

## **Religion and the Cell-Only Population**

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## **Introduction**

In recent years, as more Americans have come to rely on cell phones as their only source of telephone service, many scholars have devoted considerable attention to the impact of the exclusion of the cell-only population from many telephone surveys. Much has been learned about the characteristics of the cell-only population, and about the effect that their exclusion has on the results of opinion surveys.

The Pew Forum on Religion & Public Life recently released the results of the Religious Landscape Study, which is based on a survey with a large national sample, including cell-phone interviews with 500 cell-only respondents. The detailed religion questions in the survey allow us to shed new light on the religious characteristics of the cell-only population. This paper seeks to further understand the religious characteristics of the cell-only population and assess the implications of excluding the cell-only population for the measurement of religion in telephone surveys, thereby contributing to the effort to understand and address the nature and extent of the cell-only problem.

Religion is, of itself, an important phenomenon for social scientists to understand, and this is underscored by the close correlations between religious affiliation, beliefs and behavior on the one hand and political attitudes and behaviors on the other. Using the Religious Landscape Study data, as well as data collected by the Pew Research Center for the People and the Press, we first describe the degree to which the religious affiliation of the cell-only population differs from that of the landline population. We then compare the two groups with respect to church attendance and religious salience, and analyze the

extent to which observed differences in these characteristics can be explained by the demographic characteristics of the cell-only population. We find no significant differences in affiliation, attendance, or salience between the cell-only group and a combined cell/landline sample. We also document similarities on each of the religious measures between young people in the cell-only sample and young people in the landline sample, illustrating that much of the difference between the two populations can be attributed to the relatively young age of cell-only respondents.

### **The Cell-only Population**

The cell-only population is rapidly growing. Between 2004 and 2007, the proportion of adults that had no landline and could be reached only by cell phone nearly tripled from 4.4% to 12.6%.<sup>1</sup> Previous research has documented that the cell-only population is markedly different from the general population both demographically and attitudinally. For example, a study conducted by the Pew Research Center for the People and the Press<sup>2</sup> in October and December 2007 found that 46% of cell-only respondents are between the ages of 18 and 29, compared with only 12% among a standard landline sample. Cell-only respondents are also more likely than respondents in the landline sample to be male and non-white, and they tend to have less education and lower incomes, likely reflecting their younger age.

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<sup>1</sup> Stephen J. Blumberg and Julian V. Luke. "[Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January-June 2007.](#)" Report by the U.S. Centers for Disease Control and Prevention, December 10, 2007.

<sup>2</sup> The Pew Research Center for the People and the Press. "[The Impact of 'Cell-Onlys' on Public Opinion Polling: Ways of Coping with a Growing Population Segment.](#)" January 31, 2008.

**Demographic Composition of  
Landline and Cell-Only  
Samples**

|                 | <u>Landline<br/>sample</u><br>% | <u>Cell<br/>only</u><br>% |
|-----------------|---------------------------------|---------------------------|
| 18-29           | 12                              | 46                        |
| 30-49           | 30                              | 34                        |
| 50-64           | 31                              | 15                        |
| 65+             | 25                              | 4                         |
| Male            | 48                              | 61                        |
| Female          | 52                              | 39                        |
| College grad    | 38                              | 26                        |
| Some college    | 24                              | 28                        |
| H.S. grad       | 31                              | 35                        |
| Less than H.S.  | 7                               | 11                        |
| \$75K or more   | 29                              | 16                        |
| \$50-74,999     | 15                              | 11                        |
| \$30-49,999     | 20                              | 24                        |
| Less than \$30K | 21                              | 41                        |
| White           | 82                              | 68                        |
| Black           | 11                              | 19                        |
| Asian           | 1                               | 5                         |
| Other/Mixed     | 4                               | 6                         |
| Hispanic        | 6                               | 13                        |
| Married         | 57                              | 26                        |
| Never married   | 16                              | 51                        |
| Parent of minor | 28                              | 26                        |
| Sample size     | (2596)                          | (312)                     |

Figures based on unweighted data.

Source: Pew Research Center for the People and the Press, 2007.

Most of these differences, however, greatly diminish when adjusting for demographics, particularly for age. When the Pew cell-only sample was combined with a standard landline sample and weighted to U.S. Census parameters on basic demographic characteristics, the results were nearly identical to those obtained from the landline survey alone.

## Data

In order to measure the impact of excluding cell phones on estimates of religious affiliation, the Pew Forum on Religion and Public Life included a cell phone only component of 500 cases in its recent Religious Landscape Study (RLS). The RLS asks detailed questions about religious affiliation to a total sample of 36,056 Americans, including the 500 cell-only cases and oversamples of some smaller religious groups, including Hindus, Buddhists and Orthodox Christians. This large sample size makes it possible to estimate the size of many smaller religious traditions in the U.S.

Cell-only respondents completed a shortened version of the survey consisting of basic demographic and religion items, including the full religious affiliation battery. This paper compares the cell-only cases with the 35556 RDD and callback interviews, as well as with a sample that combines the cell-only cases with a systematically selected group of landline cases.<sup>3</sup>

We use the RLS data to examine religious affiliation and salience. The RLS measure of attendance at worship services will not be released until June 2008, so for analysis of that question we use data from the 2007 study by the Pew Research Center for the People and the Press referenced above.

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<sup>3</sup> The combined cell/landline sample analyzed here includes all 500 cell-phone-only respondents along with a systematically selected sample of 3,182 landline respondents. Cell-phone only respondents thus account for just over 13% of the cell/landline combined sample. We used a systematic sample of landline cases – rather than a true random sample of landline cases – to ensure that the religious makeup of the landline cases selected for combining with the cell-only cases matched as closely as possible the religious makeup of the landline sample overall.

## **Religious Affiliation**

The RLS defines three layers of religious affiliation; 15 major religious traditions (e.g., evangelical Protestantism, Catholicism, Judaism, etc.) are subdivided into religious families (e.g., Baptists, Methodists, etc.). These families are then further subdivided into denominations (e.g., the Southern Baptist Convention, the American Baptist Churches in the U.S.A., the United Methodist Church, etc.). In total, the RLS identifies 372 separate religious groups at the level of denomination. We use the 15 religious traditions as the primary unit of analysis in our comparison of the cell-only cases to cases from the landline sample.

The RLS finds that the religious make-up of the cell-only population is quite distinctive as compared with the landline population. Most obviously, cell-only respondents are much more likely to fall into the religiously “unaffiliated” tradition, a group that includes self-identified atheists, agnostics, and those who describe their religious as “nothing in particular”; nearly a quarter of the cell-phone only (23.0%) are religiously unaffiliated, compared with 16.1% among the weighted landline sample. Some smaller religions, including Muslims, Buddhists and Hindus, are slightly overrepresented in the cell-only sample, while others (Mormons and Orthodox Christians) are slightly underrepresented. Catholics are also underrepresented among the cell-only population, while the proportion of people who belong to each of the Protestant traditions is roughly the same among both samples.

But though the religious composition of the cell-phone only population is different than that of the landline population, the RLS finds that the religious characteristics of the combined cell/landline sample are not appreciably different as compared with the landline sample alone. For instance, the estimate of unaffiliated Americans in the combined weighted sample is 16.4%, just .3% larger than in the landline sample (16.1%). Differences are also small for estimates of the number of Catholics, Mormons, Muslims, Buddhists and Hindus. Indeed, there are no statistically significant differences in the estimates of the size of any of the religious traditions between the landline and combined cell/landline samples.

| <b>Religious Affiliation and Inclusion of Cell-only Component</b> |                              |                            |                              |   |
|---|------------------------------|----------------------------|------------------------------|---|
|   | <u>Cell-only<br/>Sample*</u> | <u>Landline<br/>Sample</u> | <u>Combined<br/>Sample**</u> | <u>Difference<br/>Between<br/>Landline<br/>and<br/>Combined</u> |
|   | <u>%</u>                     | <u>%</u>                   | <u>%</u>                     | <u>%</u>  |
| Theologically Evangelical Protestant Churches                     | 24.6                         | 26.3                       | 26.2                         | -.1   |
| Historically Mainline Protestant Churches                         | 17.0                         | 18.1                       | 18.6                         | +.5   |
| Historically Black Protestant Churches                            | 7.8                          | 6.9                        | 6.8                          | -.1   |
| Catholic  | 20.4                         | 23.9                       | 23.7                         | -.2   |
| Mormon  | 1.0                          | 1.7                        | 1.6                          | -.1   |
| Orthodox  | .2                           | .6                         | .5                           | -.1   |
| Jehovah's Witness   | .6                           | .7                         | .7                           | 0   |
| Other Christian   | .2                           | .3                         | .3                           | 0   |
| Jewish  | .2                           | 1.7                        | 1.3                          | -.4   |
| Muslim  | 1.6                          | .4                         | .6                           | +.2   |
| Buddhist  | 1.4                          | .7                         | .8                           | +.1   |
| Hindu   | 1.0                          | .4                         | .6                           | +.2   |
| Other World Religions   | 0                            | .1                         | .1                           | 0   |
| Other Faiths  | .8                           | 1.2                        | 1.2                          | 0   |
| Unaffiliated  | 23.0                         | 16.1                       | 16.4                         | +.3   |
| Don't know/Refused  | .2                           | .8                         | .6                           | -.2   |
|   | 100                          | 100                        | 100                          |   |
| (N)   | (500)                        | (35556)                    | (3682)                       |   |

Source: Religious Landscape Study, Pew Forum on Religion & Public Life, 2007.  
 \*The landline and combined samples are weighted. The cell-only sample is unweighted.  
 \*\*The combined sample consists of the 500 cell-only cases and a systematically selected group of landline cases.

In addition to analyzing estimates of the size of religious traditions, we took the additional step of analyzing the religious families within each tradition, and again found no differences significant at the  $p < .05$  level between the landline and combined cell/landline samples. Further, when we examined the denominations within each family, we found 11 instances (out of a total 372 denominations) where the difference in the estimates between the two samples was statistically significant. These cases all represent instances in which no member of the denomination in question was selected for inclusion in the combined sample because the overall number of adherents was so small. Based on this analysis, we conclude that there are no significant differences between a landline only sample and a combined cell/landline sample in estimates of the religious affiliation of the United States.

### **Religious Attendance**

As with affiliation, responses among the cell-only group differ notably from the landline cases on the question of attendance at religious services. Cell-only respondents are much less likely to attend church regularly, with 27% saying they attend weekly or more, compared with 38% among the standard landline sample. Fully 36% of cell-only respondents say they attend seldom or never, while the figure among the landline group is 28%.

But as with affiliation, though the cell-only population is distinctive compared with the landline population, the analysis suggests that the exclusion of the cell-only population has little impact on overall estimates. The differences in estimates of church attendance



between the landline sample and the combined sample are negligible. In fact, the largest difference between responses in the combined and landline samples is 1%. None of the differences between the landline sample and the combined cell/landline sample are significant at  $p < .05$ .

| <b>Religious Attendance and Inclusion of Cell Only Component</b> |                              |   |                            |   |
|--|------------------------------|---|----------------------------|---|
|  | <u>Cell-only<br/>Sample*</u> | <u>Standard<br/>Landline<br/>Sample</u> | <u>Combined<br/>Sample</u> | <u>Difference<br/>Between<br/>Landline<br/>and<br/>Combined</u> |
|  | %                            | %                                       | %                          | %   |
| <i>Attend ...</i>  |                              |   |                            |   |
| More than once a week  | 9                            | 15                                      | 14                         | -1  |
| Once a week  | 18                           | 23                                      | 23                         | 0   |
| Once or twice a month  | 15                           | 14                                      | 14                         | 0   |
| A few times a year   | 21                           | 18                                      | 19                         | +1  |
| Seldom   | 19                           | 16                                      | 17                         | +1  |
| Never  | 17                           | 12                                      | 12                         | 0   |
| Don't know/Refused   | <u>1</u>                     | <u>2</u>                                | <u>1</u>                   | -1  |
|  | 100                          | 100                                     | 100                        |   |
| (N)  | (312)                        | (2596)                                  | (2908)                     |   |

Source: Pew Research Center for the People and the Press, October and December 2007.  
 \*The landline and combined samples are weighted. The cell-only sample is unweighted.

### **Importance of Religion**

The same pattern is evident on the question of religious salience. When asked how important religion is in their lives, 50% of the cell only group says it is very important, compared to 56% among the standard landline sample. There are also small differences across the two types of samples in the proportion saying religion is somewhat, not too or not at all important in their lives.

Here again, though, the combined cell/landline sample, however, is much more consistent with the landline sample than is the cell-only sample. The largest difference we document is .9%, and again, none of the differences are significant at  $p < .05$ .

| <b>Importance of Religion and Inclusion of Cell Only Component</b> |                              |   |                              |   |
|--|------------------------------|---|------------------------------|---|
|  | <u>Cell Only<br/>Sample*</u> | <u>Standard<br/>Landline<br/>Sample</u> | <u>Combined<br/>Sample**</u> | <u>Difference<br/>Between<br/>Landline<br/>and<br/>Combined</u> |
|  | %                            | %                                       | %                            | %   |
| <i>Religion is ...</i>   |                              |   |                              |   |
| Very important   | 50.0                         | 56.3                                    | 55.4                         | -.9   |
| Somewhat important   | 30.0                         | 26.5                                    | 27.2                         | +.7   |
| Not too important  | 11.2                         | 9.2                                     | 9.8                          | +.6   |
| Not at all important   | 7.4                          | 7.1                                     | 6.8                          | -.3   |
| Don't know/Refused   | <u>1.4</u>                   | <u>.9</u>                               | <u>.9</u>                    | 0   |
|  | 100                          | 100                                     | 100                          |   |
| (N)  | (500)                        | (35556)                                 | (3682)                       |   |

Source: Religious Landscape Study, Pew Forum on Religion & Public Life, 2007.  
 \*The landline and combined samples are weighted. The cell-only sample is unweighted.  
 \*\*The combined sample consists of the 500 cell-only cases and a systematically selected group of landline cases.

### **Young Landline vs. Cell Users**

Much previous research documents that many of the key differences observed between cell-phone only respondents and landline respondents are a function of the tendency of cell-only respondents to be younger than their landline using counterparts. This is why many surveys find that combined cell/landline samples do not differ appreciably from simple landline samples; simple demographic weighting that adjusts for age (among other characteristics) accounts for much of the difference between the two types of samples.

A similar pattern is evident when it comes to the analysis of religious characteristics. Young people ages 18 to 24 who rely on cell phones do not differ very much in terms of their religious affiliation from people of the same ages reached by landline. About a quarter of both populations are unaffiliated with a particular religion (26.2% in the cell-only group; 24.4% in the landline group). Estimates of membership in each of the Protestant traditions appear to be slightly higher among young people who rely solely on cell phones, compared to young people in the landline sample. Muslims and Hindus appear to be slightly more prevalent among young people in the cell-only sample, which could be partly attributed to the fact that many of them belong to racial minorities that are more likely to rely on cell-phones. None of these differences, however, are significant. In fact, in our overall analysis of the religious affiliation of young people between the ages of 18 and 24, we find no significant differences between the cell-only population and those reached on a landline telephone.

We find similar results when it comes to religious salience. Young people ages 18 to 24 in the cell-only sample (47.6%) are slightly more likely than young people in the landline sample (43.3%) to say that religion is very important to them, whereas young people reached via landline are slightly more likely than those reached on cell phones to say that religion is unimportant to them. Here again, however, none of these differences is statistically significant.

The only exception to this general pattern, whereby young cell-only respondents exhibit similar religious characteristics as seen among young people reached via landline, is

frequency of attendance at religious services. Young people ages 18 to 29 in the cell-only sample are significantly less likely to say they attend church more than once a week compared with young people in the landline sample. This is the only statistically significant difference we find on this measure.

**Religion and Young Adults: Cell Only vs. Landline Sample**

|   | -----Ages 18-24-----                |  |
|---|-------------------------------------|--|
|   | Cell-<br>only<br><u>Sample</u><br>% | Standard<br>Landline<br><u>Sample</u><br>% |
| Theologically Evangelical Protestant Churches | 22.1                                | 21.0                                       |
| Historically Mainline Protestant Churches     | 15.2                                | 12.7                                       |
| Historically Black Protestant Churches        | 7.6                                 | 9.4  |
| Catholic                                      | 21.4                                | 21.1                                       |
| Mormon  | .7                                  | 1.7  |
| Orthodox                                      | 0                                   | .9   |
| Jehovah's Witness                             | 0                                   | .7   |
| Other Christian                               | 0                                   | .3   |
| Jewish  | .7                                  | 1.8  |
| Muslim  | 2.8                                 | .8   |
| Buddhist                                      | .7                                  | 1.4  |
| Hindu   | 2.1                                 | .7   |
| Other World Religions                         | 0                                   | .3   |
| Other Faiths                                  | .7                                  | 1.7  |
| Unaffiliated                                  | 26.2                                | 24.4                                       |
| Don't know/Refused                            | <u>0</u>                            | <u>1.0</u>                                 |
| (N)   | 100<br>(145)                        | 100<br>(2428)                              |
| <i>Religion is ...</i>                        |                                     |  |
| Very important                                | 47.6                                | 43.3                                       |
| Somewhat important                            | 33.1                                | 33.9                                       |
| Not too important                             | 12.4                                | 13.3                                       |
| Not at all important                          | 6.2                                 | 9.2  |
| Don't know/Refused                            | <u>.7</u>                           | <u>.2</u>                                  |
| (N)   | 100<br>(145)                        | 100<br>(2428)                              |
| -----Ages 18-29-----                          |                                     |  |
| <i>Attend ...</i>                             |                                     |  |
| More than once a week*                        | 7                                   | 15   |
| Once a week                                   | 17                                  | 21   |
| Once or twice a month                         | 15                                  | 14   |
| A few times a year                            | 22                                  | 18   |
| Seldom  | 20                                  | 19   |
| Never   | 19                                  | 12   |
| Don't know/Refused                            | <u>0</u>                            | <u>1</u>                                   |
| (N)   | 100<br>(143)                        | 100<br>(314)                               |

Source: Pew Forum on Religion and Public Life and Pew Research Center for the People and the Press, 2007.

All figures are based on unweighted data.

\*Significant at p<.05.

These findings suggest that the religious differences between cell-only and landline users in the general population are largely a function of the comparatively young age of cell-only users. While including the cell-only population in these studies would not substantially change weighted survey estimates, it would increase the proportion of young people interviewed, enabling more detailed analysis of the characteristics and opinions of younger people.

### **Discussion and Conclusion**

Clearly, the cell-only population differs from the general public in terms of religious affiliation, attendance and salience. But Pew data show that these differences are largely accounted for in the weighting process; surveys based on combined cell/landline sample produce very similar estimates of the religious characteristics of the population overall as compared with simple landline samples. Much previous research has shown that though the growing cell-phone only population poses special challenges to survey researchers, it remains possible to do good research on political and social issues using a standard landline sample. Our research suggests that, for now at least, this method permits high-quality research into religious topics as well.