

## Ownership and Usage Patterns of Cell Phones: 2000-2005

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### Methodology

The data for this paper are based on five nationwide surveys of face-to-face interviews. The surveys were conducted at the following times: (1) August 5-19, 2000, (2) February 2-16, 2002, (3) February 8-22, 2003, (4) February 21-March 26, 2004, and (5) February 12-26, 2005. Each survey consisted of approximately 2,000 respondents.

The respondents in each survey comprised a representative sample of the population of the contiguous United States, age 18 and over, exclusive of institutionalized segments. Each survey employed a multistage probability sample of interviewing locations. The final stage of the sampling procedure, though, consisted of quota sampling at the block level.

Unless otherwise stated, the results presented below are based on the most recent (i.e., February, 2005) survey.

### Introduction

The cell phone poses both a challenge and an opportunity to telephone survey researchers. On the one hand, the cell phone represents a possible threat to the continued viability of the telephone as a data-gathering mechanism. At the present time, telephone numbers attached to cell phones are generally excluded from the sample frame employed in RDD surveys (see Yuan et al, 2005). To the extent that individuals have jettisoned their land-line phones and rely exclusively on cell phones, these individuals may be systematically excluded from participating in telephone surveys. As a result, their lack of representation in telephone surveys may introduce non-response bias. On the other hand, under one primary condition, it is possible to conduct surveys with individuals via their cell phones. This condition entails manual dialing by surveyors (Dautch, 2004) Thus, under this condition, surveyors can establish contact with individuals living in "cell phone only" households. Furthermore, individuals who own both conventional land-line phones and cell phones potentially could be contacted using either device. In this regard, the cell phone may represent an alternative venue for reaching respondents.

This paper aims at gauging the possible effects that the cell phone might have on the conduct of survey research. Specifically, the paper has three primary objectives: (1) to measure the change over time in the level of ownership of cell phones, (2) to measure the change over time in the patterns of usage of the cell phone, and (3) to estimate the incidence level of "cell phone only" households

### Ownership of Cell Phones: 2000-2005

The cell phone has become a ubiquitous communications device over the last half-decade. In the 2000 survey, only 28.3 percent of respondents reported that they owned their own cell phone. (An additional 11.1 percent reported that they shared a cell phone with another household member.) By the year 2002, fully one-half of respondents reported owning their own cell phone. According to the most recent survey (2005), the level of ownership has soared to 68.7 percent of adult Americans.

The profile of cell phone owners is a distinctive one. Age is curvilinearly related to ownership. Among 18-24 year olds, 69 percent say that are owners. This figure swells to 81 percent among those who are 25-29 years old and remains fairly

high among those in the age categories 30-44 and 45-59 (78% and 73%, respectively). The penetration level, though, drops dramatically among those who are 60 years of age or older – 44 percent.

Socio-economic status is also strongly related to ownership. There is a monotonic increase in ownership as household income rises. Among respondents from households with incomes less than \$30,000, only 41 percent say they are owners. By comparison, among respondents from households with incomes of \$100,000 or more, the level of ownership is a staggering 92 percent. Consistent with this relationship, homeowners are more likely to possess cell phones than renters (72% vs. 58%).

Another determinant of ownership is employment status. Full-time employees rank first among owners (81%), followed in descending order by part-time employees (70%), homemakers (63%) and, lastly, retirees (42%).

## Patterns of Usage

### Frequency of Usage

Not only has the ownership of cell phones spiraled upwards but the usage of cell phones has increased markedly. At present 14 percent of respondents say they use their cell phones “to make all phone calls” and an additional 17 percent say they use these devices “to make three-quarters of my phone calls.” In the past three years owners who report making “all” or “three –quarters” of their calls via cell phones has increased by 13 percentage points.

Among those overrepresented who make “all” their calls via a cell phone are individuals aged 18-29 (35%) and renters (33%).

### Keeping Cell Phone on During the Day

Besides making a larger percentage of all their telephone calls using a cell phone, cell phone owners are also leaving their cell phones on for more extended periods of time during the day. Between 2003 and 2005, the percentage of cell phone owners who report keeping their cell phones on “always” increased by 9 points.

Currently, 42 percent of owners say they leave their cell phone on “always.” Those who keep their cell phone on “always” are disproportionately found among the following groups: 18-24 year olds (61%), 25-29 year olds (53%), non-Hispanic blacks (50%), Hispanics (51%), renters (55%), and blue-collar workers (51%).

### Screening Calls on Their Cell Phones

Fully one-third of cell phone owners report screening their calls “always.” An additional 24 percent report screening “most of the time.” Together, these two figures represent a 17 percentage point increase in the past year.

Age is an important correlate of frequency of screening with younger respondents most likely to say they screen “always.” Not surprisingly, individuals who make the highest percentage of all their telephone calls with a cell phone or who leave their cell phones on for the longest durations report being frequent screeners.

### Willingness to Have Cell Phone Listed in a Cell Phone Directory

Only 7 percent of cell phone owners are either “very willing” or “somewhat willing” to have their cell phone numbers listed in a directory of cell phone numbers. An additional 3 percent state that they already have their cell phones listed in a directory.

While a higher percentage of frequent users of cell phones express a willingness to have their cell phones listed in a cell phone directory, this percentage is still a small one. Only 14 percent of respondents who say they make “all” their calls using a cell phone report a willingness to have their cell phone numbers listed. Similarly, just 13 percent of respondents who say they leave their cell phone on “always” are inclined to have their cell phone number listed. Finally, just 11 percent of those who have a listed land-line number are inclined to have their cell phone number listed in a directory.

The small percent of respondents who say they would be willing to have their cell phone number listed in a directory probably reflects two factors.

First, respondents may feel that if their cell phone numbers are listed, strangers may call them and “use up their minutes” and thus they would incur additional costs. Second, respondents may view their cell phones as a private mode of communication reserved primarily for friends and family.

### **Willingness to Participate in a Survey Using a Cell Phone**

Only 7 percent of respondents who own cell phones say they would be either “very willing” or “somewhat willing” to participate in a research via a cell phone. Significantly, about three-quarters (74%) say they would be “not at all willing” to participate in a cell phone survey.

By comparison, 19 percent of respondents who own both a cell phone and a land-line phone express the opinion that they would be either “very willing” or “somewhat willing” to be interviewed via their regular phones. Moreover, only one-half of respondents who own both types of phones say they would be “not at all willing” to participate in a land-line phone survey.

These findings indicate that there is a general reluctance on the part of Americans to participate in surveys conducted via either as conventional phone or cell phone. The reluctance to participate in a survey conducted via a cell phone, though, is much more pronounced.

### **Only Cell Phone Households**

On the surface, the definition assigned to “cell phone only” households may seem to be straightforward: households that have abandoned their land-line phones and rely exclusively on cell phones. Yet, from the vantage point of the telephone surveyor, this definition may not be adequate. There may be households that retain a land-line phone for a variety of reasons but rarely, if ever, use them to answer voice calls. For example, households may need to have a conventional phone installed to operate an alarm system or to access the Internet. Residents of these households would not fall under the definitional rubric of “only cellular” but would nevertheless be difficult, if

not impossible, to contact by telephone survey researchers. Therefore, it is important to gauge not only the incidence of households that have completely jettisoned their land-line phones but also those households that use their land-line phones sparingly or never to answer voice calls. What follows is a description of these two types of households.

### **Wireless Households**

The proportion of respondents in the total sample whose households use cell phones “to make and receive all voice calls” is 5.6 percent. A disproportionately large number of these respondents are found among those aged 18-29 (13.9%), renters (12.9%), and blue-collar workers (8.9%).

Not unexpectedly, a higher-than-average proportion of these respondents say they leave their cell phone on “always” (78.8%). Individuals in wireless households are also somewhat more likely than others in the sample to say they are either “very willing” or “somewhat willing” to have their cell phone number listed in a directory of numbers (7.9%). (In addition, 4.4 percent say that they already have their numbers listed in a directory.) Importantly, they are also more likely than other sample members to report being either “very willing” or “somewhat willing” to participate in a survey via their cell phones (16.7%).

### **Hard-to-reach Land-line Phone Owners Who Also Own Cell Phones**

As discussed above, there are cell phone owners who live in households equipped with a land-line phone but say they “never” use their regular phone(s) “to answer voice calls.” This group comprises 4 percent of the total sample in the 2005 survey. Overrepresented among this subgroup are individuals from households with total incomes between \$30,000 to under \$50,000 (6.1%), Hispanics (6.5%), and residents from small cities and their surrounding suburbs (8.8%). These individuals are somewhat less inclined than members of the total sample to

have their cell phone numbers listed in a directory (3.8%). Also, not one respondent in this category reports being either “very

willing” or “somewhat willing” to participate in a survey via their cell phones. In terms of their potential accessibility, therefore, they are markedly different from respondents who live in households without a land-line phone.

### Conclusion

At the present time more than two-thirds of adult Americans (68.7%) report owning a cell phone. Not only is ownership of cell phones spiraling upwards but people are using them more now than previously. Fourteen percent of respondents say they make “all” of their calls using a cell phone and an additional 17 percent report making “three-quarters” of all their calls using a cell phone. Furthermore, 42 percent say they leave their cell phones on “always” – a jump of 9 percentage points in just two years.

An important subgroup of those surveyed in this study are those who have completely abandoned their land-line phones. At present, “only cellular households” comprise 5.6 percent of adult Americans. Another important subgroup are cell phone owners from households which possess a regular phone but “never” use it “to answer voice calls.” This subgroup comprises 4 percent of the entire sample.

A number of findings in this study should be viewed as disconcerting to telephone survey researchers. First, there appears to be a strong reluctance on the part of cell phone owners to have their cell phone numbers listed in a directory. Only 10 percent of cell phone owners say they would be “very willing” or “somewhat willing” to have their cell phone number listed in a directory or say they already have their number listed in a directory.

Even among frequent users of cell phones, there is a disinclination to have their cell phones listed in a directory. For example, among “only cellular households,” only 12.3 percent express a willingness to have their cell phones listed in a directory or already have their numbers listed in a directory. Similarly, among individuals who have a listed land-line telephone number, only 11 percent would also want their cell phone number listed in a directory of cell phone numbers.

This reluctance on the part of respondents to have their cell phone number listed in a directory may be rooted in not wishing to incur additional

costs due to unsolicited incoming calls. It should not be forgotten, though, that respondents can screen incoming calls on their cell phones (via Caller ID). Furthermore, they are not charged for voice messages left on their cell phones. Thus, cost is probably not the major reason for their reluctance.

A more likely reason for their unwillingness to have their cell phone number listed is that respondents view the cell phone as more of a private medium of communication than their land-line phone. They probably wish to restrict access to their cell phone number to family and friends.

Another troubling finding in this study is that only 7 percent of cell phone owners say they would be either “very willing” or “somewhat willing” to participate in a research survey conducted via their cell phones. Moreover, among individuals who possess both a regular phone and a cell phone, about three quarters say they would be opposed to participating in a survey via their cell phones but only half would be opposed to participating in a survey via their regular phones. On the positive side, though, 16.7 percent of “only cellular households” say they would be willing to be interviewed on their cell phones.

A third troubling finding to emerge in this study is that there is a small yet significant segment of cell phone owners from households equipped with a land-line phone but who are generally not reachable through either type of communication device (4%). These cell phone owners say that they “never” use their land-line phones to answer voice calls. Members of this subgroup are far more reluctant than other cell phone owners to have their cell phone numbers listed in a directory and are unwilling to participate in survey s carried out via a cell phone.

In sum, the cell phone poses many challenges to telephone survey researchers. If the telephone is to continue to be a viable mechanism through which to gather survey data, new strategies need to be devised to counter the problems associated with the advent of this technology.

## References

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