

Did the 2010 Census Social Marketing Campaign Shift Public Mindsets?

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Abstract

According to the Groves and Couper (1998) conceptual model of survey cooperation, the social environment plays a critical role in the outcome of a survey request. Surveys are subject to societal change, for example, shifts in the demographic composition of a neighborhood or public opinion among the members of a society. Level of trust in government, political alienation, and privacy and confidentiality concerns are all ways to measure the social climate of an environment. And although the social environment is considered to be a fairly fixed attribute and thus powerless to control, Groves and Couper warn that it should not be ignored. This is because it influences decision making, its importance changes over time, and it exhibits variation among subgroups of the population. In this paper, we examine the public “mindsets” regarding participation in the 2010 Census before, during and after the census public information campaign. We present evidence that the campaign was successful in shifting some segments of the population toward mindsets more inclined to participate in the 2010 Census.

Key Words: Census 2010, paid advertising, nonresponse

1. Introduction

1.1 Background

A few research studies have attempted to assess the survey-taking climate and define the constructs that underlie attitudes toward public opinion polls and surveys in general. For example, Goyder (1986) conducted a survey on surveys that uncovered several attitude factors regarding surveys including belief that surveys do harm, that surveys make the country more democratic, and that surveys are unreliable/inaccurate. More recently, Loosvelt and Storms (2008) examined five public opinion dimensions toward surveys including survey enjoyment, survey value, survey cost, survey reliability, and survey privacy.

Narrowing the focus to official statistics, a report by the Organization for Economic Co-operation and Development presents a conceptual framework (and questionnaire) for measuring trust in official statistics. The framework purports that trust in statistics is driven by beliefs that the data are accurate, reliable, credible, transparent, and impartial (OECD, 2010). A recent study by the UK Statistics Authority gauges trust in institutions and official statistics and found that belief that statistics are accurate plays a key role in whether people have confidence in official statistics (Baily, Rofique and Humphrey, 2010). Finally, a recent paper by Lorenc et al. (2012) advocates understanding the external survey environment by using a “survey climate barometer” and introduces the concept of social marketing as a way to improve the environment for gathering official statistics. Our paper explores the latter concept more

¹ This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.

closely by measuring public opinion “mindsets” before and after the massive social marketing that accompanied the 2010 U.S. Decennial Census.

1.2. The U.S. Decennial Census Social Marketing Campaign

Most of the time, manipulation of the external survey climate is out of the researcher’s control. However, once a decade in the United States, a natural experiment occurs during the decennial Census. During this time, the social landscape for taking a Census begins to change. News stories and articles about the Census begin to appear on television, radio, in newspapers, magazines, in blogs and other social media. This “buzz” begins months before the actual enumeration and grows as Census day draws near. During the 2010 Census, in addition to earned media the Census Bureau engaged in a multi-million dollar social marketing and paid communication campaign. The campaign involved television and radio advertisements, billboards and print ads, public events, a Census in Schools program, a mobile Census Road Tour, and a massive grassroots Census Partnership Program that leveraged community organizations and leaders (U.S. Census, 2008). The campaign spanned five months, was developed in 28 different languages, and was designed to reach every segment of the U.S. population. The campaign was created not only to make U.S. residents aware of the Census but also to encourage completion and mailing back of the Census form. In short, the campaign was designed to manipulate the social environment by projecting a barrage of positive Census messages.

Prior to the campaign, the Census Bureau developed an audience segmentation that classified each Census tract into one of eight clusters. These clusters varied on Census 2000 behavioral data regarding propensity to mail back a Census form as well as housing and person indicators to profile socio-demographic characteristics within a cluster. The eight clusters included: Advantaged Homeowners, All Around Average (owner skewed), All Around Average (renter skewed), Economically Disadvantaged (owner skewed), Economically Disadvantaged (renter skewed), Ethnic Enclave (owner skewed), Ethnic Enclave (renter skewed) and Single Unattached Mobiles. This segmentation was the framework for the communication campaign and provided insight into the size, location, and underlying constructs behind the easy and hard-to-count clusters (Bates and Mulry, 2011). However, it did not provide much needed insight as to *why* a segment might or might not participate in the Census. To fill this research gap, the Census commissioned a survey in 2008 – the Census Barriers, Attitudes, and Motivator survey or CBAMS.

The CBAMS was a multi-mode survey that oversampled hard-to-count populations and measured constructs such as Census attitudes and awareness, data uses, self-reported propensity to participate, ranking of potential Census messages, barriers and motivators of participation, and consumption of mass and social media. The CBAMS consisted of over 4,000 completed interviews with an AAPOR Response Rate 3 (RR3) of 59%, 31% and 22% for the face-to-face, landline, and cellphone interviews, respectively.

² The overall response rates for CBAMS was 37.9% (RR3).

The advertising agency responsible for the 2010 campaign conducted a Q-factor analysis to partition respondents into groups depending on how similar their attitudes and beliefs around the Census were. This technique resulted in an attitudinal segmentation used to classify respondents. The Q-factor analysis of the 32 CBAMS knowledge, awareness, attitude and behavior items resulted in five distinct segments or messaging “mindsets”. These segments were labeled the “Head Nodders”, “Leading Edge”, “Cynical Fifth”, “Insulated” and “Unacquainted”³ (Bates et al, 2009). The agency used these segments to uncover

² For a detailed methodology report on CBAMS see U.S. Census (2009).

³ A word of explanation is necessary for the “Unacquainted”. This group was actually excluded from the Q-factor analysis that formed the mindsets – the reason being they answered “no” to both an unaided question (*Have you ever*

insights necessary to develop targeted advertising copy and messages for radio, television, print, online, and out-of-home advertisements. Appendix 1 indicates the 32 items used in the analysis to form the mindsets while Table 1 summarizes each segment regarding core characteristics, attitudes and motivating strategies.

Table 1: Summary of 2010 Census Mindsets

	Leading Edge	Head Nodders	Insulated	Cynical 5th	Unacquainted
Core	<i>Committed</i>	<i>Impressionable</i>	<i>Indifferent</i>	<i>Resistant</i>	<i>Peripheral</i>
Attitudes/Barriers	Understands and values the Census. Will advocate for Census. No barriers.	Believe anything/everything about Census. Say they will participate but negative media might sway them. not to.	Unfamiliar with Census. Focused on day-to-day needs.	Believe data is misused, not used, and unnecessary. Suspicious. and anti-institution.	Totally unaware/unfamiliar w/Census. Often have language/cultural barriers.
Challenge	Keep positive momentum.	Constantly move in right direction. Overcome any negative publicity.	Personalize the Census to make relevant to daily lives.	Cannot rationalize or confront beliefs head-on – will not change mind.	Need reassurance from trusted sources that Census is safe and easy.
Potential Messages	Share of \$300 billion. Representation in Congress. Mailback saves money.	If you don't fill out, you may miss out.	Census determines healthcare, community centers, day-care.	Census is only 10 non-intrusive questions.	Census form will come in the mail. Census is confidential.
Communication Strategy	Facilitate advocacy via targeted programs.	Overcome distractions with reminder frequency.	Overcome lack of familiarity through education.	Human interest stories.	Bilingual form; language guides; local Census takers during nonresponse followup.

The mindsets served as a guide for the messaging behind the 2010 communications campaign – the goal to positively influence the social environment by changing attitudes, awareness, and knowledge among *all* the mindsets. In this paper, we more closely examine the premise whether the campaign changed the survey climate and, as a result, shifted the population toward more positive mindsets. We address several research questions that could have broader applications to understanding survey and Census nonresponse. For example, are the mindsets predictive of actual Census participation? In the CBAMS, we had a

heard of the Census of the U.S.?) and aided item (*The Census is a count of all the people who live in the U.S. Have you ever heard of that before?)* Consequently, these respondents were skipped out of the majority of knowledge, attitude, and opinion items used to form the mindsets. As a result, this group was classified as the Unacquainted because of their complete unfamiliarity of the Census.

measure of self-reported *future intent* to participate in the Census. Using this measure, we concluded there was a lower propensity to participate among the Insulated and Cynical Fifth (Bates et al., 2009).

In the current paper, we investigate further by replicating the 2008 mindsets using a three-wave survey conducted before, during, and immediately after the 2010 Census. This data collection is known as the Census Integrated Communication Program Evaluation or CICPE. The survey matched sample addresses to Census operational data to obtain the “truth” regarding whether households participated by completing and mailing back a form. Additionally, we explore the socio-demographic characteristics of the mindsets and how they align with previous nonresponse research. A final question is whether the mindsets changed over the course of the communications campaign – was the Census Bureau successful in changing the external survey environment to some extent?

2. Replicating the Mindsets

The CICPE was multi-mode employing CATI, personal visit, and Web responses. The weighted response rates for the core sample in Waves 1, 2 and 3 was 60.5%, 60.9% and 63.1%, respectively. The CICPE also employed a panel sample of respondents that were successfully interviewed in all three waves. The panel response rate was 72.0%.⁴

The CICPE instrument contained a subset of the items from Appendix 1 enabling us to reconstruct the mindsets from the 2008 CBAMS (items in Appendix 1 denoted with an “*” indicate the CICPE subset). In order to replicate the mindsets we needed to classify each respondent in the CIPCE into one of the mindsets. As in CBAMS the CIPCE respondents who indicated they had never heard of the census in both unaided and aided questions were classified as Unacquainted (see Appendix 1 for Unaided and Aided question wordings). We used the items asked in both surveys in an unweighted four-group discriminant analysis to develop discriminant functions that we could apply to classify the respondents in the CIPCE by mindset (Sharma 1996). We developed the discriminant functions using SAS Procedure DISCRIM and the 16 variable subset identified in Appendix 1.

Overall, the correct classification rate for the four mindsets in the discriminant analysis was 76.2% with the agreement rates between the new and original for the Cynical Fifth and Insulated at 84.2% and 82.2%, respectively (see Table 2). The agreement rates for the Head Noddors and Leading Edge were 73.5% and 65.1%, respectively. Misclassification between these two mindsets was the highest at 23.9% of the original Head Noddors classified by the discriminant analysis as Leading Edge and 20.0% of the original Leading Edge classified as Head Noddors.⁵ The cross-validation of the discriminant analysis indicated stability since the agreement and disagreement rates were very similar to those in Table 2. Of course, the agreement rate for the Unacquainted was 100% since it was assigned using the same data in the new and original analysis (not shown in Table 2).

The discriminant functions were used to assign mindsets to the respondents in all three CICPE waves. However, we excluded two items in the Wave 3 mindset assignment because they asked about intent to participate in the Census. Because Wave 3 was conducted after the mail response period, these questions were skipped for most. Therefore, for Wave 3, a separate discriminant analysis was run to assign mindsets. We used SAS Procedure DISCRIM to perform an unweighted four-group discriminant analysis

⁴ For a more detailed description of the CICPE methodology, see Datta et al., 2010.

⁵ In the original CBAMS mindset classification, a Q-factor subcluster analysis was performed to differentiate a single large segment that contained both the Head Nodder and Leading Edge. This differentiation used 12 additional items that were not asked in the CICPE, and thus could not be used in the 2010 classification.

with the 14 remaining variables. The overall agreement rate for this discriminant analysis was similar to that of Wave 1 at 74%.

The overall distribution of mindsets was somewhat different from the 2008 study with the 2010 study yielding fewer Head Noddors and Leading Edge but more Cynical Fifth and Insulated (Table 3).

Table 2: Number of Observations and Percent Classified into Mindset –

Resubstitution Summary of SAS DISCRIM procedure				
From mindset	Leading Edge	Head Noddors	Cynical 5 th	Insulated
	65.1%	23.9%	8.1%	3.0%
Leading Edge	1015	373	126	46
	20.0%	73.5%	6.0%	0.5%
Head Noddors	212	780	64	5
	4.8%	9.4%	84.2%	1.6%
Cynical 5th	34	67	602	12
	12.6%	0%	5.2%	82.2%
Insulated	49	0	20	319

Table 3: Final Distribution of Mindsets 2008 survey versus 2010 survey (at Wave 1)

	2008 CBAMS % (std. err.)	2010 CICPE (Wave 1) % (std err)
Unacquainted	7.3 (0.9)	6.9 (1.6)
Head Noddors	40.6 (1.5)	35.0 (3.0)
Leading Edge	26.5 (1.3)	20.0 (2.2)
Cynical Fifth	19.2 (1.2)	24.3 (2.8)
Insulated	6.4 (0.7)	13.9 (1.9)
Total	100%	100%

2.1 Mindset Characteristics: Attitudes/Opinions

As summarized in Table 1, the mindsets are characterized according to familiarity, awareness, attitudes and beliefs around the Census and, in some cases, government and institutions more generally. Once we settled on our discriminant analysis specification, we checked a variety of measures to see if the newly constructed mindsets aligned with those uncovered in the earlier survey. Overall, the metrics fell according to our expectations. For example, the Leading Edge scored the highest on the Census knowledge index with the Cynical Fifth next in line – conversely, the Insulated scored far below the others while the Head Noddors fell somewhere in the middle (see Table 4). The Insulated by far had the highest occurrence of answering “don’t know” or “no opinion” to the knowledge and opinion items compared to the other 3 mindsets while the Head Noddors exhibited more “yea-saying” to the knowledge items⁶. We also found that those assigned to the Cynical Fifth mindset had high concerns regarding data confidentiality and also scored high on a scale reflecting that the Census is unimportant, unnecessary and

⁶ We refer to this as “agreement bias” and it is one of the defining characteristics of this segment but, one could also consider this group as exhibiting some degree of acquiescence.

burdensome. Taken together, we feel this is validation that our mindsets come close to replicating those from the earlier data collection.

Table 4: Index Mean Scores: Census Knowledge, Privacy/Confidentiality Concerns, Census is Unimportant, DK/No Opinion, Agreement Bias*

	Leading Edge	Head Nodders	Cynical 5th	Insulated
Census Knowledge Score	6.2 (0.7)	4.0 (.08)	4.8 (.23)	2.0 (.18)
Privacy/Confidentiality Concerns Score	7.6 (.32)	8.5 (.32)	10.5 (.28)	10.1 (.12)
Census Unimportant/Burdensome	7.2 (.16)	8.2 (.25)	10.9 (.39)	10.5 (.36)
DK/No Opinion Score	0.2 (.05)	0.8 (.09)	0.4 (.05)	4.2 (.20)
“Agreement” Bias Score	0.2 (.20)	1.2 (.11)	0.8 (.09)	0.5 (.05)

*Standard errors in parentheses

2.2 Mindset Characteristics: Socio-demographics

The survey nonresponse literature is full of studies reporting that certain subgroups are less likely to participate in surveys and be counted in Censuses. For example, single-adult households and lower socioeconomic status households tend not to cooperate, while households with older persons tend to cooperate (Groves and Couper, 1998). Previous U.S. Censuses indicate that households containing renters, young adults, and racial and ethnic minorities tend to be undercounted at a higher rate than other groups (U.S. Census Bureau, 2003) and ethnic minorities typically have lower survey response rates in most Western countries (Eisner and Ribeaud, 2007). More recently, in the 2010 Census racial and ethnic minority-headed households (e.g., Blacks, American Indians, Hispanics) returned their Census forms at a lower rate than white-headed households and younger headed households and renters had lower mailback rates than older and owner-occupied households (Letournau, 2012).

With this in mind, we examined some socio-demographics of the five mindsets. Regarding ethnic and racial minorities, the Unacquainted and Insulated mindsets stand out with the former containing above average percentage of both Hispanics and Blacks and the latter containing above average percent of Blacks (see table 5). Conversely, both the Leading Edge and Cynical Fifth contain an above average number of non-Hispanic whites. About 30 percent of the Unacquainted reported being born outside the U.S. The Unacquainted skewed heaviest in the youngest 18-29 age category while the Insulated had the largest numbers belonging to the oldest age category (65+). The Unacquainted had the lowest education with 39% lacking a high school degree. Likewise, over one-third of the Insulated lacked a high school degree. Conversely, close to half of the Leading Edge had a college degree or higher.

Table 5: Demographic profile of the 2010 CICPE mindsets

	Unacquainted	Head Nodders	Leading Edge	Cynical Fifth	Insulated
Non-Hispanic, White	40%	65%	77%	81%	50%
Hispanic	19%	13%	7%	7%	12%
Non_Hispanic, Black	21%	12%	4%	6%	21%
Other/missing	20%	10%	12%	6%	17%
Foreign Born	30%	15%	14%	8%	22%
18-29	36%	23%	10%	29%	17%
30-44	34%	35%	29%	27%	32%
45-64	9%	28%	43%	32%	24%
65+	21%	13%	18%	12%	28%
< High School	39%	25%	13%	6%	34%
High School degree	32%	30%	25%	37%	16%
Some College	11%	18%	14%	29%	29%
College degree or >	17%	29%	48%	28%	20%
Total %	6.9%	35.0%	20.0%	24.3%	13.9%

2.3 Response behavior of the mindsets

Socio-demographic profiles can help delineate those mindsets harder to count in a Census but another measure is to gauge stated level of *intent to participate* or even better, *actual participation behavior*. In our study, we have both — stated intent to participate was measured during the pre-Census data collection of the CICPE survey and actual participation behavior based on matching the CICPE sample unit addresses to Census records indicating mode of Census response (mailback versus personal visit during nonresponse followup). Table 6 presents level of stated intent to participate at Wave 1 of the 2010 CICPE (the Unacquainted group is shown as N/A since this group was skipped the intent question). Column 2 of Table 6 indicates the percent that actually completed and mailed back their Census form prior to nonresponse follow-up. Stated intent to participate suggests the Leading Edge would mail back at the highest rate and the Cynical Fifth the lowest. Actual behavior was somewhat associated with stated intent with the Leading Edge having the highest percent completing and mailing back a form (73%) and the Cynical Fifth far behind at just over half (56%). However, those least familiar with Census, the Unacquainted, had the lowest compliance with the Census with just over one-third mailing back a form (36%).

In the final analysis, we used SAS Surveylogistic to model mail-return behavior using only the mindsets as our predictor variable (Model 1 in Table 7). Using this micro-level measure, we found that compared to the Leading Edge, the Cynical Fifth, Insulated, and Unacquainted were all significantly less likely to participate. The Head Nodders were not significantly different from the Leading Edge. The model lacks explanatory power with a max-rescaled R-sq of only .05.

Table 6: Self-Reported Intent to Mail a Census Form and Actual Behavior by Wave 1 Mindset

<i>W1 Mindset</i>	<i>2010 CICPE (Wave 1)</i>	
	<i>% “Definitely Will”*</i>	<i>% Mailed Back Form</i>
Unacquainted	n/a	36% (10.9)
Head Nodders	60% (7.4)	62% (6.7)
Leading Edge	76% (5.7)	73% (4.5)
Cynical Fifth	23% (3.3)	56% (8.1)
Insulated	34% (9.3)	55% (8.7)

*Scale: 1=Definitely not 2=Probably not 3= Might or might not 4=Probably will
5= Definitely will. Standard errors in parentheses.

Next we added a macro-level geo-demographic control variable. We used the eight-category audience segmentation variable discussed earlier in Section 1.2. This variable reflects social and housing tract-level characteristics such as percent vacant housing, percent multi-unit structures, percent renters, percent unemployed, percent moved in last year, and percent non-spousal households. With this covariate in the model, the mindsets remained a significant predictor of mail response (see Table 7, Model 2). The max-rescaled R-square for this model improved to .11.

Table 7: Logistic regression model of actual Census mailback

	<i>Model 1</i>		<i>Model 2</i>	
	<i>Estimate</i>	<i>s.e.</i>	<i>Estimate</i>	<i>s.e.</i>
Intercept	0.99***	(0.22)	1.68***	(0.35)
<i>Mindset:</i>				
Head Nodders	-0.50	(0.31)	-0.38	(0.30)
Cynical Fifth	-0.75***	(0.29)	-0.80***	(0.30)
Insulated	-0.77**	(0.38)	-0.72*	(0.40)
Unacquainted	-1.57***	(0.53)	-1.50*	(0.66)
Leading Edge (omitted)	----	----	----	----
<i>Audience segmentation cluster:</i>				
All Around Average (owner skewed)			-0.98**	(0.42)
All Around Average (renter skewed)			-0.69	(0.52)
Econ. Disadvantaged (owner skewed)			-1.20***	(0.30)
Econ. Disadvantaged (renter skewed)			-2.06***	(0.30)
Ethnic Enclave (owner skewed)			-1.13***	(0.42)
Ethnic Enclave (renter skewed)			-0.89*	(0.53)
Single Unattached Mobiles			-1.06***	(0.33)
Advantaged Homeowners (omitted)			----	----

Base N=2,671, Source: Wave 1 CICPE, *<.10, **<.05, ***<.01

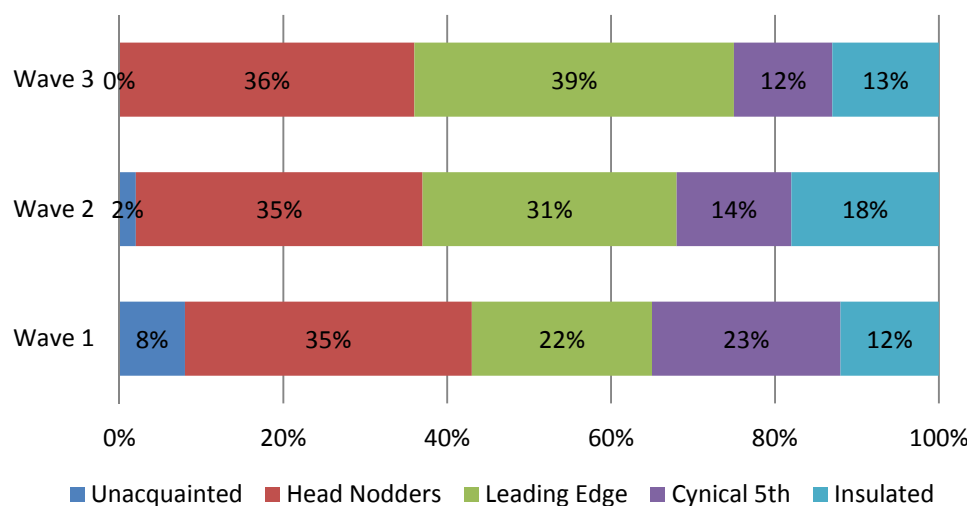
Model 1 Max-rescaled R-sq=.05 (using normalized weight)

Model 2 Max-rescaled R-sq=.11 (using normalized weight)

3. Monitoring the mindsets over the campaign

The pre-Census mindsets provide a sense of where the population stood prior to the manipulation of the environment by way of the communication campaign intervention. This begs the question -- what happened? Was the campaign successful in shifting some of the mindsets with a lower propensity to participate? To answer this question, we turn to the panel component of the CICPE surveys. Chart 1 illustrates the panel mindset distributions across all 3 waves. Several trends are noteworthy. First, by Wave 3, the Unacquainted disappears. Second, over time, the Leading Edge increases while the Cynical Fifth decreases. Finally, the Head Nodder and Insulated group size stayed fairly constant across the campaign.

Chart 1: Mindset Distribution for Panel Cases at W1 - W3



Delving deeper we next trace the individual mindsets pre- and post- Census. This allows us to pinpoint movement from one mindset to another (see charts 2-6)⁷. The majority of the Unacquainted became Head Nodders but close to one-third became Cynical Fifth. Half of the Head Nodders became Leading Edge but over one-quarter remained Head Nodders.⁸ Over half of the Leading Edge remained the same but close to a third shifted to the Head Nodder mindset. A positive finding is that few of the Cynical Fifth remained so (only 15%). Finally, almost half of the Insulated remained unchanged.

⁷ We are aware that panel respondents might be subject to conditioning effects that could cloud this analysis. However, the wave-to-wave mindset distributions for the non-panel samples very closely resembled that of the panel. Additionally, NORC found very little evidence of conditioning effects in the CICPE attitude, behavior, and knowledge questions (Yan, Datta and Hepburn, 2011).

⁸ We are cautious making statements that suggest delineation between the Leading Edge and Head Nodder groups given these two groups had the highest error in the discriminant analysis reclassification. In other words, we aren't so confident that a person classified as Leading Edge is not really a Head Nodder or vice-versa.

Chart 2: Movement of "Unacquainted" Mindset:
W1 - W3

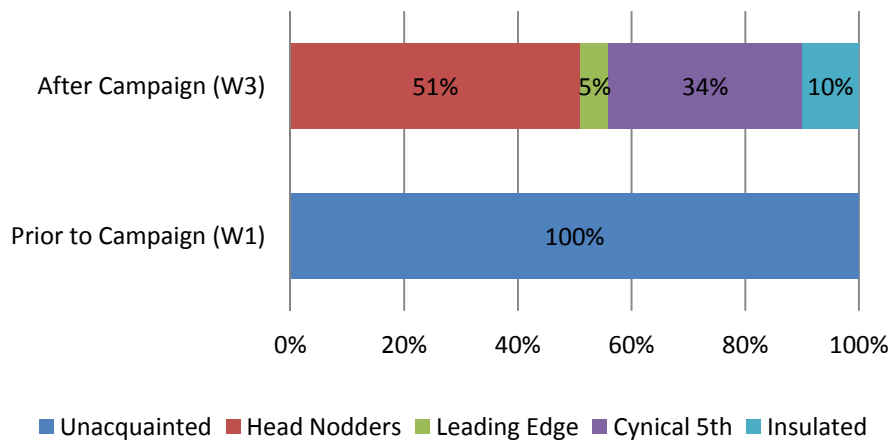


Chart 3: Movement of "Head Nodder" Mindset: W1 - W3

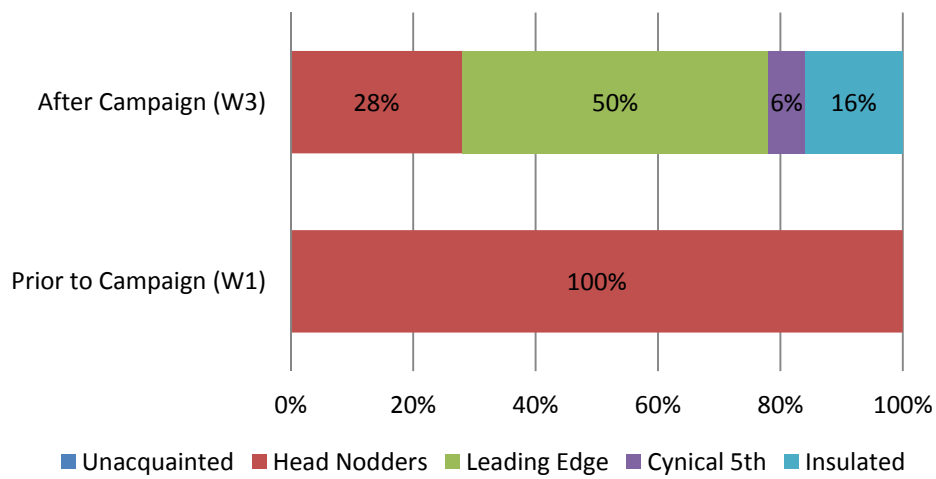


Chart 4: Movement of "Leading Edge" Mindset: W1 - W3

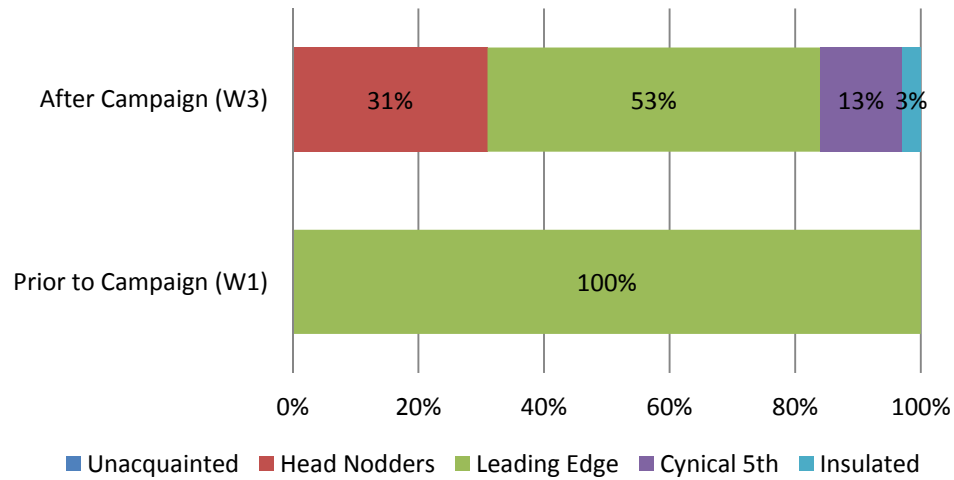


Chart 5: Movement of "Cynical 5th" Mindset: W1 - W3

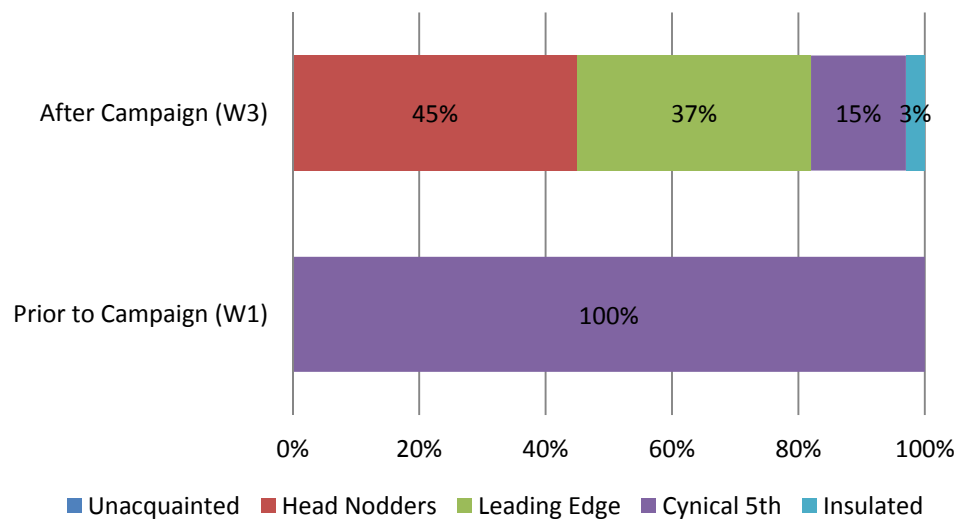
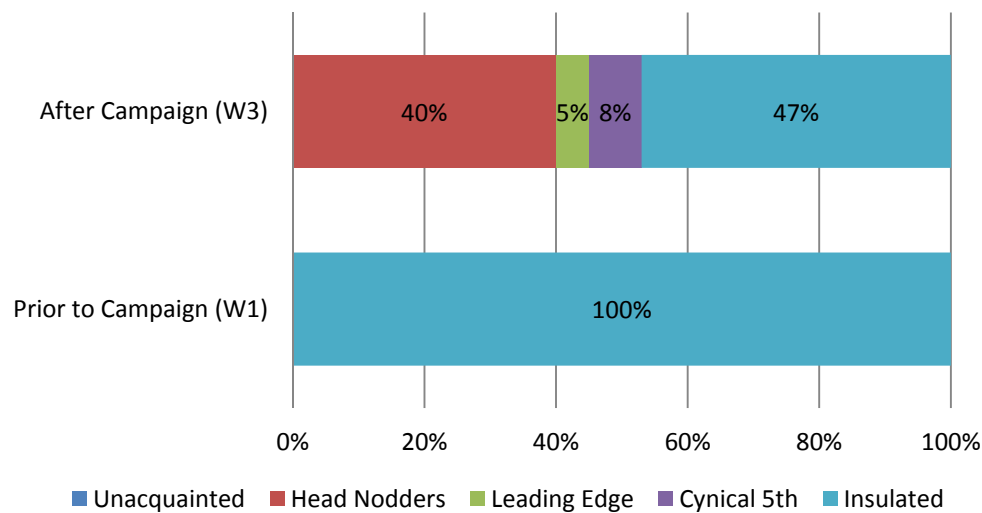


Chart 6: Movement of "Insulated" Mindset: W1 - W3



4. Summary and conclusions

This paper argues that the external survey environment is an important predictor of response, that it can be monitored in part by way of survey “mindsets”, and that these mindsets can be manipulated by a social marketing campaign. Although we have no way of knowing for sure, we believe we successfully reconstructed the five mindsets from a prior study assigning them to new respondents from a multi-wave pre- and post-Census survey. The knowledge, attitude, and behavior characteristics of the mindsets lined up as expected and many of the demographic indicators did as well. The core characteristics of the different mindsets are: committed (Leading Edge), impressionable (Head Nodders), indifferent (Insulated), resistant (Cynical Fifth), and peripheral (Unacquainted).

Using data from these pre- and post-Census surveys, we examined changes in the mindsets over the course of the 2010 Census communication campaign. Since the campaign delivered positive messages designed to encourage Census participation, we expected mindsets to shift over time toward those more inclined to participate. We found some evidence of this. For example, we found that the mindset completely unfamiliar with the Census (Unacquainted), disappeared by the end of the campaign. We also found that the mindset with the most negative disposition toward the Census (Cynical Fifth), shrank by the end of campaign while the mindset with the most positive disposition (Leading Edge) grew in ranks. However, the size of two other mindsets stayed fairly stable between the beginning and end of the campaign (the Head Nodders and Insulated). Going forward, the Census Bureau can learn from this as it plans the next decennial Census and social marketing strategies. Perhaps a different advertising message and strategy is required to move the Head Nodders and grow the Leading Edge.

We saw a great deal of variation in both stated intent to participate and actual participation across the mindsets. Even when controlling for an audience segmentation variable that encapsulates the likes of homeownership, age, mobility, poverty, language, and urbanicity, the mindsets were still significant predictors of Census participation. Consequently, we conclude that knowing one’s mindset can be a useful predictor of response behavior. However, this leads us to an obvious conundrum – how can one ascertain a sample member’s mindset prior to contact? The truth is, we cannot. However, Mulry and Olson (2011) were able to identify some socio-demographic characteristics correlated with the heterogeneity in mindsets within the racial/Hispanic ethnicity groups using generalized logit models for a

multiple response variable. Perhaps with further research we can identify mindset correlates that can be known by interviewers prior to contact. For example, we know the Insulated tends to contain immigrant populations. We also know that, while this group has heard of the Census, they readily admit not knowing much about it, for example its purpose or how it is conducted. Consequently, if we know that a sample unit is located in an area with a high immigrant population, then education may be the message key to changing that social environment.

References

- Bailey, R., Rofique, J. and Humphrey, A. 2010. Public Confidence in Official Statistics 2009: Report NatCen: U.K.
- Bates, N. and Mulry, M. H. 2011. Using a Geographic Segmentation to Understand, Predict, and Plan for Census and Survey Mail Nonresponse. *Journal of Official Statistics*. 27(4), 601–618.
- Bates, N., Conrey, R., Zuwallack, R., Billia, D., Harris, V., Jacobsen, L. and White, T. 2009. Messaging to America: Results from the Census Barriers, Attitudes and Motivator Survey (CBAMS). In *JSM Proceedings*, Survey Research Methods Section, AAPOR conference proceedings. American Statistical Association. Alexandria, VA.
<http://www.amstat.org/sections/SRMS/Proceedings/y2009/Files/400038.pdf>
- Datta, R.A., Bautista, R., Hepburn, P. and Yan, T. 2010. Post Census Data Collection Report: 2010 Census Integrated Communication Program Evaluation (CICPE). Reported presented to U.S. Census Bureau, Washington, DC. NORC. Chicago, IL.
- Eisner, M. and Ribeaud, D. 2007. Conducting a Criminological Survey in a Culturally Diverse Context: Lessons from the Zurich Project on the Social Development of Children. *European Journal of Criminology*, 4, 172-298.
- Goyder, J. 1986. Surveys on Surveys: Limitations and Potentialities. *Public Opinion Quarterly*, 50, 27-41.
- Groves, R. M. and Couper, M. P. 1998. Nonresponse in Household Interview Surveys. John Wiley and Sons, Inc. New York: NY.
- Letourneau, E. 2012. 2010 Census Mail Response/Mail Return Rates Assessment Report. 2010 Census Planning Memorandum Series, No. 198. U.S. Census Bureau: Washington, D.C.
- Loosveldt, G. and Storms, V. 2008. Measuring Public Opinions About Surveys. *International Journal of Public Opinion Research*, 20,1, 74-89.
- Lorenc, B., Loosveldt, G., Mulry, M.H., and Wrighte, D. 2012. Understanding and improving the external survey environment of official statistics. *Survey Methods: Insights from the Field*. (to appear)
- Mulry, M. H. and Olson, T. P. 2011. Analyses for the U.S. 2010 Census Partnership Program. *Social Marketing Quarterly*. 17, 1, 27 – 55.
- Organization for Economic Co-operation and Development. 2010. Report of the Electronic Working Group on Measuring Trust in Official Statistics. United Nations: New York.
- Sharma, S. (1996). *Applied Multivariate Techniques*. John Wiley. & Sons, Inc.
- U.S. Census Bureau. 2008. 2010 Census Integrated Communications Campaign Plan: The Success of the Census Is in Our Hands. U.S. Census Bureau, Washington, D.C.
- U.S. Census Bureau. 2009. Census Barriers, Attitudes and Motivators Survey Methodology Report. C2PO 2010 Census Integrated Communication Research Memorandum Series, January 6. U.S. Census Bureau, Washington, D.C.
- U.S. Census Bureau. 2003. Technical Assessment of A.C.E. Revision II. March 12, 2003. U.S. Census Bureau, Washington, DC. <http://www.census.gov/dmd/www/pdf/ACETechAssess.pdf>
- Yan, T., Datta, R., and Hepburn, P. 2011. Conditioning Effects in Panel Participation. A presentation at the annual conference of the American Association for Public Opinion Research, Phoenix, AZ. NORC. Chicago, IL.

Appendix 1.

Items Used in 2008 CBAMS Q-Factor Analysis to Form Mindset Segments

Measure	
Unaided *	Have you ever heard of the Census of the United States?
Aided *	The Census is the count of all the people who live in the United States. Have you ever heard of that before?
Knowledge *	Count of correct responses to C4 series (facts about the Census)
B3 *	How likely are you to recommend participating in the Census to a family member or friend?
B5	Thinking about the Census overall, how important do you feel it is for you to participate in the Census?
C2 *	Overall, how would you describe your general feelings about the Census?
C3 *	In general, how familiar are you with the way Census data impacts you and your community?
D1	As far as you know, does the law require you to answer the Census questions?
D2	As far as you know, is the Census Bureau required by law to keep information confidential?
Intent *	If the Census were held today, how likely are you to participate?
c4dk *	Count of "don't know" responses to C4 series (facts about the Census)
c4ref	Count of refused responses to C4 series (facts about the Census)
e1a *	The Census is an invasion of privacy.
e1b	It is important for everyone to be counted in the Census.
e1c	The Census Bureau would never let another government agency see my answers to the Census.
e1d	People's answers to the Census cannot be used against them.
e1e *	Taking part in the Census shows I am proud of who I am.
e1f	Filling out the Census form will let the government know what my community needs.
e1g *	I just don't see that it matters much if I personally fill out the Census form or not.
e1h	It is a civic responsibility to fill out the Census form.
e1i *	The Census Bureau's promise of confidentiality can be trusted.
e1j *	I am concerned that the information I provide will be misused.

Measure	
e1k	I prefer to stay out of sight and not be counted.
e1l *	The government already has my personal information, like my tax returns, so I don't need to fill out a Census form.
e1m	I'll never see results from the Census in my neighborhood.
e1n *	It takes too long to fill out the Census information, I don't have time.
e1o	I don't like to fill out paper forms or use the mail because I prefer to do everything online.
e1p	The Census is only for people who speak English.
e1q	Computer "hackers" could obtain Census information about you if they really tried.
Eneutral*	Count of "no opinion" responses to E series questions
Edk *	Count of "don't know" responses to E series questions
Eref	Count of refused responses to E series questions

*denotes subset of items repeated in the 2010 CICPE