is applied to the data, shortcomings of the RBS sample come into view. The RBS sample produced a larger share of non-Hispanic whites (75% vs. 67% for the RDD sample; Non-Hispanic whites are 64% of the population) and obtained substantially fewer Hispanics: 8% in the RBS sample vs. 13% in the RDD sample. The RBS sample was also significantly older, with a 38% share of those age 65 and older, compared with 28% among the RDD sample. Respondents under 30 years of age constituted only 10% of the RBS sample but were 15% of the RDD sample (the actual population share for this age group is 22%).

The samples differed little in terms of educational achievement. As with most surveys, college graduates were substantially overrepresented

relative to their actual share of the adult population. The RBS sample did produce a better gender distribution than the RDD sample. There were roughly equal numbers of men and women in the RBS sample, while the RDD sample was 58% male, 42% female. Within the RBS sample, there were relatively modest differences in the demographic composition of the registered voter and

Demographic imbalances in RBS sample were similar to but generally more severe than RDD sample

Demographic profiles of U.S. adult population, RBS respondents and RDD respondents

	U.S. population benchmark	All RDD interviews	All RBS interviews
White, non-Hispanic	64	67	74
Black, non-Hispanic	12	10	8
Hispanic	16	13	8
Other, non-Hispanic	8	7	6
18-29	22	15	10
30-49	33	29	23
50-64	25	26	27
65+	19	28	38
Male	48	58	51
Female	52	42	49
High school grad or less	40	26	22
Some college/Associates	31	27	27
Bachelor's degree or more	29	46	50
Unweighted n	2,436,380	1,503	1,800

Notes: RBS and RDD figures are unweighted. U.S. population figures are weighted and were computed from the 2016 American Community Survey. RBS figures that differ significantly from the RDD figures **in bold**.

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018.

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nonregistered samples. Hispanics made up 7% of the registered sample and 13% of the nonregistered sample.

Among registered voters, the story was broadly the same. Both of the unweighted RV samples skew considerably older than the actual RV population. According to the CPS, about one quarter (23%) of registered voters in the U.S. are ages 65 and older, but among the confirmed RVs from the RBS sample in this study, the rate was 43%. By comparison, just 31% of the self-described RVs from the RDD survey were ages 65 and up.

The registered voter samples from the RBS survey also had disproportionately high shares of non-Hispanic whites (76% of the confirmed RVs sample compared to 72% based on the CPS). The racial and ethnic profile of the RDD RV sample, by comparison, aligned very closely with the CPS benchmarks. On education, all three RV samples over-represented college-educated RVs to a similar extent.

While the weighting applied to these RV samples eliminated nearly all of these demographic differences, the benchmark analysis suggests that the confirmed RV estimates remained a bit too influenced by older, retired adults.

Older individuals and non-Hispanic whites are a larger share of registered voters reached by RBS than by RDD

Registered voter estimates

	CPS	RDD survey Self- described	RBS survey Self- described	RBS survey Confirmed
18-29	18	11	8	8
30-64	59	56	49	46
65+	23	31	40	43
White, non-Hispanic	72	71	77	76
Hispanic	10	9	7	7
Black, non-Hispanic	12	10	8	8
Other, non-Hispanic	6	7	6	6
High school or less	33	22	21	22
Some college	31	29	27	28
College graduate	36	49	52	49
Unweighted n	66,881	1,221	1,595	1,165

Notes: CPS figures are weighted. RDD and RBS figures are unweighted. Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. RBS figures that differ significantly from the RDD figures **in bold**.

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RBS poll had larger design effects from weighting

The RBS and the RDD survey were weighted using the Center’s standard weighting protocol for RDD surveys,¹³ with an additional raking parameter of voter registration from the 2016 Current Population Survey Voting and Registration Supplement.¹⁴ One consequence of weighting is to increase the level of variability in survey estimates. The magnitude of this increase is captured by a measure known as the approximate design effect.¹⁵

Using the weighting protocol employed for this study, the RBS survey had a higher design effect than the RDD survey. The approximate design effect for estimates of all U.S. adults based on the RBS survey was 2.2 compared with 1.4 from the RDD survey. In concrete terms, this means that after weighting, despite a nominal sample size of 1,800, the RBS sample was equivalent to a simple random sample of 818 adults. Although the RDD sample had a smaller nominal sample size of 1,503, the smaller design effect gives it an effective sample size of 1,071. Consequently, the margin of error after weighting is higher for the RBS poll than the RDD poll (3.4 and 3.0 percentage points, respectively).

The main contributing factor to the higher design effect was that the unweighted RBS sample (compared with the RDD sample) diverged more sharply from the population parameters on key weighting variables. Before weighting, the RBS survey had a higher share of non-Hispanic whites, adults with a bachelor’s degree or more and adults ages 65 or older. Sample design decisions for the RBS survey (e.g., sampling from both RV and non-RV databases and sampling records with no phone number) also impact the design effect. However, the effect of the demographic weighting adjustments was much larger.

Higher design effects in RBS poll than in RDD

Design effects in RDD and RBS surveys

	Approximate design effect
<i>Estimates for all adults</i>	
RBS survey	2.2
RDD survey	1.4
<i>Estimates for self-described RVs</i>	
RBS survey	1.8
RDD survey	1.3
<i>Estimates for confirmed RVs</i>	
RBS survey	1.5

Source: RBS survey conducted April 25–May 17, 2018. RDD survey conducted April 25–May 1, 2018. “Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files”

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¹³ See appendix for details.

¹⁴ This was done, in part, because the share of self-described registered voters in the RBS sample was to some extent arbitrary, a function in part of the share of the overall sample drawn from the registered vs. non-registered databases of the vendor.

¹⁵ The approximate design effect is computed as 1 plus the squared coefficient of variation of the survey weights, as suggested in Leslie Kish. 1992. “Weighting for unequal P_i.” *Journal of Official Statistics*, Vol. 8, pp. 183-200.

Many people reached in the RBS survey were not the person on the voter record

In theory, one significant advantage of RBS surveys over RDD is that they provide the pollster with useful information about both the respondents interviewed and people who were selected but not interviewed. Using RBS, the pollsters can see the turnout history and modeled political partisan leaning for all of the sampled records before any interviewing is done. If the sample of people who take the survey looks different from those who do not, the pollster can statistically adjust the data to make it more representative.

But this idea rests on the assumption that the person interviewed is the *same person* whose registration record was selected. Anecdotally, several pollsters who use RBS have noted that the person who answers the phone is often not the person whose record was selected. Mismatches have several potential causes, such as the person on the sample record being deceased or just changing their phone number.

In fact, when designing this RBS study we heeded the vendor's recommendation that it is impractical to require that the person interviewed match the person named on the sampled record when calling cellphones. As a result, this study implemented a two-track strategy. When interviewers called a cellphone, they interviewed whomever answered the phone, provided that they were age 18 or over. At the end of the survey, the interviewer asked if they were speaking to the person named on the sampled record. Roughly two-thirds of the time (62%) the respondent confirmed that was their name.

When interviewers called a landline in the RBS study, they started the interview by asking to speak with the person named on the sample records. Less than a third of the time (31%), the person answering confirmed that the name on the sample record belonged to them.

On the surface, these results might seem to suggest that it was easier to reach the person on the sample record when calling cellphone numbers than landlines. But that is not an accurate conclusion, because the landline confirmation was a screening question at the very *beginning* of the interview and the cellphone confirmation occurred at the *end*, making the two rates not directly comparable. It is well documented that screening questions tend to lead to motivated underreporting, such as declining to confirm in order to avoid an interview.¹⁶

¹⁶ Tourangeau, Roger, Frauke Kreuter and Stephanie Eckman. 2012. "Motivated Underreporting in Screening Interviews." *Public Opinion Quarterly*, 76: 453-469.

Moreover, the cellphone rate is restricted to just the 916 cooperative people who completed the entire interview. The landline rate, by contrast, is based on a much larger pool of 3,292 people comprised mostly of people who simply gave some indication that the interviewer had reached the wrong number and were not interviewed. In other words, the denominator of the landline rate seems to contain cases that may have been eligible but were refusing the interview request. After consulting with the survey vendor, we determined that this was the cleanest way to compute the confirmation rate among the landline cases. In addition, the landline confirmation rate in this study may be lower than normal due to an oversight made by the sample vendor, in which the sample they initially provided did not include the most recent phone numbers available to them. The affected cases were updated during the field period, but this may have reduced the possibility of reaching the person on the sample record early in the field period.

While the exact name confirmation rates in this study may not generalize very well for a number of reasons, they do underscore the general difficulty in trying to interview the person corresponding to the sample record in an RBS survey.

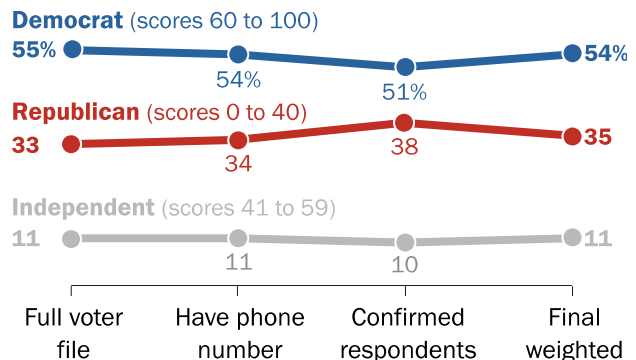
4. The RBS poll comports well with data from the full voter file about the partisanship of registered voters

The finding that the registration-based poll tilted slightly less politically conservative than the random-digit-dial poll raises the possibility that the RBS poll suffered from differential partisan nonresponse, with the Republicans called in the RBS poll being less likely to participate than Democrats. That would yield an RBS poll that was too Democratic relative to the U.S. as a whole. But a comparison of those sampled with those responding shows that Republicans were actually more likely to respond than Democrats. Furthermore, routine weighting brought the RBS poll basically in line with registered voters on the full national voter file.

Unlike with RDD, RBS polling makes it possible to examine the political partisanship of the survey respondents, the nonrespondents and the U.S. as a whole. For those individuals identified as registered to vote by state governments, the voter file has a score (ranging from 0 to 100) describing their likelihood of voting for Democrats or Republicans, with higher numbers indicating a preference for Democrats. These data are modeled estimates of political partisanship by the vendor, and they account for a person's party registration, race, where they live and other characteristics appended from other publicly available databases. Analysis conducted as part of this study (and others) confirmed that the modeled partisanship data correspond closely with people's own responses about their political leanings.

Nonresponse tilted RBS sample more Republican; largely fixed by weighting

Modeled partisan leaning for RVs in RBS study



Source: "Full voter file" and "Have phone number" figures come from 1% sample of national voter file. Figures for confirmed respondents and final weighted come from RBS survey conducted April 25-May 17, 2018.

"Comparing Survey Sampling Strategies: Random-Digit Dial vs. Voter Files"

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Normally, an RBS pollster would just have access to the modeled partisanship of the people sampled for the poll. For this study, Pew Research Center supplemented that with a file consisting of a representative 1% of the total registered voter records in the commercial voter file vendor's

database. In this section, “full voter file” is used as shorthand for estimates computed using the 1% sample of registered voters.¹⁷

According to the full voter file, 55% of all registered voters in the U.S. are likely Democrats and 33% are likely Republicans.¹⁸ This is based on a scale of 0 to 100, where higher scores (60 to 100) indicate that someone is more likely to be Democratic and lower scores (0 to 40) indicate someone is more likely to be Republican (scores closer to the middle indicate weaker partisanship/no partisan leaning). These figures are almost exactly the same for the subset of records with telephone numbers on the file. However, among the registered voters who responded to the RBS survey, 51% were likely Democrats and 38% were likely Republicans. This indicates that Democratic-leaning adults were not more inclined to take the survey than Republican-leaning ones. Furthermore, weighting, which did not adjust on partisanship, brought the composition back in line with the complete file. This suggests that any partisan imbalance was not the result of telephone coverage or nonresponse among the registered portion of the RBS sample.

Telephone coverage and nonresponse for registered voters

Analysis of how the RBS poll respondents compared with the full voter file provided many additional insights beyond just partisan nonresponse. To unpack this, it is useful to note that there are two main problems that can lead to unrepresentative samples: noncoverage and nonresponse. Noncoverage means that some individuals in the population are not listed in the frame used to select the sample. Nonresponse occurs when some portion of those who were sampled ultimately do not complete the survey, typically because they could not be reached or declined to participate. Both noncoverage and nonresponse mean that some portion of the population is not included in the final set of survey respondents. If that missing portion is sufficiently large and systematically different from the rest of the population, the result can be biased survey estimates. All surveys suffer from noncoverage and nonresponse to some extent, and pollsters use weighting adjustments to try to correct any imbalances and reduce bias.

Since most public opinion telephone surveys have response rates in the single digits, nonresponse receives the lion’s share of attention from pollsters and survey methodologists. What’s more, the

¹⁷ Analysis in this section is restricted to the RBS sample vendor’s registered voter records and does not include records for the unregistered because several key variables (e.g., modeled party affiliation, election turnout) are not available for the latter.

¹⁸ The sample drawn for the RBS poll was designed to be representative of the country. As expected, the modeled partisanship for all the registered voter records sampled for the poll, which includes respondents and nonrespondents, was 55% likely Democrat and 33% likely Republicans. This is exactly the same as the distribution for the entire national 1% file, which rules out sampling error as a potential reason for differences between the RBS poll estimates and the full voter file.

landline and cellphone frames used for RDD telephone surveys together cover about 97% of the adult population in the U.S., making noncoverage much less of a concern.¹⁹

For RBS surveys based on voter files, the story is very different, at least with respect to coverage. While nearly all registered voters are listed in state voter files, many of those records do not have an associated telephone number. For this study, the sample of registered voters was drawn from a representative 1% sample of the vendor's voter file. Only 60% of the records in that file had any kind of telephone number. Importantly, the coverage rate varied considerably across states, ranging from a low of 30% in Alaska to a high of 84% in Indiana. While technically listed on the sampling frame, there is no practical way for individuals without phone numbers to be included in a telephone survey, making them effectively uncovered. For this survey, records without telephone numbers were sent to Survey Sampling International, which performed an additional search. This brought the telephone coverage rate for registered voters up to 73%.

When it comes to nonresponse, RBS and RDD surveys likely have similar dynamics – after all, it is improbable that one's decision to answer the phone and participate in a survey hinges on the pollster's choice of database. That said, there may still be important differences from RDD. This could be the case if the kinds of people who have telephone numbers on the file are also easier to contact or more willing to participate, or if asking for respondents by name influences the decision to participate.²⁰

Fortunately, commercial voter files also contain a great deal of information about everyone on the file, not just those who have a phone number or responded to the survey. This makes it possible to see how telephone coverage and nonresponse influence the composition of the survey respondents and how well weighting works to correct any imbalance.

Although the file has hundreds of variables, this analysis was limited to some basic demographics that are known to be accurate in the voter files (age, sex, and race), modeled partisanship, and voting in the 2012, 2014 and 2016 general elections. With the exception of age and vote history, which come directly from state records, these variables must be appended from other sources or estimated using statistical models.

Prior to weighting, there were substantial differences between the national file and the survey respondents confirmed to be registered voters. With few exceptions, these differences were driven

¹⁹ The telephone coverage rate comes from Stephen J. Blumberg and Julian V. Luke. "Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2017." National Center for Health Statistics. December 2017.

²⁰ For this survey, individuals who were called on a landline were asked for by name at the start of the survey. For cellphone numbers, the person who answered the phone was assumed to be the correct person and their identity was confirmed at the end of the survey.

by nonresponse rather than telephone coverage. Weighting adjustments were largely successful in correcting demographic and partisan differences, but only partially effective at reducing the overrepresentation of more engaged voters.

In terms of demographics, the complete file and the portion with telephone numbers were virtually identical. For sex, age and race, none of the categories differed by more than a percentage point. Nonresponse, on the other hand, produced much larger shifts.

The largest differences occurred with age. Individuals ages 65 and older made up 25% of the complete file and 26% of those with telephone numbers. Among respondents, the share was nearly twice as large, at 46%. The shares in the 18-29 and 30-64 age groups were lower than for the complete file by 8 and 13 percentage points respectively.

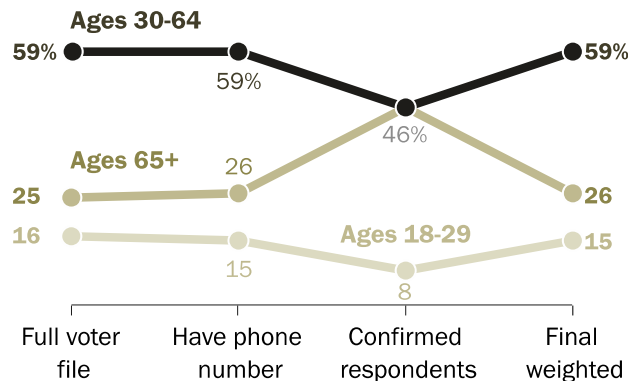
The racial composition of the unweighted sample was also significantly biased due to nonresponse. Whites made up 75% of confirmed respondents – 11 points higher than the rate on the full voter file and the portion with telephone numbers (both 64% white). The balance of men to women was only minimally affected, with men making up 46% of the full file and 49% of confirmed respondents.

After weighting respondents to match the demographic profile of registered voters in the 2016 CPS Voting and Registration Supplement, the poll's age and sex distributions both fell back in line with the figures for full national file. Weighting brought the share of white respondents down to 71%. While this is fully 7 points higher than for the complete file, it closely aligns with the CPS estimate (72%) used for weighting.

Voter turnout is the one area where telephone coverage appears to be a meaningful source of error (after weighting) in RBS polling. Across the entire file, 70% of registered voters are recorded as voting in the 2016 presidential election, 41% in the 2014 midterm and 60% in 2012. The turnout rate for all three elections is 3 to 4 percentage points higher among records with a telephone

Unweighted, RBS respondents skew older than full voter file

Age groups for registered voters



Source: "Full voter file" and "Have phone number" figures come from 1% sample of national voter file. Figures for confirmed respondents and final weighted come from RBS survey conducted April 25-May 17, 2018.

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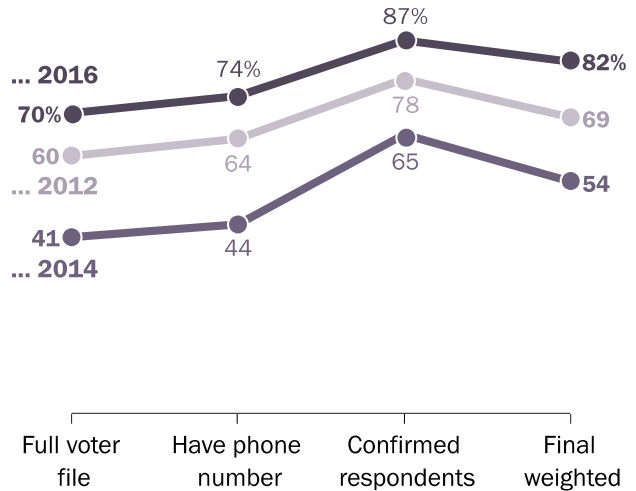
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number. After nonresponse, this relatively modest coverage bias increased by an additional 13 to 14 points for the 2012 and 2016 presidential elections and an even larger 21 points for the 2014 midterm.

The overrepresentation of more politically engaged voters was only partially corrected by weighting. At 82%, the weighted share of respondents who voted in 2016 was still 12 points higher than the full voter file. For 2014, weighting brought the share from 65% down to 54%. For 2012, weighting brought the share who voted from 78% to 69%, for a final error of 9 percentage points.

Missing phone numbers, nonresponse lead to overestimates of voting

% of current registered voters flagged as voting in...



Source: "Full voter file" and "Have phone number" figures come from 1% sample of national voter file. Figures for confirmed respondents and final weighted come from RBS survey conducted April 25-May 17, 2018.
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Appendix: Survey methodology

The random-digit-dial survey (RDD) was conducted according to Pew Research Center’s [standard protocol](#) for RDD surveys. Interviewing occurred April 25 through May 1, 2018, with 1,503 adults living in the U.S., including 376 respondents on a landline telephone (25% of the total) and 1,127 on a cellphone (75%). The parallel registration-based sampling survey interviewed 1,854 adults, with 916 interviewed on a landline (49%) and 938 interviewed on a cellphone (51%) using calling rules identical to those used for RDD surveys. Interviewing began April 25 and concluded on May 17, 2018. Both surveys included interviews in English and Spanish.

A total of 1,800 interviews were completed with a general population registration-based sample (RBS) and an additional 54 interviews were completed with respondents as part of an RBS Hispanic oversample. A decision was made during the fielding of the RBS survey to discontinue the Hispanic oversample due to exceedingly low productivity. None of the 54 interviews from the Hispanic oversample were included in analysis for this report. Abt Associates was the survey research firm.

Sampling

The sample for the RDD survey was drawn according to Pew Research Center’s [protocol RDD surveys](#). A combination of landline and cellphone random-digit-dial samples were used. Both samples were provided by Survey Sampling International. 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 age 18 or older.

The sample vendor for the RBS survey was L2, a nonpartisan commercial voter file firm. The RBS survey featured a proactive strategy to deal with missing phone numbers. The sample was selected without regard for whether the record had a phone number available or not. First, the registered voter frame was sorted by vote frequency, political party affiliation, race and age. The frame for the unregistered was sorted by race and age. Samples stratified by state and presence of a telephone number were then selected from each frame. Sampled records without a phone were processed through Survey Sampling International’s telephone append service. The pre-append was able to match in a number for roughly a quarter (28%) of the records that had been missing a phone number. These numbers accounted for 46% of the RBS interviews.

After approximately 14,000 records were loaded for dialing, the RBS sample vendor determined that the sample it originally provided did not include the most recent phone numbers available. The sample was then sent back to L2 to provide updated telephone numbers. Some 6% of records had a new telephone number after the vendor corrected the issue.

Weighting

Both the RDD and RBS surveys were weighed in two stages. The first stage of weighting for the RDD survey accounts for the fact that respondents with both landline and cellphones have a greater probability of being included in the combined sample than adults with just one type of phone. It also adjusts for household size among respondents with a landline phone. For the RBS survey, the first stage weighting accounts for similar properties in the RDD survey as well as multiplicity in the registered and non-registered frame. The first-stage weighting in the RBS also adjusts for differential probabilities of selection in areas that are more or less likely to have listed respondents without a phone number.

For the second stage, both surveys were weighted using an iterative technique to match national population parameters for sex, age, race, Hispanic origin, region, population density, telephone usage and self-reported voter registration status. Voter registration is not typically used by Pew Research Center as a weighting variable for its RDD surveys but was employed here in order to assure that the RDD and RBS samples were identical with respect to this important indicator of political engagement.²¹

No additional weighting was done to self-reported registered voters for either the RDD and RBS surveys since both full samples were weighted to targets for the total adult population. Confirmed registered voters in the RBS sample (respondents that were reached through the registered-voter file and confirmed they were the person that was sampled) were weighted to match population parameters among registered voters for sex, age, race, Hispanic origin and region from the 2016 CPS Voting Supplement.

The margins of error reported and statistical tests of significance are adjusted to account for the survey's design effect, a measure of how much efficiency is lost from the weighting procedures.

²¹ Because the relative shares of the RBS sample drawn from the registered and non-registered databases are arbitrary, the resulting level of self-reported voter registration is not necessarily representative of the actual level in the population.

Dispositions by frame and sample

Final dispositions and rates, by study and sample		RDD landline sample	RDD cell sample	RBS landline sample	RBS cell sample
Interview (Category 1)					
Complete	1.000	376	1,127	884	916
Partial	1.200	18	110	83	59
Eligible, non-interview (Category 2)					
Refusal and breakoff	2.100	36	68	64	29
Refusal	2.110	2,136	0	0	0
Respondent never available	2.210	10	0	100	0
Answering machine	2.221	1,909	0	0	0
Deceased Respondent	2.310	0	0	151	0
Physically or mentally unable/incompetent	2.320	68	0	0	0
Household-level language problem	2.331	55	0	0	0
Unknown eligibility, non-interview (Category 3)					
Always busy	3.120	374	2,219	402	723
No answer	3.130	2,301	2,459	6,409	2,179
Call blocking	3.150	38	357	110	103
No screener completed: No live contact made	3.210	0	11,664	9,127	9,016
No screener completed: Live contact made	3.210	0	9,287	7,804	6,174
Other: physically or mentally unable/incompetent	3.920	0	82	322	70
Other: language problem	3.930	0	377	206	153
Not eligible (Category 4)					
Fax/data line	4.200	550	57	556	82
Non-working/disconnect	4.300	20,177	10,865	13,520	2,438
Temporarily out of service	4.330	378	1,465	502	352
Number changed	4.500	0	0	0	1
Business, government office, other organizations	4.510	1,336	1,045	1,034	664
No eligible respondent (e.g., child phone)	4.700	0	511	2,135	243
Total phone numbers used		29,762	41,693	43,409	23,202
Completes (1.0)	I	376	1,127	884	916
Partial interviews (1.2)	P	18	110	83	59
Eligible non-interview: refusal (2.1)	R	2,172	68	64	29
Eligible non-interview: non-contact (2.2)	NC	1,919	0	100	0
Eligible non-interview: other (2.3)	O	123	0	151	0
Undetermined if working and residential (3.1)	UH	2,713	5,035	6,921	3,005

Final dispositions and rates, by study and sample		RDD landline sample	RDD cell sample	RBS landline sample	RBS cell sample
Working and residential but undetermined eligibility: live contact made	UO _c	0	9,664	8,010	6,327
Working and residential but undetermined eligibility: live contact not made	UO _{nc}	0	11,746	9,449	9,086
Not eligible: nonworking, nonresidential, or ported (4.1-4.5,4.9)	NWC	22,441	13,432	15,612	3,537
Screen out: Working and residential but not eligible (4.7)	SO	0	511	2,135	243
TOTAL		29,762	41,693	43,409	23,202
e1 =(I+P+R+NC+O+UO _c +OU _{nc} +SO)/ (I+P+R+NC+O+UO _c +OU _{nc} +SO+NWC)		17%	63%	57%	82%
e2 =(I+P+R)/(I+P+R+SO)		100%	72%	33%	81%
AAPOR RR3 = I / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO _c +UO _{nc})])		7%	6%	11%	6%

Why the projected response rate goes down when the matching requirement in the RBS survey is removed

When Center researchers projected what the response rate for the RBS landline sample would have been if the survey had interviewed any adult, rather than requiring that the person interviewed match the sampled record, the response rate for that study component dropped from 11% to 4%. It is not necessarily intuitive why that happens.

The explanation stems from a quirk in how response rate formulas deal with uncertainty. At the end of many surveys, there are some sampled records for which the respondent's eligibility for the study is unknown. Landline RBS cases in this study were classified as uncertain if interviewers were never able to speak with someone and determine whether the person on file lived in the household (e.g., because they no one answered or they hung up immediately).

Pollsters deal with that uncertainty by using the eligibility rate of *similar* records to compute a data-driven estimate for what share of the uncertain cases were in fact eligible for the survey. The lower that data-driven estimate, the fewer uncertain cases are counted against the response rate

(that is, fewer are considered to be refusals to participate). In this study, the data-driven estimate for the share of uncertain landline RBS cases that were likely to have been eligible was 33% (see “e2” in the third column of the above table), which was how often interviewers confirmed that the person on record lived at the household reached on the phone. Consequently, only one-in-three uncertain cases were counted against the response rate. Without the matching requirement, any adult would have been eligible, putting the data-driven estimate at basically 100% (which it is in landline RDD samples). When 100% of the cases with uncertain eligibility are assumed to have been eligible, all such cases are counted against the response rate, driving it down. In this study, the RBS response rate drops to 4% under this scenario.

Topline questionnaire

**PEW RESEARCH CENTER
REGISTRATION BASED SAMPLE PARALLEL PROJECT (RBS)
APRIL 25 – MAY 17, 2018
N=1,800
MAY 2018 POLITICAL SURVEY (RDD)
FINAL TOPLINE
APRIL 25 – MAY 1, 2018
N=1,503**

RANDOMIZE Q.1 AND Q.2

ASK ALL:

Q.1 All in all, are you satisfied or dissatisfied with the way things are going in this country today?

	RDD			RBS		
	Apr 25-May 1, 2018			Apr 25-May 17, 2018		
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>	
Satisfied	33	33	30	30	33	
Dissatisfied	61	63	64	65	61	
DK/Ref (VOL.)	6	5	6	5	6	

RANDOMIZE Q.1 AND Q.2

ASK ALL:

Q.2 Do you approve or disapprove of the way Donald Trump is handling his job as President? **[IF DK ENTER AS DK. IF DEPENDS PROBE ONCE WITH: Overall do you approve or disapprove of the way Donald Trump is handling his job as President? IF STILL DEPENDS ENTER AS DK]**

	RDD			RBS		
	Apr 25-May 1, 2018			Apr 25-May 17, 2018		
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>	
Approve	39	42	36	38	39	
Disapprove	54	53	56	56	55	
DK/Ref (VOL.)	7	5	8	5	6	

RANDOMIZE Q.1 AND Q.2/Q.2a BLOCK

ASK IF APPROVE OR DISAPPROVE (Q.2=1,2):

Q.2a Do you [approve/disapprove] very strongly, or not so strongly?

	-----Approve-----			-----Disapprove-----			
		Very	Not so		Very	Not so	(VOL.)
	Total	<u>strongly</u>	<u>strongly</u>	Total	<u>strongly</u>	<u>strongly</u>	<u>DK/Ref</u>
RDD Apr 25-May 1, 2018							
<i>Gen Pop</i>	38	27	11	53	41	12	9
<i>RV Self-described</i>	41	32	9	54	44	9	6
RBS Apr 25-May 17, 2018							
<i>Gen Pop</i>	36	26	9	56	48	8	8
<i>RV Self-described</i>	38	30	8	56	49	7	6
<i>RV Confirmed</i>	38	30	8	55	48	6	7

NO QUESTIONS 3-7

ASK ALL:

The Congressional elections will be coming up later this year.

CAMPNII How closely have you followed news about candidates and election campaigns in your state and district? Have you followed it very closely, fairly closely, not too closely, or not at all closely?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Very closely	18	22	17	20	20
Fairly closely	31	36	34	39	36
Not too closely	27	25	28	26	30
Not at all closely	24	17	20	15	13
DK/Ref (VOL.)	0	0	0	1	1

ASK ALL:

Q.8 If the elections for U.S. Congress were being held TODAY, would you vote for **[RANDOMIZE: "the Republican Party's candidate" OR "the Democratic Party's candidate"]** for Congress in your district?

ASK IF 'OTHER' 'DON'T KNOW/REFUSED' (Q.8=3,9):

Q.9 As of TODAY, do you LEAN more to the **[READ IN SAME ORDER AS Q.8; IF NECESSARY: "for U.S. Congress in your district"]**?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Rep/Lean Rep	40	44	37	39	41
Dem/Lean Dem	47	48	53	53	51
Other/DK/Ref (VOL.)	13	8	11	8	8

Next,

ASK ALL:

Q.20 Do you think the United States plays a more important and powerful role as a world leader today compared to 10 years ago, a less important role, or about as important a role as a world leader as it did 10 years ago?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
More important	31	31	28	28	29
Less important	35	35	35	37	35
As important	31	31	31	32	33
DK/Ref (VOL.)	3	2	5	3	4

ASK ALL:

Q.21 In terms of solving world problems, does the United States do too much, too little, or the right amount in helping solve world problems?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Does too much	30	31	29	30	28
Does too little	33	32	36	33	35
Does right amount	29	30	28	29	28
United States does nothing (VOL.)	1	1	1	1	1
DK/Ref (VOL.)	7	7	6	7	8

ASK ALL:

Q.22 In general, do you think that free trade agreements between the U.S. and other countries have been a good thing or a bad thing for the United States?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Good thing	55	54	54	53	53
Bad thing	30	32	33	33	34
DK/Ref (VOL.)	14	14	12	14	13

NO QUESTIONS 23-25**RANDOMIZE Q.26 AND Q.27****ASK ALL:**

Now I have a few questions about the political parties...

[First]

Q.26 The Republican Party. Do you think the Republican Party **[INSERT ITEM; RANDOMIZE]** or not?

a. Is too extreme

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Yes	48	48	53	53	52
No	45	47	42	44	44
DK/Ref (VOL.)	7	4	5	3	4

b. Has good policy ideas

	RDD		GP	RBS	
	Apr 25-May 1, 2018	Apr 25-May 17, 2018		RV	RV
	General Population	Reg Voter Self-described		Self-described	Confirmed
Yes	50	50	45	46	47
No	42	44	46	47	45
DK/Ref (VOL.)	9	6	9	7	7

c. Has high ethical standards

	RDD		GP	RBS	
	Apr 25-May 1, 2018	Apr 25-May 17, 2018		RV	RV
	General Population	Reg Voter Self-described		Self-described	Confirmed
Yes	41	40	36	36	36
No	51	54	56	58	58
DK/Ref (VOL.)	9	6	8	6	6

[Now thinking about...]

Q.27 The Democratic Party. Do you think the Democratic Party **[INSERT ITEM; RANDOMIZE]** or not?

a. Is too extreme

	RDD		GP	RBS	
	Apr 25-May 1, 2018	Apr 25-May 17, 2018		RV	RV
	General Population	Reg Voter Self-described		Self-described	Confirmed
Yes	41	45	40	44	44
No	51	50	54	52	51
DK/Ref (VOL.)	7	5	6	4	5

b. Has good policy ideas

	RDD		GP	RBS	
	Apr 25-May 1, 2018	Apr 25-May 17, 2018		RV	RV
	General Population	Reg Voter Self-described		Self-described	Confirmed
Yes	50	49	55	53	53
No	42	45	37	41	42
DK/Ref (VOL.)	8	6	8	6	5

c. Has high ethical standards

	RDD		GP	RBS	
	Apr 25-May 1, 2018	Apr 25-May 17, 2018		RV	RV
	General Population	Reg Voter Self-described		Self-described	Confirmed
Yes	42	41	44	43	41
No	50	53	48	52	51
DK/Ref (VOL.)	8	6	9	6	8

On another subject,

ASK ALL:

COMPUTERUSE

How often do you use a computer... never or almost never, some days, most days, or every day?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Never or almost never	20	16	18	15	15
Some days	10	9	11	9	9
Most days	10	10	10	11	12
Every Day	59	65	60	65	64
DK/Ref (VOL.)	0	0	0	0	0

ASK ALL:

LICENSE

Do you currently have a valid driver's license, or not?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Yes	88	93	89	92	92
No	12	7	11	8	8
DK/Ref (VOL.)	0	0	0	0	0

NO QUESTIONS 28-34

ASK ALL:

Q.35 Thinking about important issues facing the country today, overall, would you say you tend to agree with Donald Trump on **[READ IN ORDER; ROTATE ORDER FOR RANDOM HALF SAMPLE]**?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
All or nearly all issues	19	22	18	19	19
Many, but not all issues	22	23	21	22	23
A few issues	24	22	23	21	19
No or almost no issues	33	33	36	37	37
DK/Ref (VOL.)	2	1	2	1	1

ASK ALL:

Q.36 Now thinking NOT about issues, but just about the way Donald Trump conducts himself as president, would you say you ... **[READ IN ORDER; ROTATE ORDER FOR RANDOM HALF SAMPLE]**?

	RDD Apr 25-May 1, 2018			RBS Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Like the way he conducts himself	18	21	18	20	20
Have mixed feelings about the way he conducts himself	26	25	25	23	23
Don't like the way he conducts himself	54	53	55	56	56
DK/Ref (VOL.)	2	1	2	1	1

NO QUESTIONS 37-39

Next,

ASK ALL:

Q.40 Is your overall opinion of **[INSERT ITEM, RANDOMIZE ITEMS]** very favorable, mostly favorable, mostly UNfavorable, or very unfavorable? How about **[NEXT ITEM]**? **[IF NECESSARY: would you say your overall opinion of [ITEM] is very favorable, mostly favorable, mostly UNfavorable, or very unfavorable?]** **[INTERVIEWERS: PROBE TO DISTINGUISH BETWEEN "NEVER HEARD OF" AND "CAN'T RATE."]**

	----- Favorable -----			----- Unfavorable -----			(VOL.) Never heard of	(VOL.) Can't rate/ Ref
	Total	Very	Mostly	Total	Very	Mostly		
a. Labor Unions								
RDD Apr 25-May 1, 2018								
Gen Pop	55	14	41	33	12	21	1	10
RV Self-described	56	15	41	35	12	24	1	8
RBS Apr 25-May 17, 2018								
Gen Pop	56	17	39	33	12	21	1	10
RV Self-described	56	17	39	34	11	24	1	8
RV Confirmed	58	16	42	33	10	23	2	7
b. Business Corporations								
RDD Apr 25-May 1, 2018								
Gen Pop	52	9	43	39	12	27	1	8
RV Self-described	54	9	45	39	10	28	1	7
RBS Apr 25-May 17, 2018								
Gen Pop	54	9	45	37	9	28	0	9
RV Self-described	56	8	47	36	7	29	0	8
RV Confirmed	56	8	47	36	6	29	1	8

ASK ALL:

Q.41 As you may know, over the past twenty years there has been a large reduction in the percentage of workers who are represented by unions. Do you think this reduction in union representation has been mostly good for working people or mostly bad for working people?

	RDD			RBS	
	Apr 25-May 1, 2018 General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	Apr 25-May 17, 2018 RV <u>Self-described</u>	RV <u>Confirmed</u>
Mostly good for working people	35	37	31	33	33
Mostly bad for working people	52	52	56	56	54
Mixed (VOL.)	3	3	5	5	6
DK/Ref (VOL.)	10	9	8	7	7

NO QUESTIONS 42-44**ASK ALL:**

Q.45 Do you think the U.S. has a responsibility to accept refugees into the country, or do you think the U.S. does NOT have a responsibility to do this?

	RDD			RBS	
	Apr 25-May 1, 2018 General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	Apr 25-May 17, 2018 RV <u>Self-described</u>	RV <u>Confirmed</u>
U.S. has a responsibility to accept refugees	51	51	56	54	57
U.S. does not have a responsibility to accept refugees	43	44	37	39	37
DK/Ref (VOL.)	6	6	7	7	6

ASK ALL:

Q.46 If you had to choose, would you rather have a smaller government providing fewer services, or a bigger government providing more services?

	RDD			RBS	
	Apr 25-May 1, 2018 General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	Apr 25-May 17, 2018 RV <u>Self-described</u>	RV <u>Confirmed</u>
Smaller government, fewer services	45	50	43	46	47
Bigger government, more services	46	41	48	45	43
Depends (VOL.)	5	5	5	5	5
DK/Ref (VOL.)	4	4	4	4	5

ASK ALL:

Q.47 Right now, which ONE of the following do you think should be the more important priority for addressing America's energy supply? **[READ AND RANDOMIZE]**?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Developing alternative sources such as, wind, solar and hydrogen technology	66	64	69	69	69
Expanding exploration and production of oil, <u>coal and natural gas</u>	22	24	21	21	20
Both should be given equal priority_ (VOL.)	8	9	7	9	9
DK/Ref (VOL.)	3	3	3	2	2

NO QUESTIONS 48-59**ASK ALL:**

Q.60 Thinking about Donald Trump's ability to handle a number of things, please tell me whether you are very confident, somewhat confident, not too confident, or not at all confident that Trump can **[INSERT ITEM; RANDOMIZE]**? How about **[NEXT ITEM]**? **[IF NECESSARY: Are you very confident, somewhat confident, not too confident, or not at all confident that Trump can [ITEM]?**]

a. Negotiate favorable trade agreements with other countries

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter	GP	RV	RV
	<u>Population</u>	<u>Self-described</u>		<u>Self-described</u>	<u>Confirmed</u>
Very confident	30	33	30	32	34
Somewhat confident	23	22	22	20	20
Not too confident	18	17	16	16	16
Not at all confident	26	27	30	30	30
DK/Ref(VOL.)	2	1	3	2	2

b. Make wise decisions about immigration policy

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Very confident	26	29	23	27	26
Somewhat confident	17	16	15	14	15
Not too confident	16	14	15	13	14
Not at all confident	39	40	44	44	42
DK/Ref(VOL.)	3	1	3	2	2

c. Manage the Executive Branch effectively

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Very confident	21	24	20	23	23
Somewhat confident	24	22	21	21	21
Not too confident	18	16	17	16	17
Not at all confident	33	36	39	38	37
DK/Ref(VOL.)	4	2	3	2	2

d. Handle an international crisis

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Very confident	25	28	24	26	26
Somewhat confident	19	18	19	17	18
Not too confident	19	16	18	16	17
Not at all confident	34	35	37	39	38
DK/Ref(VOL.)	3	2	3	2	2

ASK ALL FORM 1 [RBS N=902, RDD N=752]:

e.F1 Make good appointments to the federal courts

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Very confident	25	29	25	28	27
Somewhat confident	21	19	18	16	15
Not too confident	16	15	16	14	14
Not at all confident	32	32	39	40	42
DK/Ref(VOL.)	7	4	2	2	2

f.F1 Use military force wisely

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General Population	Reg Voter Self-described	GP	RV Self-described	RV Confirmed
Very confident	25	29	25	28	26
Somewhat confident	22	21	17	16	19
Not too confident	17	17	17	15	14
Not at all confident	32	32	39	38	38
DK/Ref(VOL.)	4	2	2	2	2

ASK ALL FORM 2 [RBS N=898, RDD N=751]:

g.F2 Work effectively with Congress

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Very confident	13	16	16	17	16
Somewhat confident	31	26	22	23	23
Not too confident	21	20	24	23	23
Not at all confident	33	36	35	36	34
DK/Ref(VOL.)	3	2	4	2	2

h.F2 Make good decisions about economic policy

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Very confident	31	33	29	32	35
Somewhat confident	22	17	20	19	19
Not too confident	17	17	16	15	17
Not at all confident	29	32	31	33	28
DK/Ref(VOL.)	1	1	3	2	1

i.F2 Handle the situation with Iran

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Very confident	23	28	21	25	25
Somewhat confident	19	16	15	16	18
Not too confident	18	16	18	18	19
Not at all confident	33	36	39	38	35
DK/Ref(VOL.)	6	5	6	3	2

NO QUESTION 61**ASK ALL:**

Q.62 Overall, how would you rate the ethical standards of top Trump administration officials--excellent, good, not good or poor?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Excellent	9	9	8	9	8
Good	30	31	27	28	29
Not good	22	19	21	18	19
Poor	35	38	40	43	42
DK/Ref (VOL.)	3	2	3	2	2

NO QUESTIONS 63-69

Next,

ASK ALL:

Q.70 Do you strongly favor, favor, oppose or strongly oppose the death penalty for persons convicted of murder?

	-----FAVOR-----			-----OPPOSE-----			(VOL.) DK/Ref
	<u>Total</u>	<u>Strongly favor</u>	<u>Favor</u>	<u>Total</u>	<u>Strongly oppose</u>	<u>Oppose</u>	
RDD Apr 25-May 1, 2018							
Gen Pop	54	24	30	39	14	26	7
RV Self-described	55	24	31	37	12	25	8
RBS Apr 25-May 17, 2018							
Gen Pop	52	23	30	40	13	27	8
RV Self-described	54	23	31	40	14	26	7
RV Confirmed	56	24	31	37	14	23	7

ASK ALL:

Q.71 As you may know, there are proposals to raise tariffs or fees on steel and aluminum that is imported into the United States from other countries. How much, if anything, have you read or heard about these proposals? Have you heard ... **[READ IN ORDER]**

	RDD Apr 25-May 1, 2018			RBS Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
A lot	29	35	28	32	31
A little	41	44	41	43	45
Nothing at all	30	21	31	25	24
DK/Ref (VOL.)	0	0	0	0	0

ASK ALL:

Q.72 Do you think that raising tariffs on steel and aluminum imports would be a good thing or a bad thing for the U.S.? **[IF NECESSARY:** tariffs or fees on steel and aluminum that is imported into the U.S. from other countries]

	RDD Apr 25-May 1, 2018			RBS Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Good thing	37	38	39	39	38
Bad thing	45	46	43	45	46
DK/Ref (VOL.)	18	16	18	16	16

ASK ALL:

Q.73 On balance, do you think having an increasing number of people of many different races, ethnic groups and nationalities in the United States makes this country a better place to live, a worse place to live, or doesn't make much difference either way?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
A better place to live	57	59	60	60	60
A worse place to live	9	9	6	6	6
Doesn't make much difference either way	31	29	32	31	31
DK/Ref (VOL.)	3	3	3	2	3

ASK ALL:

Q.74 How much, if anything, have you heard about the 2015 agreement on Iran's nuclear program between Iran, the United States and other nations? Have you heard **[READ IN ORDER]**?²²

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
A lot	27	33	33	38	37
A little	46	45	44	45	44
Nothing at all	27	21	22	17	18
DK/Ref (VOL.)	0	0	1	0	1

ASK ALL:

Q.75 From what you know, do you approve or disapprove of this agreement? **[IF NECESSARY: The agreement on Iran's nuclear program between Iran, the United States and other nations]**

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Approve	32	33	35	36	37
Disapprove	40	41	40	41	41
DK/Ref (VOL.)	28	26	25	23	22

²² In earlier surveys, question was worded: "How much, if anything, have you heard about a recent agreement on Iran's nuclear program between Iran, the United States and other nations?"

Now some different questions,

ASK ALL:

WORRYRET How worried are you right now about not having enough money for retirement... Very worried, moderately worried, not too worried, or not worried at all?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Very worried	29	26	27	23	20
Moderately worried	26	27	25	27	29
Not too worried	23	24	28	29	30
Not worried at all	22	23	19	21	20
DK/Ref (VOL.)	1	1	1	1	1

ASK ALL:

SLEEP_NHIS On average, how many hours of sleep do you get in a 24-hour period? **[IF NECESSARY ROUND TO NEAREST NUMBER]**

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
9 or more hours	4	4	4	4	4
7 to 9 hours	55	58	58	57	59
5 to 6 hours	36	34	33	32	32
4 or less hours	5	4	5	5	4
DK/Ref (VOL.)	1	1	1	1	1
Mean (<i>in hours</i>)	6.9	7	6.9	6.9	7

ASK ALL:

YOGA_NHIS During the PAST 12 MONTHS, did you practice Yoga for yourself?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General	Reg Voter		RV	RV
	<u>Population</u>	<u>Self-described</u>	<u>GP</u>	<u>Self-described</u>	<u>Confirmed</u>
Yes	20	21	19	18	17
No	80	78	81	82	83
DK/Ref (VOL.)	0	0	0	0	0

ASK ALL:

SMOK1 The next question is about cigarette smoking. Have you smoked at least 100 cigarettes in your ENTIRE LIFE **[INTERVIEWER NOTE: 5 packs=100 cigarettes]**?

ASK IF HAS SMOKED 100 CIGARETTES (SMOK1=1):

SMOK2 Do you NOW smoke cigarettes every day, some days, or not at all?

	RDD			RBS	
	Apr 25-May 1, 2018 General Population	Reg Voter Self-described	GP	Apr 25-May 17, 2018 RV Self-described	RV Confirmed
Yes					
Every day	13	10	11	10	10
Some days	6	5	6	4	4
Not at all / DK/Ref (VOL.)	23	27	25	26	27
No	58	58	58	60	60

ASK ALL:

BLOODPR Have you EVER been told by a doctor or other health professional that you had hypertension, also called high blood pressure?

	RDD			RBS	
	Apr 25-May 1, 2018 General Population	Reg Voter Self-described	GP	Apr 25-May 17, 2018 RV Self-described	RV Confirmed
Yes	31	32	30	32	33
No	69	67	70	67	67
DK/Ref (VOL.)	0	1	1	1	1

NO QUESTIONS 77-79

On a different topic,

ASK ALL:

Q.80 All things considered, which of these descriptions comes closest to your view of **[INSERT ITEM; OBSERVE FORM SPLITS]** today... Do you think **[ITEM]** is **[READ IN ORDER]**?

ASK FORM 1 ONLY [RBS N=902, RDD N=752]:**a.F1 Russia**

	RDD			RBS	
	Apr 25-May 1, 2018 General Population	Reg Voter Self-described	GP	Apr 25-May 17, 2018 RV Self-described	RV Confirmed
An adversary	28	31	30	32	32
A serious problem but not an adversary	41	44	42	42	41
Not much of a problem	24	22	22	22	21
DK/Ref (VOL.)	7	4	6	4	6

ASK FORM 2 ONLY [RBS N=898, RDD N=751]:**b.F1 China**

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
An adversary	16	16	19	20	18
A serious problem but not an adversary	43	45	40	43	44
Not much of a problem	34	32	33	32	33
DK/Ref (VOL.)	7	7	8	5	5

ASK ALL:

Q.81 How much, if anything, have you heard about negotiations between the United States and North Korea on North Korea's nuclear program? Have you heard **[READ IN ORDER]**?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
A lot	43	51	46	50	49
A little	44	41	41	41	42
Nothing at all	13	8	12	8	9
DK/Ref (VOL.)	0	0	1	0	0

ASK ALL:

Q.82 From what you know, do you approve or disapprove of the United States negotiating directly with North Korea over the issue of its nuclear program?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Approve	70	74	72	74	76
Disapprove	21	20	20	18	18
DK/Ref (VOL.)	9	6	9	8	6

ASK ALL:

Q.83 Do you think North Korea's leadership is serious about addressing international concerns about their country's nuclear enrichment program, or not?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Serious	37	37	36	37	39
Not serious	49	50	51	51	48
DK/Ref (VOL.)	14	13	13	12	13

ASK ALL:

EMPLOY

Are you now employed full-time, part-time or not employed?

	RDD			RBS		
	Apr 25-May 1, 2018			Apr 25-May 17, 2018		
	General	Reg Voter		RV	RV	
	<u>Population</u>	<u>Self-described</u>	<u>Gen P</u>	<u>Self-described</u>	<u>Confirmed</u>	
Full-time	45	46	46	47	46	
Part-time	13	13	13	14	11	
Not employed	40	40	38	38	40	
DK/Ref (VOL.)	1	1	2	1	2	

ASK ALL REGISTERED VOTERS (REG=1)**[RBS Self-described N = 1,595, RRBS Confirmed N = 1,165, RDD Self-described N=1,221]:**

PVOTE16A In the 2016 presidential election between Donald Trump and Hillary Clinton, did things come up that kept you from voting, or did you happen to vote?

	RDD		RBS	
	Apr 25-May 1, 2018		Apr 25-May 17, 2018	
	Reg Voter		RV	RV
	<u>Self-described</u>		<u>Self-described</u>	<u>Confirmed</u>
Voted	88		87	84
Did not vote (include too young to vote)	12		13	16
Refused (VOL.)	0		0	0

ASK ALL:

PARTY In politics TODAY, do you consider yourself a Republican, Democrat, or independent?

ASK IF INDEP/NO PREF/OTHER/DK/REF (PARTY=3,4,5,9):

PARTYLN As of today do you lean more to the Republican Party or more to the Democratic Party?

	<u>Republican</u>	<u>Democrat</u>	<u>Independent</u>	(VOL.)	(VOL.)	(VOL.) <u>DK/Ref</u>	Lean <u>Rep</u>	Lean <u>Dem</u>
				No preference	Other party			
RDD Apr 25-May 1, 2018								
<i>Gen Pop</i>	26	28	39	4	1	2	32	42
<i>RV Self-described</i>	30	30	34	3	1	1	36	43
RBS Apr 25-May 17, 2018								
<i>Gen Pop</i>	24	32	37	3	0	3	32	43
<i>RV Self-described</i>	26	36	34	2	1	1	38	42
<i>RV Confirmed</i>	28	33	33	3	1	2	37	42

ASK REPUBLICANS AND REPUBLICAN LEANERS ONLY (PARTY=1 OR PARTYLN=1) [RBS N=789, RDD N=644]:

REPJOB

How good a job is the Republican Party doing these days in standing up for its traditional positions on such things as reducing the size of government, cutting taxes and promoting conservative social values — In general, would you say the Party is doing an excellent job, a good job, only a fair job or a poor job?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Excellent	9	7	9	10	10
Good	35	36	39	37	36
Only fair	43	43	37	38	39
Poor	11	13	13	15	14
DK/Ref (VOL.)	2	2	2	1	1

ASK DEMOCRATS AND DEMOCRATIC LEANERS ONLY (PARTY=2 OR PARTYLN=2) [RBS N=863, RDD N=710]:

DEMJOB

How good a job is the Democratic Party doing these days in standing up for its traditional positions on such things as protecting the interests of minorities, helping the poor and needy, and representing working people — In general, would you say the Party is doing an excellent job, a good job, only a fair job or a poor job?

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Excellent	4	5	4	4	5
Good	40	41	37	34	36
Only fair	41	42	42	46	45
Poor	11	9	15	14	12
DK/Ref (VOL.)	4	3	1	1	2

ASK ALL:

EMPCOMP

At any time during 2017, did [IF HH1=1: you; IF HH1>1: anyone in your household] receive any State or Federal unemployment compensation? {CPS ASEC 2016; W29}

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Yes	3	4	4	3	4
No	94	95	92	95	93
DK/Ref (VOL.)	3	2	3	2	2

ASK ALL:

SNAP Did **[IF HH1=1: you; IF HH1>1: anyone in your household]** get food stamps or use a food stamp benefit card at any time during 2017? **[INTERVIEWER NOTE: do not include benefits from WIC, the Women, Infants and Children Nutrition Program]** {CPS ASEC 2016; W29}

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Yes	15	11	12	10	9
No	83	88	85	89	89
DK/Ref (VOL.)	2	1	3	2	2

ASK ALL:

ANYCOV Do you now have any type of health plan or health coverage? {March 2015 CPS}

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Yes	84	91	84	90	91
No	13	7	14	8	8
DK/Ref (VOL.)	3	2	3	2	2

ASK ALL:

HOME_ACS Do you own your home, rent your home, or live there with another arrangement?
[IF OWN WITH MORTGAGE OR RENT, PUNCH 1]

	RDD			RBS	
	Apr 25-May 1, 2018			Apr 25-May 17, 2018	
	General <u>Population</u>	Reg Voter <u>Self-described</u>	<u>GP</u>	RV <u>Self-described</u>	RV <u>Confirmed</u>
Own (Free and clean, With mortgage or home equity loan)	55	65	57	64	66
Rent	31	24	27	23	19
Another arrangement (Occupy without payment)	11	9	12	10	12
DK/Ref (VOL.)	3	2	4	2	2