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MEMORANDUM FOR	ACS Research and Evaluation Advisory Group
From:	James B. Treat **(signed 11/1/2012)** Chief, American Community Survey Office
Prepared by:	Deborah Griffin and Todd Hughes American Community Survey Office
Subject:	Projected 2013 Costs of a Voluntary American Community Survey

Attached is the final American Community Survey Research and Evaluation report on Projected 2013 Costs of a Voluntary American Community Survey. This project provides updated cost and workload estimates associated with implementing a voluntary ACS in 2013.

If you have any questions about this report, please contact Deborah Griffin at (301) 763-2855.

Attachment

cc:
ACS Research and Evaluation Workgroup

NOVEMBER 2, 2012

Projected 2013 Costs of a Voluntary American Community Survey

FINAL REPORT

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American Community Survey Office

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INTRODUCTION

In 2003 the Census Bureau conducted research to assess cost and workload implications of a voluntary versus mandatory implementation of the American Community Survey (ACS). U.S. Census Bureau (2003) and U.S. Census Bureau (2004) document key findings from that test. In 2011 additional analyses of data from that test led to updated cost and workload projections (U.S. Census Bureau, 2011). The recent ACS sample expansion and the plans to implement an Internet response option in 2013 will have important effects on the costs and workloads for both mandatory and voluntary implementations. This report provides our best estimates of the costs and workloads that may be associated with a voluntary ACS based on the design and methods planned for 2013.

RESEARCH QUESTIONS

1. What are the projected costs and workloads by data collection mode if the 2013 ACS was voluntary?

2. What are the costs and workloads if we increase the initial sample size to approximate current levels of reliability?

3. If the FY 2013 ACS data collection budget remained the same, what do we estimate the impact of a shift to voluntary methods would have on the reliability of survey estimates?

4. What are the projected costs, workloads, and reliability implications under alternative assumptions of mail response?

METHODOLOGY

Introduction

Similar to previous cost analyses (U.S. Census Bureau, 2011) this report summarizes expected workloads and costs associated with a voluntary ACS for three different scenarios.

> ***Maintain initial sample size*** – This option would use voluntary methods and the proposed calendar year (CY) 2013 initial sample size. It would also use the initial sample's current stratification and the current CAPI sampling rates. This option would result in a reduction in the reliability of survey estimates due to a drop in the total number of completed interviews (due to both increased levels of nonresponse and CAPI subsampling) and the shift of more interviews into personal visit follow up which implies that more sample cases would have larger weights. The costs of implementing this option would increase relative to the current design due to fewer cases being interviewed in the least expensive modes.
>
> ***Maintain current reliability*** – This option would use voluntary methods and increase the initial sample size to offset the loss in reliability. Like the first scenario, this option's

foundation is the current stratification and CAPI subsampling rates. The reliability of survey estimates under this option would approximate reliability levels under a mandatory implementation. Survey costs would increase given the combination of a larger initial sample and the greater proportion of cases interviewed in the most expensive modes.

Maintain costs – This option would use voluntary methods and decrease the initial sample size to be able to complete the survey within the FY 2013 budget. It maintains the initial sample's stratification and the current CAPI sampling rates. This option would result in the greatest reduction in the reliability of survey estimates in order to maintain costs.

We conducted the ACS test of voluntary methods in 2003 and recognize that the respondent reaction to a voluntary implementation may understate the possible impact we could observe in 2013. To try to understand the sensitivity of using the 2003 assumptions, we chose to assess workloads and costs for each of these three scenarios for two alternative assumptions of mail response behavior given a voluntary implementation. In addition to the 19-percentage point drop (similar to the drop observed in 2003), we include projections assuming a 25-percentage point drop, and a 30-percentage point drop.

We chose to round all results for presentation in this report although we used greater precision in all of the calculations.

Estimating Costs and Workloads

The workload estimates used in this analysis assume an initial sample of about 3.54 million and mail and Internet response distributions similar to those observed in the November 2011 test (U.S. Census Bureau, 2012). We based specific workload projections for telephone and personal visit operations on additional analysis conducted on the planned implementation of the Internet response option. Table 1 displays the projected mandatory 2013 ACS workload estimates by mode as totals and as percentages of the initial sample.

We extrapolated the voluntary workload estimates from the mandatory workload estimates using these percent of initial sample rates with a set of adjustments derived from the 2003 test. Under both voluntary and mandatory implementations, we estimate the mail workload to be about 97.3 percent of the initial sample.[1] We inflated the percentages of the voluntary sample eligible for the telephone and personal visit follow up workloads by factors of 1.15 and 1.32, respectively to account for the increased workload requiring follow up due to drops in mail response.[2] These adjustments equate to assumptions that the voluntary telephone workloads would increase to about 39 percent of the initial sample (compared with about 34 percent under mandatory) and the voluntary personal visit workloads would increase to about 26 percent of the initial sample (compared with about 19 percent under mandatory).

[1] This increase over the 2003 rate is due to improvements in the mailability of addresses after the 2010 Census.

[2] We defined these adjustment factors as ratios of the 2003 Voluntary Test telephone and personal visit voluntary workloads to the telephone and personal visit mandatory workloads.

It is important to acknowledge that we did not make any new response assumptions about voluntary methods given the expanded sample design, the increased mail-eligible workload, or the introduction of an internet response option. For this analysis, we assume that the relative effects (percent change) that we observed in 2003 would hold in 2013.

Table 1. Workload Estimates – 2013 ACS

	Mandatory ACS - 2013		Voluntary ACS - 2013	
	Workloads (000)	Percent of Initial Sample	Workloads (000)	Percent of Initial Sample
Mail/Internet	3,444	97.3	3,444	97.3
Telephone	1,203	34.0	1,382	39.1
Personal Visit	685	19.4	904	25.6
Initial Sample	3,540	100.00	3,540	100.00

Source: Hughes (2012) and U.S. Census Bureau (2003).

To approximate current per case costs, we divided the costs by data collection mode included in the FY13 Congressional budget submission that are shown in Table 2 by the projected 2013 mandatory ACS workloads in Table 1. We assumed that the costs per case of interviewing would remain the same under voluntary and mandatory methods, which may be an optimistic assumption.

Table 2. Estimated Costs per Case

	2013 ACS Workload (000)	FY13 Budget ($000)	Approximate Cost Per Case
Mail/Internet	3,444	$43,043	$12.50
Telephone	1,203	$25,132	$20.89
Personal Visit	685	$102,499	$149.57

Source: Hughes (2012).

Estimating Completed Interviews

We estimated the number of completed interviews by mode in 2013 using the November 2011 Internet experiment results and the 2011 production results. We used the number of 2011 ACS completed mail, telephone, and personal visit interviews for the June through December panels (panels reflecting the sample increase) to project the number of completed 2013 mandatory completed interviews by mode under the expanded sample design. Based on the November 2011 Internet experiment we assume that in 2013, using the combination of mail and Internet response options will result in approximately the same number of combined mail and Internet completed interviews in 2013 as we obtained by mail alone in the sample expansion months of 2011.[3] The estimates of percent-completed interviews by mode under mandatory methods in Table 3 are simple ratios of estimated completed interviews to the projected mandatory workloads in Table 1.

[3] There are limitations associated with this assumption. The November 2011 Internet experiment did not include follow up contacts by phone or in-person. These contacts are known to impact mail response and we assume similar effects will exist for internet response. We can revisit the assumption that combined internet and mail will yield comparable response levels as mail alone once we are in full production in 2013.

We also used these estimates of percent-completed interviews as the base rates to calculate the percent completed by mode for the three voluntary options. The estimated mandatory percent completed interviews were adjusted by factors of 0.63 (mail/Internet), 1.08 (telephone), and 0.95 (personal visit) resulting in the estimated voluntary percent-completed interviews in Table 3.[4] Specifically, we estimate that about 28 percent of the voluntary mail/Internet workload, 24 percent of the voluntary telephone workload, and 81 percent of the voluntary personal visit workload would result in a completed interview.

Table 3. Percent Completed Interviews by Mode – 2013 ACS

	Mandatory ACS - 2013			Voluntary ACS - 2013		
	Workload (000)	Completed Interviews (000)	Percent Completed Interviews	Workload (000)	Completed Interviews (000)	Percent Completed Interviews
Mail/Internet	3,444	1,500	43.6	3,444	949	27.6
Telephone	1,203	269	22.4	1,383	335	24.2
Personal Visit	685	586	85.5	904	735	81.4

Source: U.S. Census Bureau (2012) and Asiala (2012).

For the option designed to maintain current levels of reliability, we had to increase the initial sample to address the expected loss in completed interviews and the increase in the number of interviews with the largest sampling weights. Hefter (2012) estimated this factor to be 1.259 and includes details of the assumptions and methods used to derive this factor.

For the option designed to maintain costs, we had to reduce the initial sample to stay within the FY 2013 data collection budget. We determined this initial sample size by fixing the data collection costs, using the estimated costs per case by mode, and the voluntary workloads for each mode as a function of this sample. Specifically we solved for an initial sample size (n) based on the following:

$$0.9729n * (\$12.498) + 0.3903n * (\$20.895) + 0.2553n * (\$149.573) = \$170,674,000$$

We estimate that to afford to complete a voluntary survey we would need to reduce the initial sample size to 2,917,653. This reduction results in a loss in reliability that Hefter (2012) also estimates.

Estimating Costs and Workloads - Alternative Mail/Internet Response Assumptions

As noted earlier, the voluntary cost and workload estimates assume the same level of impact on public cooperation that we measured in the 2003 Test of Voluntary Methods. It is very possible that public reaction today could yield different results with significantly greater cost implications especially if there was considerable media attention given to the shift. To try to assess the implications of alternative reactions to a voluntary ACS we modeled two additional scenarios – a drop in mail/Internet response of 25 percentage points and a drop in mail/Internet response of 30 percentage points.

[4] We define the adjustment factors as the ratio of the percent-completed interviews under the voluntary treatment to the percent-completed interviews under the mandatory treatment that we observed in the 2003 Voluntary Test. The percent-completed interviews are the ratio of the number of completed interviews to the workload by mode.

To estimate the workloads and costs under these two alternatives we assumed that every percentage point drop in mail/Internet interviews (as a percent of the mail workload) would have an equal effect on the telephone and personal visit follow up workloads. For example, in 2003 we found that a 19-percentage point drop in the percent of completed mail interviews (from 51.7 percent to 32.7 percent) resulted in a telephone follow up workload increase of 5.2 percentage points (from 35.0 to 40.2 percent of the sample). We assumed that a 25-percentage point drop in the percent of completed mail/Internet interviews would therefore increase the telephone follow up workload by 6.8 percentage points (25/19 * 5.2). We converted these percentage-point changes in workloads to rates relative to the percent of the sample in order to apply them as factors to the revised 2013 estimates of mandatory workloads as a proportion of the sample. In this example, an increase of 6.8 percentage points would have been relative to 35.0 percent resulting in an adjustment factor of 1.19. Appendix 1 summarizes these workload projections.

We made similar assumptions to estimate the rate of completed interviews by mode for these alternatives.[5] For example, in 2003 a 19-percentage point drop in the percent of completed mail interviews resulted in a 4.2 percentage point drop in the percent of completed personal visit interviews (from 86.3 percent to 82.1 percent). We assumed that a 30-percentage point drop in the percent of completed mail/Internet interviews would result in a 6.6 percentage point decrease in the percent of completed personal visit interviews (30/19 * 4.2) from 86.3 percent to 79.7 percent. This percentage point reduction is equal to an adjustment factor of 0.92 (79.7/86.3).

LIMITATIONS

We have only provided estimates for data collection in housing units. No adjustments were made to the costs of implementing a voluntary ACS in group quarters or in Puerto Rico because we did not have data to estimate the likely effects.

We had to make many assumptions about respondent behavior in 2013 based on a test we conducted in 2003. We chose to assume that the effects we observed in the mail mode in 2003 would be the same as those we would observe in 2013 for the combined mail and Internet responses. At this time we have no other information to make alternative assumptions. In estimating the potential workloads and costs associated with alternative levels of response we chose to assume a fairly simple proportional relationship between the 2003 effects and those likely in 2013 if greater mail/Internet response losses were realized. Again, we had no other reasonable data to make other assumptions. For these reasons, all estimated costs and workloads must be interpreted as only our best estimates, given available information.

[5] We assumed that a reduction in mail/Internet response implied a general reduction in respondent cooperation that would carry over to completion rates in all modes. Without other data sources to model these effects we chose to assume proportional reductions. See limitations section.

RESULTS

What are the projected costs and workloads by data collection mode that would be associated with a voluntary implementation of the ACS in 2013?

Table 4 summarizes the housing unit workloads and data collection costs for a mandatory 2013 ACS by mode, using FY13 cost estimates and 2011 ACS workload distributions. The "Voluntary Methods – Maintain Current Sample" columns summarize the workloads and costs associated with implementing the 2013 ACS sample under voluntary methods.

Due to lower rates of response by mail more cases shift into the telephone and personal visit modes. We estimate that the budget required to complete these interviews would rise by about $36 million. U.S. Census Bureau (2011) estimated increases of about $28 million. This estimate reflects a full year of data collection at these workload levels, and does not include the initial startup costs to increase staffing levels to support the increased telephone and personal visit workloads.

Table 4. Summary of Data Collection Workloads and Costs Associated with a Voluntary ACS - 2013

	Mandatory Methods		Voluntary Methods Maintain Current Sample		Voluntary Methods Maintain Current Reliability		Voluntary Methods Maintain Current Costs	
	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)
Initial Sample	3,540	--	3,540	--	4,457	--	2,918	--
Mail/Internet	3,444	$43,043	3,444	$43,043	4,336	$54,191	2,839	$35,476
Telephone	1,203	$25,132	1,382	$28,866	1,739	$36,342	1,139	$23,791
Personal Visit	685	$102,499	904	$135,171	1,138	$170,180	745	$111,407
Subtotal	--	$170,674	--	$207,079	--	$260,713	--	$170,674
Increase over Mandatory		$0		$36,405		$90,039		$0

Source: U.S. Census Bureau (2012) and Hughes (2012).

What are the costs and workloads if we increase the initial sample size to approximate current levels of reliability?

Due to the sub-sampling that takes place after telephone follow up, decreased response in mail and telephone results in fewer total interviews. The "Voluntary Methods – Maintain Current Reliability" columns of Table 4 summarize the cost increases that would be incurred if we increased the initial sample size to improve the reliability of survey estimates. We estimate that we would need to increase the initial sample by a factor of 1.259 (Hefter, 2012) and that today the associated costs would increase by about $90 million. U.S. Census Bureau (2011) estimated these costs at $66 million. This estimate reflects a full year of data collection at these workload levels, and does not include the initial startup costs to increase staffing levels to support the increased workload.

If the FY 2013 ACS data collection budget remained the same, what do we estimate the impact of a shift to voluntary methods would have on the reliability of survey estimates?

The final set of columns in Table 4 summarize the cost and workloads of a voluntary option that would have a reduced sample size (about 2.9 million) in order to afford completing the more expensive interviews associated with a voluntary ACS. We used all of the voluntary parameters for completed interviews and response rates to determine the workloads and costs for this final option. The costs are controlled so this option has no increase in costs but it would result in a large reduction in the number of completed interviews.

Table 5 summarizes the expected initial sample sizes and the expected total number of completed interviews. Comparisons are made back to the current, mandatory option. The increase in the number of completed interviews required for the "maintain reliability" option is needed to account for the higher sampling weights associated with completed interviews from personal visit cases. Estimated increases in the sampling variances are also included. If the ACS was a voluntary survey and no additional funding was provided, we estimate that sampling variances would increase by 52.8 percent.

Table 5. Completed Interviews and Reliability Measures Associated with a Voluntary ACS

	Mandatory Methods	Voluntary Methods Maintain Current Sample	Voluntary Methods Maintain Current Reliability	Voluntary Methods Maintain Current Costs
Initial sample (000)	3,540	3,540	4,457	2,918
Expected completed interviews (000)	2,355	2,019	2,541	1,664
Change in completed interviews (000)	0	-337	+186	-692
Estimated increase in variances	0	25.9%	0	52.8%

Source: Hefter (2012)

What are the projected costs and workloads by data collection mode that would be associated with a voluntary implementation of the ACS in 2013 if the mail response fell by 25 or 30 percentage points? How would those costs increase if we increased the sample size to maintain current levels of reliability?

Like Table 4, Tables 6 and 7 summarize the workloads and data collection costs for a mandatory and a voluntary 2013 ACS by mode. For this projection, we assumed a greater drop in mail response and modeled the associated effects on the telephone and personal visit workloads and costs. Table 6 shows that we estimate that if the rate of mail completed interviews fell by 25-percentage points, the budget required to complete these interviews would rise by about $48 million. Increasing the sample to account for the loss in reliability would increase survey costs by $119 million. The cost increases under an assumption of a 30-percentage point drop are shown in Table 7 - $57 million and $146 million.

Table 6. Summary of Data Collection Workloads and Costs Associated with a Voluntary ACS – 2013 (Assumption of a 25 Percentage Point Drop in Mail Completed Interviews)

	Mandatory Methods		Voluntary Methods Maintain Current Sample		Voluntary Methods Maintain Current Reliability		Voluntary Methods Maintain Current Costs	
	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)
Initial Sample	3,540	--	3,540	--	4,698		2,765	--
Mail/Internet	3,444	$43,043	3,444	$43,043	4,570	$57,118	2,690	$33,615
Telephone	1,203	$25,132	1,437	$30,015	1,906	$39,830	1,122	$23,440
Personal Visit	685	$102,499	973	$145,487	1,291	$193,061	760	$113,619
Subtotal	--	$170,674	--	$218,545	--	$290,010	--	$170,674
Increase over Mandatory		$0		$47,871		$119,336		$0

Table 7. Summary of Data Collection Workloads and Costs Associated with a Voluntary ACS – 2013 (Assumption of a 30 Percentage Point Drop in Mail Completed Interviews)

	Mandatory Methods		Voluntary Methods Maintain Current Sample		Voluntary Methods Maintain Current Reliability		Voluntary Methods Maintain Current Costs	
	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)	Workload (000)	Cost ($000)
Initial Sample	3,540	--	3,540	--	4,906		2,648	--
Mail/Internet	3,444	$43,043	3,444	$43,043	4,773	$59,658	2,576	$32,169
Telephone	1,203	$25,132	1,485	$31,020	2,058	$42,994	1,111	$23,206
Personal Visit	685	$102,499	1,030	$154,087	1,428	$213,564	771	$115,269
Subtotal	--	$170,674	--	$228,150	--	$316,216	--	$170,674
Increase over Mandatory		$0		$57,476		$145,542		$0

If the FY 2013 ACS data collection budget remained the same, what do we estimate the impact of a shift to voluntary methods given these alternative mail response assumptions would have on the reliability of survey estimates?

Table 8 displays the estimated numbers of completed interviews under assumptions of a drop in mail response of 25- and 30-percentage points. It also estimates the effect of this loss of sample on the reliability of survey estimates.

Table 8. Completed Interviews and Reliability Measures Associated with a Voluntary ACS – Alternative Assumptions

	Mandatory Methods	Voluntary Methods Maintain Current Sample	Voluntary Methods Maintain Current Reliability	Voluntary Methods Maintain Current Costs
Drop of 25 percentage points				
Initial sample (000)	3,540	3,540	4,698	2,765
Expected completed interviews (000)	2,355	1,909	2,534	1,491
Change in completed interviews (000)	0	-446	179	-864
Estimated increase in variances	0	32.7%	0	61.0%
Drop of 30 percentage points				
Initial sample (000)	3,540	3,540	4,906	2,648
Expected completed interviews (000)	2,355	1,818	2,520	1,360
Change in completed interviews (000)	0	-537	165	-995
Estimated increase in variances	0	38.6%	0	68.2%

CONCLUSIONS

Given the 2003 test findings of major losses in mail response in a voluntary setting, the projected 2013 cost implications of a switch from mandatory to voluntary methods are considerable. Table 9 summarizes our best estimates of the additional annual costs to the program if we had to conduct the ACS as a voluntary survey and the program suffered 19, 25, and 30 percentage point drops in mail response. These cost estimates assume that we would either conduct the survey with the existing sample and suffer reliability losses or increase the initial sample to account for the expected loss in completed interviews under a voluntary implementation. Under a voluntary ACS, we believe that increasing the sample is the only option that allows the survey to meet its requirement of producing sufficiently reliable estimates for small geographic areas and small population groups.

We reiterate that these estimates rely on a number of untested assumptions as they are based largely on findings from the 2003 test. In 2013 the ACS will implement an Internet response option in production. We have never tested respondent behavior to an ACS Internet request that is voluntary. For these reasons we expect that the estimates in this report could understate or overstate the true budget implications of a voluntary ACS. A better method to obtain estimates

of cost, workload, and quality implications of a voluntary 2013 ACS would be for the Census Bureau to conduct an experiment testing voluntary methods in a 2013 setting.

Table 9. Summary of Cost Implications – 2013 Voluntary ACS

	Additional Annual Costs	Percent Increase in Annual Costs
Voluntary methods - current sample		
19-percentage point drop in mail response	$36.4M	21.3
25-percentage point drop in mail response	$47.9M	28.1
30-percentage point drop in mail response	$57.5M	33.7
Voluntary methods - increased sample to maintain current reliability		
19-percentage point drop in mail response	$90.0M	52.8
25-percentage point drop in mail response	$119.3M	69.9
30-percentage point drop in mail response	$145.5M	85.3

REFERENCES

Asiala, M. 2012. Count of Occupied Interviews plus Vacants by panel by mode – 2011 Data Year. Email dated 6/21/12

Hefter, S. 2012. Procedures to Estimate Increases in American Community Survey Variances due to a Switch to a Voluntary Data Collection Design

U.S. Census Bureau. 2003. Meeting 21st Century Demographic Data Needs—Implementing the American Community Survey. Report 3: Testing the Use of Voluntary Methods. http://www.census.gov/acs/www/library/by_series/implementing_the_acs/.

U.S. Census Bureau. 2004. Meeting 21st Century Demographic Data Needs—Implementing the American Community Survey. Report 11: Testing the Use of Voluntary Methods – Additional Results. http://www.census.gov/acs/www/library/by_series/implementing_the_acs/.

U.S. Census Bureau. 2011. Cost and Workload Implications of a Voluntary American Community Survey. http://www.census.gov/acs/www/library.

U.S. Census Bureau. 2012. 2011 American Community Survey Internet Tests: Results from Second Test in November 2011- Revision. http://www.census.gov/acs/www/library.

APPENDIX A

Calculating Adjustments for Alternative Mail Response Assumptions

Table1. Workload Adjustments

Percentage Point Drop in Mail Interviews (% of workload)	Percentage Point Increase in Telephone Workload (% of sample)	Adjustment Factor for Telephone Workload (% of sample)	Percentage Point Increase in Personal Visit Workload (% of sample)	Adjustment Factor for Personal Visit Workload (% of sample)
19	5.2	40.2/35.0 = 1.1486	5.1	21.1/16.0 = 1.3188
25	5.2*(25/19) = 6.8	41.8/35.0 = 1.1943	5.1*(25/19) = 6.7	22.7/16.0 = 1.4194
30	5.2*(30/19) = 8.2	43.2/35.0 = 1.2343	5.1*(30/19) = 8.1	24.1/16.0 = 1.5033

Table 2a. Completed Interview Adjustments – Mail and Telephone

Percentage Point Drop in Mail Interviews (% of workload)	Percentage Point Decrease in Completed Mail Interviews (% of workload)	Adjustment Factor for Completed Mail Interviews (% of workload)	Percentage Point Decrease in Completed Telephone Interviews (% of workload)	Adjustment Factor for Completed Telephone Interviews (% of workload)
19	19	32.7/51.7 = 0.6325	2.1	27.9/25.8 = 1.0814
25	25	26.7/51.7 = 0.5164	2.1*(25/19) = 2.8	28.6/25.8 = 1.1071
30	30	21.7/51.7 = 0.4197	2.1*(30/19) = 3.3	29.1/25.8 = 1.1285

Table 2b. Completed Interview Adjustments – Personal Visit

Percentage Point Drop in Mail Interviews (% of workload)	Percentage Point Decrease in Completed Personal Visit Interviews (% of workload)	Adjustment Factor for Completed Personal Visit Interviews (% of workload)
19	4.2	82.1/86.3 = 0.9513
25	4.2*(25/19) = 5.5	80.8/86.3 = 0.9360
30	4.2*(30/19) = 6.6	79.7/86.3 = 0.9232