

DATE: FEBRUARY 10, 2012

MEMORANDUM FOR: DENISE PEPE
*Special Surveys Branch
Demographic Surveys Division
Census Bureau*

MEMORANDUM FROM: ANYA STOCKBURGER, Section Chief
*Cost Weights Section
Branch of Revision Methodology
Division of Consumer Prices and Price Indexes*

MEMORANDUM THRU: ROB CAGE, Branch Chief
*Branch of Revision Methodology
Division of Consumer Prices and Price Indexes*

SUBJECT: TPOPS Requirement for Q122—Implementation of the
Cell Phone Frame in Production

I. INTRODUCTION

In Q112, Census conducted a test to determine how many calls would have to be made to obtain a target number of interviews using a frame of cell phone numbers. This requirement will outline the changes that will need to be made to the cell phone test instrument for implementation of a cell phone frame in production for Q122.

II. GOAL/BENEFIT

The benefit of including a cell phone frame in the TPOPS is to address a potential coverage bias caused by the use of a landline-only design.

III. PARAMETER FILE CHANGES

The parameter files will not change.

IV. SAMPLING CHANGES

Marketing Systems Group will select a sample of cell phone numbers from a cell phone frame. The cell phone frame consists of 1,000-banks that have been assigned as cellular banks to a certain switch or wire center. The numbers in the banks are exclusively cell phone numbers that a cellular telephone provider owns. For example, a cellular telephone provider could own all phone numbers in the bank 123-456-7XXX. In the 1,000-banks, the set of cell phone numbers have the same first seven digits of a telephone number.

The switch or wire center is a cell phone tower and is the basic unit of geography for the cell phone frame. When a new cell phone number is activated, it is assigned a

number that is associated with the nearest wire center. Using this frame, we have a higher likelihood of identifying a respondent near their residence.

Metro areas can have several wire centers surrounding it, whereas rural areas can have wire centers covering several counties. For certain PSUs that have few or no wire centers, TPOPS will expand the area to include wire centers from neighboring counties to compensate.

The landline/cell phone frame split has been established at the PSU level based on NHIS data (see Appendix I). For example, if the target number of complete and partial interviews is 200 for a PSU in the current landline sample, the targets for the cell phone frame and the landline frame will be 50 and 150, respectively.

Cell phone numbers will be gradually included in production TPOPS over four quarters. In Q122, targets for the first interviews of the cell phone frame in all PSUs will be split according to NHIS data and is specified at the PSU level (see the table at the end); In Q122, interviews two through four will be all landline phone numbers.

This process will be repeated for Q123-Q131.

The steady state will be reached in Q132.

V. INSTRUMENT CHANGES

Most of the changes to facilitate the inclusion of a cell phone frame have already been made for the Q112 test. HELLO_CELL, the question and responses referring to the age of the respondent answering on a cell phone, will remain the same as they were in the test instrument. The BLS understands this is inconsistent with the manner in which age of the respondent is treated for the landline frame. The prevalence of cell phone usage among teenagers requires the use of different screening questions.

This requirement outlines additional changes that must be made to the instrument to facilitate interviews two through four.

Change LANDCELL and ask the following question for all cases (panels one through four):

FOR RETURNING CASES:

(HELLO_RET)

This is ... from the US Census Bureau. **May I please speak to: fill [respondent name]?**

- 1. This is the correct person** skip to LANDCELL
- 2. Correct person called to the phone** skip to LANDCELL
- 3. Person not home or available now** skip to LANDCELL
- 4. Person unknown at this number** skip to LANDCELL
- 5. Other outcome or problem interviewing respondent, including immediate hangup** skip to PROBCALL

LANDCELL

(LANDCELL) Are you answering using a landline phone or a cell phone?

1. Landline

2. Cell phone

The following logic will also apply for replacement households.

If FRAME = 1 and LANDCELL = 1, skip to ID_SPVR

If FRAME = 1 and LANDCELL = 2, skip to CELLSAFE.

If FRAME = 1 and LANDCELL = don't know or refuse, skip to CELLSAFE.

If FRAME = 0 and LANDCELL = 1, skip to ID_SPVR.

If FRAME = 0 and LANDCELL = 2, skip to CELLSAFE

If FRAME = 0 and LANDCELL = don't know or refuse, skip to CELLSAFE.

(CELLSAFE) Since we have reached you on your cell phone, we want to ensure your safety. Are you currently driving?

1. **Yes**—skip to SHOW_CTRL and set a callback
2. **No**—(and HELLO_RET= 1 or 2), skip to ID_SPVR
CELLSAFE=2 (and HELLO_RET =3, skip to HELLO_RS
CELLSAFE=2 (and HELLO_RET = 4, skip to HELLO_NEW
3. **Other outcome/problem interviewing respondent, including immediate hangup.** skip to PROBCALL
4. **Don't know/refuse**— skip to TY_CLBCK and set a callback

(ID_SPVR)

My supervisor is working with me today and may listen in to evaluate my performance.

1. **Continue with interview** skip to GEO_VER
2. **Inconvenient time, callback needed** skip to TY_NXTTM
3. **Refused to participate** skip to TY_NXTTM
4. **Language problem OR refer to supervisor** skip to TY_NXTTM

(HELLO_RS) (delete "...uses this phone,")1

Perhaps you can help me. I'd like to speak with a member of this household who is 18 years old or older and is either related to ^fRES_NAME by blood, marriage, or other legal arrangement or who shares major living expenses with ^fRES_NAME.

1. **Respondent is resident 18+** skip to INTRO_RS
2. **Resident 18+ called to phone** skip to INTRO_RS
3. **Eligible person not home now or not available now** skip to TY_CLBCK and set a callback
4. **No one living in household is 18+** skip to FIND_OTH
5. **Other outcome/problem** skip to PROBCALL

Verify the state and county in which the respondent lives:

(GEO_VER)

Is your household still located in [fill from household location from last interview]?

1. Yes (skip to GEO_DONE)
2. No (skip to DFFSTATE and follow path for movers)

(DFFSTATE)

In which state do you live?

The interviewer should enter the two letter state code.

If the state is included in the CPI, the next screen **(DFFCNTY)** asks for the county in which the respondent lives. If the state is not included in the CPI, the case is out-of-scope, and the instrument would skip to THANKRES.

(DFFCNTY)

In which county do you live?

The interviewer will start to enter the first letters of the county, and a trigram search will pop up to list the counties in the state that begin with those letters.

If the county reported by the respondent is not included in the CPI geography, the case is a geographic screen out, is out-of-scope and would skip to THANKRES.

If the county is included in any CPI PSU, GEO_LONG will need to be adapted to use the fill from the county in which the respondent lives instead of the county for which the case was selected.

GEO_LONG:

How long have you lived in [fill: PSU name]?

The next screen after GEO_LONG will remain GEO_DONE.

CP_OLTNM

What are the names of all the places where there were expenses for [Commodity Code]?

Interviewer instructions should include the following:

If an outlet such as Groupon, or Living Social is reported, probe for the location the expense was intended for and enter it as the outlet name.

SHOPPING CENTER LIST

If the county and state changes for a respondent in interviews two through four, **CP_LOCS** will be disabled. If CP_OLTYP is answered 1 Personal visit to [outlet name], the instrument will go to CP_STRT.

For returning cases, do not ask DM_LANDLINE or DM_CELL, as well as the following demographic questions: DM_LVQTR, DM_RELAT, DM_SEX, DM_MARTL, 1, DM_SPNSH, DM_RACE, DM_AGE, and DM_ELDER.

ADDRESS QUESTIONS:

Ask the address questions for cell phone cases for which an address has not been collected:

TY_R_ADDRESS1
TY_R_ADDRESS2
TY_R_CITY
TY_R_STATE
TY_R_ZIP
TY_DAYS_TIMES
TY_CMBLS

VI. WEIGHTING

The weighting specifications outlined in the August 28, 2011 “High-Level Discussion of Weighting for a Landline and Cell Phone Sample Design” will be followed for production.

POST PROCESSING

Post processing work will include populating the production datasets with the new variables and or values, calculating weights based on the new variables, and creating the output.

For households that have moved to a different CPI PSU, the variable PSU must be changed to reflect the PSU into which the household moved. For example, if a phone number is selected for B224, but the respondent that we reach has moved to A109, the PSU variable for the case should be the new PSU in all datasets: OLT, SRVC, ADR, ADR2, SPSU, SPP, and GEO.

In cases where the household had moved to a location outside of a defined PSU area (not in sample) then the variable PSU will be set to '0000' and the AAPOR code set as 'Out of sample' (410).

The variable PSU_ORIG will be added to the GEO file to indicate the PSU for which the phone number was selected. The variable PSU_LIVE will be deleted in production and the variable PSU will be updated to reflect where the household moved to.

In all cases FAMID will not change; the first four digits will always be the PSU the household was sampled for (PSU_ORIG).

Outcome codes for military households will be correctly mapped to AAPOR code 451 (military) and FINSTAT code 06 (military) when HR_ARMFC=1.

VII. OUTPUT

The data from the cell phone frame in production shall be included with the production datasets. (No changes to the current production output.) Standard output for Don't Know and Refused apply to all of the new variables.

GEO dataset:

PSU_ORIG—PSU for which the phone number was originally selected.

WGT dataset:

Weighting fields for output will be specified in a separate document.

VIII. TRAINING REQUIRED

Interviewers will need to be trained on the questions for the cell phone frame regarding the safety of the respondent. They will also need to be aware of the new questions associated with geography and the question flow for returning cases.

cc Stockburger, Anya (BLS)
 Cage, Rob (BLS)
 Hagemeyer, Kirk (BLS)
 SMS Oversight Group (BLS)
 SMS Team (BLS)
 Ash, Stephen (Census)
 Pepe, Denise (Census)
 Okon, Aniekan (Census)
 Arthur, James (Census)

Appendix I: Target for the cell phone and landline by quarter and PSU

PSU ID	PSU TITLE	2012						2013	
		Q2		Q3		Q4		Q1	
		Cell	Landline	Cell	Landline	Cell	Landline	Cell	Landline
A102	Philadelphia- Wilmington- Atlantic_City, PA- NJ	12	288	24	276	37	263	49	251
A103	Boston- Brockton- Nashua, MA- NH- ME- CT	13	287	27	273	40	260	54	246
A104	Pittsburgh, PA	11	189	21	179	32	168	43	157
A109	New York, NY	23	437	45	415	68	392	90	370
A110	New York- Connecticut Suburbs, NY- CT	16	384	33	367	49	351	66	334
A111	New Jersey Suburbs, NJ	15	385	29	371	44	356	59	341
A207	Chicago- Gary- Kenosha, IL- IN- WI	32	428	64	396	96	364	128	332
A208	Detroit- Ann_Arbor- Flint, MI	24	276	48	252	72	228	96	204
A209	St._Louis, MO- IL	14	186	27	173	41	159	54	146
A210	Cleveland- Akron, OH	14	216	28	202	41	189	55	175
A211	Minneapolis- St.Paul, MN- WI	13	187	26	174	39	161	52	148
A212	Milwaukee, WI	14	186	29	171	43	157	57	143
A213	Cincinnati, OH- KY- IN	14	186	27	173	41	159	55	145
A214	Kansas City, MO- KS	11	189	23	177	34	166	45	155
A312	Washington, DC- MD- VA- WV	12	218	24	206	36	194	48	182
A313	Baltimore, MD	10	190	20	180	30	170	40	160
A316	Dallas- Fort_Worth, TX	22	208	43	187	65	165	87	143
A318	Houston- Galveston- Brazoria, TX	19	211	38	192	57	173	76	154
A319	Atlanta, GA- AL	16	214	33	197	49	181	66	164
A320	Miami- Fort_Lauderdale, FL	16	214	32	198	48	182	64	166
A321	Tampa- St._Petersburg, FL	14	186	28	172	42	158	56	144
A419	Los Angeles- Orange, CA	22	478	43	457	65	435	86	414
A420	Los Angeles Suburbs, CA	14	286	28	272	41	259	55	245
A422	San Francisco- Oakland- San_Jose, CA	14	286	27	273	41	259	54	246
A423	Seattle- Tacoma- Bremerton, WA	16	214	33	197	49	181	66	164
A424	San Diego, CA	11	219	21	209	32	198	43	187
A425	Portland- Salem, OR- WA	15	185	30	170	46	154	61	139
A426	Honolulu, HI	11	189	22	178	33	167	44	156
A427	Anchorage, AK	10	190	20	180	30	170	40	160
A429	Phoenix- Mesa, AZ	16	184	31	169	47	153	62	138
A433	Denver- Boulder- Greeley, CO	16	184	33	167	49	151	66	134
B102	Reading, PA	5	105	9	101	14	96	18	92
B104	Syracuse, NY	5	105	10	100	14	96	19	91
B106	Buffalo, NY	5	105	10	100	14	96	19	91
B108	Hartford, CT	4	106	8	102	11	99	15	95
B110	Burlington, VT	6	104	11	99	17	93	23	87
B112	Sharon- Hermitage, PA	5	105	9	101	14	96	18	92
B114	Johnstown, PA	5	105	9	101	14	96	18	92
B116	Springfield, MA	5	105	9	101	14	96	19	91
B218	Wausau, WI	7	103	14	96	21	89	28	82

APPENDIX B Cell Production Requirement

PSU ID	PSU TITLE	2012						2013	
		Q2		Q3		Q4		Q1	
		Cell	Landline	Cell	Landline	Cell	Landline	Cell	Landline
B220	Dayton, OH	7	103	14	96	22	88	29	81
B222	Evansville, IN	7	103	15	95	22	88	29	81
B224	Columbus, OH	8	102	16	94	25	85	33	77
B226	Saginaw, MI	8	102	16	94	25	85	33	77
B228	Elkhart-Goshen, IN-MI	7	103	14	96	21	89	28	82
B230	Decatur, IL	7	103	14	96	20	90	27	83
B232	Youngstown-Warren, OH	7	103	14	96	22	88	29	81
B234	Madison, WI	7	103	14	96	21	89	28	82
B236	Lincoln, NE	8	102	17	93	25	85	34	76
B338	Chattanooga, TN	8	102	15	95	23	87	31	79
B340	Florence, SC	7	103	15	95	22	88	29	81
B342	Albany, GA	7	103	15	95	22	88	30	80
B344	Virginia Beach-Norfolk-Newport_News, VA-NC	6	104	12	98	18	92	24	86
B346	Pine Bluff, AR	10	100	20	90	30	80	40	70
B348	Raleigh, NC	7	103	14	96	21	89	28	82
B350	Richmond, VA	6	104	12	98	18	92	24	86
B352	Beaumont, TX	9	101	18	92	27	83	36	74
B354	Brownsville, TX	9	101	18	92	27	83	36	74
B356	Florence, AL	7	103	14	96	21	89	28	82
B358	Greenville, SC	7	103	15	95	22	88	29	81
B360	Cape_Coral-Fort_Myers, FL	8	102	15	95	23	87	31	79
B362	Birmingham, AL	7	103	14	96	21	89	27	83
B364	Melbourne, FL	8	102	15	95	23	87	31	79
B366	Lafayette, LA	8	102	15	95	23	87	30	80
B368	Ocala, FL	8	102	15	95	23	87	31	79
B370	Gainesville, FL	8	102	15	95	23	87	31	79
B372	Amarillo, TX	9	101	18	92	27	83	36	74
B374	San_Antonio, TX	8	102	17	93	25	85	33	77
B376	Oklahoma City, OK	8	102	17	93	25	85	34	76
B378	Baton_Rouge, LA	8	102	15	95	23	87	30	80
B380	Midland, TX	9	101	18	92	27	83	36	74
B482	Chico, CA	5	105	10	100	15	95	20	90
B484	Provo-Orem, UT	7	103	14	96	20	90	27	83
B486	Modesto, CA	5	105	10	100	15	95	20	90
B488	Boise_City, ID	9	101	18	92	26	84	35	75
B490	Las_Vegas-Paradise-Sparks, NV	7	103	14	96	21	89	28	82
B492	Yuma, AZ	8	102	17	93	25	85	33	77
C212	Faribault, MN	7	103	14	96	21	89	28	82
C216	Chanute, KS	8	102	16	94	24	86	32	78
C218	Brookings, SD	4	106	9	101	13	97	17	93
C222	Mt. Vernon, IL	7	103	14	96	20	90	27	83
C328	Arcadia, FL	8	102	15	95	23	87	31	79
C332	Morristown, TN	8	102	16	94	23	87	31	79
C334	Picayune, MS	10	100	20	90	30	80	39	71
C344	Statesboro, GA	7	103	15	95	22	88	30	80
C450	Bend, OR	9	101	17	93	26	84	34	76
C456	Pullman, WA	8	102	16	94	24	86	32	78