Evaluating the Impact of "Music Downloads" as Instantly Delivered Contingent Incentives

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Abstract
In the past, extensive research has examined variation in incentives and its impact on the response rate by comparing the effects of cash versus non-monetary incentives, contingent versus non-contingent incentives, and combinations of the above. In order to maximize the output of the invested dollar amount, downloadable music was tested as a means for delivering contingent, non-monetary incentives instantly and determining its impact on the response rate. Compared to traditional contingent incentives delivered via mail, instant delivery of a contingent incentive may have greater impact and utility. Additionally, the number of songs received (5 vs. 10 songs) might impact the perceived value of the incentive and motivation to co-operate. The findings will help to study the impact of cash vs. non-monetary incentives and its appeal among a cross section of demographics.

Key Words: Address based sampling, contingent incentives, music downloads, mixed-mode

1. Background

In recent years address-based sampling (ABS), the use of a comprehensive list of addresses as the primary sampling unit, has been established as a viable alternative to random digit dialing (RDD) (Link et al 2006, Link et al 2008). ABS provides a superior frame for addressing many of the growing concerns with RDD, and specifically tackles three key issues: "(1) increasing noncoverage bias due to the proliferation of cell phone only households and the jump in unlisted landline numbers in zero listed telephone banks, (2) number portability and the associated decline in geographic specificity of the sampled units, and (3) the precipitous decline in representation of key demographic groups, in particular younger adults" (Link, et al. 2009). As the issues with RDD become more pronounced it is necessary to refine the ABS frame and its related recruitment processes since ABS is supplementing and even replacing RDD in many surveys. A major weakness of ABS is the low response rate among 'unmatched' households, households where a phone number cannot be matched back to the address though existing third-party databases. In these cases the only way to initiate contact with the household is via mail, and the response rate is correspondingly low. Moreover, 'unmatched' households represent a large proportion of hard to reach demographic groups such as African American, Hispanic, and young adult households (Blumberg & Luke 2010, Link & Lai forthcoming). Therefore the low response rate among these households also impacts demographic representation.

Many ABS and mail recruitment surveys offer incentives to help increase the response rate and representation among hard to reach demographic groups. A wide range of incentive testing has been conducted including contingent versus non-contingent (Schewe & Cournoyer 1975), monetary versus non-monetary (Warriner et al 1996), and cash increments (Trussell & Lavrakas 2004). In this research we evaluate the impact of a new non-cash contingent incentive on pre-recruitment questionnaire response rates and response mode (mail, phone, or online) within an ABS frame. Nielsen tested music downloads as a contingent incentive for pre-recruitment questionnaires returned online. We hypothesize that providing households with an additional incentive to return their questionnaire via the Internet will impact mode of response by increasing the amount of returns online. Furthermore, we posit that the addition of a new incentive will increase the overall return rate of pre-recruitment questionnaires and enhance representation of target households, including young adult and ethnic households.

2. Methodology

This research was conducted during the February 2011 Nielsen TV Audience Diary Measurement across four independent weekly samples, using an ABS frame. Respondents receiving the test treatments were given standard recruitment procedures plus the additional incentive of free songs if they completed the pre-recruitment questionnaire online.

2.1 Sampling Frame

In November 2008 Nielsen implemented address-based sampling to identify households for the TV Diary measurement. The sample was obtained from Marketing Systems Group (an international survey sample provider), using their enhanced U.S. Postal Service Computerized Delivery Sequence File. The frame included nearly all address types: city style, PO Box, drop-point units (multiple units with a single street address), and vacant (retained because previous investigation showed that a large enough percentage of these homes did have residents living at the address, with many of these being younger households). Two types of residential households were excluded: (1) seasonal or "vacation" homes (excluded because nearly all individuals identified at these addresses have their primary address included in the sample frame already), and (2) "throw back units" (households that have both a PO box and a city style address, but have indicated that they only want their mail sent to their PO box -- which is already included). Known group quarters (prisons, barracks, and dormitories with a single mailing address) were also excluded. In areas still listed by the USPS as being rural routes (or "simplified addresses"), city-style addresses identified via commercial data bases were sampled to fill these gaps in the USPS frame.

In total, 652,574 unmatched addresses were sampled: 353,385 regular sample and 299,186 over sample for the three hard-to-reach demographics (Black, Hispanic, and young adult households). Approximately 3.5% of the NSI unmatched gross (regular and oversample) was allocated for each test cell, with two test cells totaling to approximately 7.1% of the overall NSI unmatched gross sample. This is not including additional sample that was added to weeks three and four to achieve targeted response rates for diary keeping households. Two sample indicators were added to each sample record to drive the use of differential recruitment approaches for key demographic groups: (1) Hispanic surname and (2) model-based indicators of age of head or house.

2.2 Recruitment

The recruitment and data collection processes for the TV Diary Measurement will follow one of two paths depending on whether the household is classified as 'matched' or 'unmatched.' To make this classification the initial pool of sampled addresses is compared against a telephone directory and other commercial listings to identify a phone number for each address. If a telephone number can be paired to the address the case is referred to as 'matched,' otherwise the case is categorized as 'unmatched.' Overall, 50.9% of the sampled addresses in the February 2011 TV Diary Measurement were matched to a telephone number leaving 49.1% of households unmatched. For matched cases, the household is sent a pre-recruitment letter (if sample indicators determine the householder is likely to be Hispanic or aged 18 to 34 years) or a postcard announcing that Nielsen will be calling in the future about a TV-related survey. For matched cases recruitment is conducted by telephone.

'Unmatched' cases, addresses with no identifiable landline telephone number, include households with unlisted landline telephone numbers, cell phone only homes, and households with no in-home telephone access. For these households, a pre-recruitment survey is first conducted with the goal of (1) identifying a household telephone number (landline or cell phone), and (2) collecting information needed to drive the diary mailing, including number of diaries required and amount of incentive to be included. Before receiving the survey an advance postcard is mailed, notifying the home of an upcoming packet from Nielsen. Several days later the pre-recruitment packet is mailed, containing a cover letter, survey form, frequently asked questions (FAQ) brochure, postage paid envelope to return the survey, and modest cash incentive. The households are notified that the survey can be completed online with a unique username and password provided in the pre-recruitment packet, by returning the paper questionnaire by mail in a postage paid envelop, or by calling into a toll-free number to complete the survey with a trained interviewer. (For more details on this process and the outcomes, see Shuttles, Link et al 2009).

The next step in the recruitment process for unmatched homes is determined by the outcome of the pre-recruitment survey. One of four basic outcomes is possible: (1) survey is returned with a valid telephone number, (2) survey is returned but without a valid telephone number, (3) the survey is not returned, or (4) a post office return (POR) is received, indicating that the unit is vacant, the address does not exist as labeled, or some other issue was at play making the mailing undeliverable. No additional action is taken on PORs, which are considered "out of sample" and not included in final response rate calculations. Based on several pilot tests, it was determined that households that did not return a pre-recruitment questionnaire were very unlikely to participate in and return a completed diary (less than 2% did so in one test), therefore no subsequent recruitment action is taken on these addresses and they are classified as being "final refusals" for the purposes of response rate calculations. The recruitment process continues for all households that return the pre-recruitment survey.

Unmatched households that return a telephone number are contacted by CATI interviewers for diary placement. The call is similar to that received by matched household, except that if information has already been obtained through the pre-recruitment survey, that information is simply verified, not re-asked of the responding homes. Once the placement call is made, these homes are handled in identical manner to the matched homes. Finally, unmatched households that return a pre-recruitment survey

but do not provide a telephone number are sent diaries and incentives in accordance with their responses to the pre-recruitment survey. If key portions of that survey are left blank, the default is to send the household one diary. Unmatched households with a telephone number receive a telephone reminder call during diary week and all cases receive a mail reminder.

2.3 Test Conditions

The current pre-recruitment structure provides households with three ways to complete the questionnaire – mail, phone, and website. At present, the majority of questionnaires are returned by mail (approximately 80%), which is the most time consuming and costly method of receiving and processing returned surveys. Test households were randomly assigned to receive an offer of either 5 or 10 free song downloads if they completed the pre-recruitment questionnaire via the website. The free songs were given in addition to the current $2 or $5 non-contingent cash incentive given to all unmatched sample households. To emphasize the new incentive several pre-recruitment mail materials were modified. The pre-recruitment cover letter included a sentence about the number of songs offered for completing the survey online accompanied by a music note graphic. Additionally, a new four inch by six inch insert designed specifically to advertise the music incentive was included in the pre-recruitment packet. This insert included the number of songs being offered, motivational messaging about the incentive's ease of use, simplicity, and safety, and three-step instructions about how to complete the questionnaire and redeem the free songs. Lastly, the reminder letter was modified to again mention the web only incentive and the number of songs offered. No other print materials were modified for this test, and no phoning scripts were modified.

Redemption of the music incentive was integrated into the pre-recruitment website to facilitate ease of use for respondents. Upon completion of the questionnaire via the website households were directed to a "thank you" page with a link to the music store and a redemption code for either 5 or 10 songs, depending on the test cell. The link re-directed respondents to a Billboard branded music store where songs could be redeemed. The Billboard logo was incorporated into the updated mail materials to increase credibility of this transition. In addition to providing redemption information on the "thank you" page, respondents providing an e-mail address as part of the questionnaire also received an e-mail copy of their redemption code and the music store link. These e-mails were delivered within several hours of survey completion.

3. Results

The analysis here compares each test cell against the control for a variety of different outcomes. This analysis includes independent evaluation of the regular sample and the oversample as well as a combination of the two. Analysis of information for returned surveys included a total of 136,448 households. See table 1 for a complete account of returns for each test cell.

Among the most important goals of the test was an increase in the overall response rate. Table 1 shows the pre-recruitment survey return rates for the regular sample, the oversample, and the total NSI sample during. As the table illustrates, the test had significantly lower pre-recruitment return rates than the control for both 5 and 10 song test cells in the regular sample and in the oversample. Specifically, the pre-recruitment return rate for the test was approximately 2.7 percentage points lower for the 5 song test

cell and 2.4 percentage points lower for the 10 song test cell when evaluating the total NSI sample.

Table 1: Pre-recruitment Return Rates					
	Gross	Returned	Return Rate	Test - Control	p-value
Regular Sample					
Control	330,862	74,995	22.7%		
5 songs	11,261	2,241	19.9%	-2.8%	**0.000***
10 songs	11,262	2,269	20.1%	-2.6%	**0.000***
Oversample					
Control	277,894	53,332	19.2%		
5 songs	10,646	1,793	16.8%	-2.4%	**0.000***
10 songs	10,646	1,818	17.1%	-2.1%	**0.000***
NSI					
Control	608,759	128,327	21.1%		
5 songs	21,907	4,034	18.4%	-2.7%	**0.000***
10 songs	21,908	4,087	18.7%	-2.4%	**0.000***
* P-value significant at the 0.05 level					

In addition to pre-recruitment return rates we also investigated the distribution of returns by mode, presented in Table 2. Results show a significant increase in the proportion of returns via the website and a significant decrease in returns via mail for both 5 song and 10 song test groups as compared to the control. Phone returns remained constant across control and test groups. This trend was observed in the regular sample, the oversample, and the total NSI sample. As a whole, the total NSI sample demonstrated an 11.5% increase in website returns for the 5 song test group and a 14.4% increase in website returns for the 10 song test group as compared to the control group. Since the additional incentive was contingent on completing the questionnaire online the shift of returns from mail to web was expected.

Table 2: Pre-recruitment Return Mode Distribution				
	Phone	Web	Mail	p-value
Regular NSI				
Control	2.2%	17.3%	80.4%	
5 songs	2.2%	28.8%	69.0%	**0.000***
10 songs	2.2%	31.0%	66.9%	**0.000***
Oversample NSI				
Control	2.3%	17.6%	80.1%	
5 songs	1.9%	29.3%	68.8%	**0.000***
10 songs	2.1%	33.1%	64.8%	**0.000***
Total NSI				
Control	2.2%	17.5%	80.3%	
5 songs	2.1%	29.0%	68.9%	**0.000***
10 songs	2.2%	31.9%	65.9%	**0.000***
* P-value significant at the 0.05 level				

A comparison of key demographics for test groups and the control group is provided in Tables 3 and 4. As compared to the control 5 song households show a significant 1.9 percentage points decrease in AOH 35 – 49 and a directional, but insignificant, increase in AOH 50+. Similarly, 10 song households also show a significant decrease in AOH 35 – 49; however there was no increase in the representation of AOH 50+. Instead, results illustrate an increase in AOH <35, unfortunately this shift was not significant. Both 5 and 10 song test groups show no notable change in Black or Hispanic sample representation.

Table 3: Returned Pre-recruitment Survey Distributions for 5 songs

	Control	5 songs	p-value
Total NSI			
AOH<35	29.7%	29.0%	0.343
AOH35-49	29.5%	27.6%	**0.009***
AOH 50+	42.8%	43.4%	0.456
Total NSI (Black Treatment Markets)			
Black	19.6%	19.5%	0.910
Not Black	80.4%	80.5%	0.910
Total NSI (Spanish Treatment Markets)			
Hispanic	21.0%	21.0%	1.000
Not Hispanic	79.0%	79.0%	1.000
* P-value significant at the 0.05 level			

Table 4: Returned Pre-recruitment Survey Distributions for 10 songs

	Control	10 songs	p-value
Total NSI			
AOH<35	29.7%	30.2%	0.500
AOH35-49	29.5%	27.3%	**0.002***
AOH 50+	42.8%	42.5%	0.707
Total NSI (Black Treatment Markets)			
Black	19.6%	19.4%	0.835
Not Black	80.4%	80.6%	0.835
Total NSI (Spanish Treatment Markets)			
Hispanic	21.0%	19.7%	0.272
Not Hispanic	79.0%	80.3%	0.272
* P-value significant at the 0.05 level			

We also examined the rates of phone and e-mail provided for test versus control groups. Table 5 provides phone and e-mail return rates for the unmatched sample. As the table shows there are significantly higher rates of phone numbers provided for the 5 song test group as compared to the control in the regular sample and the total NSI sample. An

increase in the rate of phone numbers provided was also observed in the 5 song versus control group of the oversample, however the difference was insignificant. Among 10 song test groups compared to controls the rate of phone numbers provided continued to illustrate the trend of increased returns in the regular sample, the oversample, and the total NSI sample; however the increase was only direction, not significant. A significant increase in the rate of e-mails provided was shown in the 5 song test groups versus the controls for both the oversample and the total NSI sample, and a directional, but insignificant increase was observed in the regular sample. Among the 10 song test groups versus controls a significant increase in the rate of e-mails provided was observed in the regular sample, oversample, and NSI sample.

Table 5: Phone and E-mail Return Rates

	Return Rate	Test - Control	p-value
Phone Provided			
Regular Sample			
Control	61.9%		
5 songs	64.1%	2.2%	**0.032***
10 songs	62.1%	0.2%	0.847
Oversample			
Control	61.4%		
5 songs	62.1%	0.7%	0.548
10 songs	63.2%	1.8%	0.118
NSI			
Control	61.7%		
5 songs	63.2%	1.5%	**0.052***
10 songs	62.6%	0.9%	0.242
Email Provided			
Regular Sample			
Control	50.1%		
5 songs	51.0%	0.9%	0.401
10 songs	52.4%	2.3%	**0.031***
Oversample			
Control	50.2%		
5 songs	54.3%	4.1%	**0.001***
10 songs	54.8%	4.6%	**0.000***
NSI			
Control	50.1%		
5 songs	52.5%	2.4%	**0.003***
10 songs	53.5%	3.4%	**0.000***
* P-value significant at the 0.05 level			

4. Discussion

There is a recognized need in the research community to continue refining the ABS frame as RDD becomes less able to accurately represent the U.S. population, particularly cell phone-only homes. Including these households in the sampling frame is particularly important as research shows these homes are demographically different from landline phone owners (Blumberg & Luke 2010). Cell phone-only households are more likely to be composed of hard to reach demographics such as young adults and racial and ethnic minorities. Furthermore, research is beginning to suggest cell phone-only homes are also behavioral and attitudinal unique (Link & Lai forthcoming).

Increasing the 'unmatched' response rate is an ongoing effort in ABS research. Small, non-contingent cash incentives have been shown to effectively increase survey response in many instances (Dillman 2007); however the 'unmatched' response rate still suffers from the low impact of mail recruitment. Contingent incentives have been less consistent in demonstrating increases in response rate (Church 1993). Additionally, contingent incentive effectiveness can be impacted by the survey mode.

Taking these factors into account this test was designed to examine the impact of a contingent, non-cash, incentive for 'unmatched' households within and ABS frame. The growing prevalence of mp3 players and digital music sales provides support for testing music downloads as a possible non-monetary incentive. The incentive was restricted by survey response mode as an element of the contingency; however in exchange respondents were guaranteed an instantly delivered incentive. The anticipated outcome was a rise in both overall response rate and responses via preferred mode. Due to the digital nature of the incentive it was also expected to correlate with an increase in the response rate among young adult households. In contrast, overall response decreased by approximately 2 percentage points and there was no significant increase among any key demographic groups. However, an 11% to 14% increase in responses via the preferred mode was observed for 5 and 10 song test cells, respectively.

This decline in overall response could be attributed to the mode specific nature of the contingency. Households in the control cell were provided with three neutral response modes, while test households were offered an additional incentive for as specific mode, online. The incentive requires an additional step of going online to complete the survey. It is likely that some home intended to complete the survey online, but never did for various reasons. Furthermore, there may be a subgroup of these homes would have mailed back the survey upon receipt or shortly after without the mode specific incentive. Further testing of mode specific incentives, specifically within the ABS frame may shed light on this concept.

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