

Measuring the Effects of Reminder Postcards in the Occupational Employment Statistics Survey

Carrie K. Jones
US Bureau of Labor Statistics
Division of Occupational Employment Statistics
Jones.carrie@bls.gov

Abstract

The Occupational Employment Statistics (OES) Survey is a voluntary establishment survey that produces occupational employment and wage estimates for the U.S., each State, and select U. S. Territories and metropolitan areas within States. The survey is conducted primarily via mail in cooperation with State Employment Security Agencies by the Bureau of Labor Statistics. The OES sample is 1.2 million establishments collected over three years in semi-annual panels. Each panel has an initial mailing followed by three follow-up mailings at four-week intervals. In May of 2007, the United States Postal Service (USPS) initiated a substantial postage increase and was also granted authority to automatically increase postage rates annually. OES absorbed a 30 percent postage increase. Concurrently, examination of data files indicated that many respondents received follow-up solicitation packages after they had sent in their completed survey. Faced with increasing postage costs, many unnecessary “overlap” mailings, and a shrinking budget OES decided to test using reminder postcards during the first follow-up mailings in Fall 2007 and again in Spring 2008. The Fall test featured substitution of a postcard for a survey packet. The Spring test featured a postcard in addition to a survey packet with the idea that immediate increases in response would reduce the number of follow-up mailings. Six States were randomly selected for a two-panel test and the samples for each State were split into two groups: a test group that received the postcard and a control group that received a regular mailing. Chi-square tests are used to evaluate the effect of the postcard experiment on response rates, and a cost analysis is presented, as well as results from a qualitative assessment questionnaire completed by each test State.

Background

The OES survey collects data from business respondents by mailing out survey packets once a month over a four-month period. OES is collected on a semi-annual schedule in the fall and spring of each year, and mailouts are conducted in November, December, January, and February for the fall panel and in May, June, July, and August for the spring panel. OES State personnel have proposed that BLS reconsider this mailout schedule. States have reported that with the current schedule, the second mailing (particularly the December mailout) conflicts with respondent work and holiday schedules and is not productive. In addition, examination of the return mail patterns shows evidence of considerable overlap between the first and second mailings resulting in numerous unnecessary mailings which are costly and bothersome to the respondents that have already mailed their survey form back. OES is interested in eliminating this overlap to the greatest extent possible. OES is also interested in finding efficiencies that will help off-set rising postage increases¹. Therefore, OES tested the feasibility and success of sending a reminder postcard for the second mailing rather than sending a survey packet.

BLS asked for selected States² to agree to test the use of postcard at the time of the second mailing by participating in a randomized split-panel test where half of each test State’s sample would receive the postcard. The other half of the sample would be the control group and receive a regular survey packet. Results from the two groups are compared. The test took

¹ In 2007, the United States Postal Service implemented a comprehensive overhaul of their postage rates, including the flat-rate envelopes OES uses. This resulted in a postage increase of over \$300,000 for the year for the OES survey, an increase of over 30 percent. Legislation allows the USPS to continue postage increases based on change in the Consumer Price Index.

² Due to State concerns that there are behavioral and operation differences among the different sized States, the States were grouped into three categories, small, medium, and large, based on the number of establishments operating in their jurisdiction. From these groups the States were randomly chosen to participate. If a State declined to participate an alternate was randomly selected. The samples within each State were randomly split between control and test groups.

place over two panels: Fall 2007 and Spring 2008. During the Fall 2007 panel the test group received a postcard in place of the second mailing. In the Spring 2008 panel the test group received a postcard in addition to a complete second mailing.

The OES postcard test was primarily developed as a way to reduce the survey's postage costs without causing a reduction in response rates. The idea of sending it during the second mailout in December was based on State input that the respondents probably still have the first survey packet and that many respondents are on vacation during December. Therefore a simple reminder would be more effective and economical than sending an entire survey packet.

Six States were randomly chosen with backups should any State not want to participate. Several States were approached to participate but declined due to concerns about a possible negative impact on their response rates. Concerns that were voiced included:

- Too many phone calls from establishments
- Fear that establishments had thrown away the first survey form and would overwhelm the State with calls requesting new ones (not having enough forms available, added work of sending out new forms, and postage costs)
- Overall increased workload impact

Methodology

Part 1 – Fall 2007 Panel

The Fall 2007 panel began in September 2007 with the first mailing commencing in November 2007. There were mailings in December, January, and February. The final group of test States were Alaska, Colorado, Idaho, Maryland, Nebraska, and Pennsylvania.³

For part 1 of the postcard test, there were four mailings but the second mailing for the test group was replaced with a postcard. The test States sent their second mailing address files to the National Office to be split into two groups: those to receive the regular mailout package (control group) and those to be sent only a reminder postcard (postcard group). The States were not told which establishments were selected for each group until after all mailings, one through four, were complete.

The States sent in their survey databases to BLS in April 2008, May 2008, and July 2008. These databases provide a snapshot of how the survey is progressing over time and are used along with the mail address files to evaluate the experiment. The May and July databases are normal deliverables called interim and final files respectively. The April database was an extra deliverable that we called a "pre-interim" deliverable.

Part 2 – Spring 2008 Panel

The Spring 2008 panel began in March 2008 with the first mailing commencing in May 2008. There were mailings in May, June, July, and August. The test States were again Alaska, Colorado, Idaho, Maryland, Nebraska, and Pennsylvania.

For part 2 of the postcard test, there were four regular mailings for both the control and test groups with an additional postcard mailing for the test group. The postcards were sent between the first and second packets mailings. The National Office split the second mailing address files into two groups: those to receive the regular mailout packages (control group) and those to be sent an additional reminder postcard (postcard group). The States were not told which establishments were selected for each group until after all mailings were complete. The States sent in interim and final survey databases in November 2008 and January 2009 respectively.

³ Colorado was monitored closely due to erroneous contact information on their postcards and a system error that truncated some of the addresses printed on the postcard.

Results

Establishment Response Rates

Table 1 shows the progress of the unadjusted early response rates for units during the Fall 2007 panel. The rates are based on mailout files and the first survey file sent in from the test States. These rates are not final response rates; they have not been adjusted for units that were later determined to be out of scope or out of business, were later inactivated, or were not present in the later mailing files.

The response rate for the postcard group was 7.3 percent lower than the response rate for the control group following the second mailout. By the first survey database deliverable(Deliverable 1) in April, the gap closes to 3.1 percent.

Table 1. Unadjusted Response Rates Based on Mailout Files – November Panel

Record Counts/Non-Response (Unadjusted)							Percent Difference			
State	Group	Mailing 1	Mailing 2	Mailing 3	Mailing 4	Deliverable 1	M2-M3	M2-M4	M2-Del 1	Cumulative
Alaska	Ctl		247	179	141	93	27.5%	42.9%	62.3%	
	Test		281	218	172	115	22.4%	38.8%	59.1%	
	Total	728	528	397	313	208	24.8%	40.7%	60.6%	71.4%
						Differences	-5.1%	-4.1%	-3.3%	
Colorado	Ctl		1324	1005	778	725	24.1%	41.2%	45.2%	
	Test		1210	1052	882	750	13.1%	27.1%	38.0%	
	Total	3384	2534	2057	1660	1475	18.8%	34.5%	41.8%	56.4%
						Differences	-	-	-7.2%	
Idaho	Ctl		462	349	324	154	24.5%	29.9%	66.7%	
	Test		465	409	372	168	12.0%	20.0%	63.9%	
	Total	1239	927	758	696	322	18.2%	24.9%	65.3%	74.0%
						Differences	-	-	-2.8%	
Maryland	Ctl		1138	915	707	495	19.6%	37.9%	56.5%	
	Test		1376	1232	945	631	10.5%	31.3%	54.1%	
	Total	3103	2514	2147	1652	1126	14.6%	34.3%	55.2%	63.7%
						Differences	-9.1%	-6.6%	-2.4%	
Nebraska	Ctl		529	328	140	71	38.0%	73.5%	86.6%	
	Test		516	326	129	73	36.8%	75.0%	85.9%	
	Total	1440	1045	654	269	144	37.4%	74.3%	86.2%	90.0%
						Differences	-1.2%	1.5%	-0.7%	
Pennsylvania	Ctl		3043	2496	2082	1861	18.0%	31.6%	38.8%	
	Test		3125	2721	2315	1992	12.9%	25.9%	36.3%	
	Total	8239	6168	5217	4397	3853	15.4%	28.7%	37.5%	53.2%
						Differences	-5.0%	-5.7%	-2.6%	
All Test States	Ctl		6743	5272	4172	3399	21.8%	38.1%	49.6%	
	Test		6973	5958	4815	3729	14.6%	30.9%	46.5%	
	Total	18133	13716	11230	8987	7128	18.1%	34.5%	48.0%	60.7%
						Differences	-7.3%	-7.2%	-3.1%	

Tables 2 and 3 show the adjusted response rates for units for the control and test groups. These rates are adjusted for out of scope, out of business, and inactivated schedules.⁴ Any units that were not part of the December base were also removed. As of the interim file, delivered in May 2008, the adjusted response rates for the control group were 59.14 percent while the test group had 58.15 percent, with a difference of 1.0 percent. The difference in response had narrowed to 0.17 percent by July when the final deliverable files were transmitted to BLS.

Table 2. Adjusted Units Response Rates Based on the Interim File Deliverable – Fall Panel

State	Group	Count	Total	Percent	Difference
AK	ctrl	144	233	61.80%	-3.53%
AK	test	148	254	58.27%	
CO	ctrl	744	1208	61.59%	2.81%
CO	test	738	1146	64.40%	
ID	ctrl	251	366	68.58%	0.87%
ID	test	275	396	69.44%	
MD	ctrl	685	1077	63.60%	-1.04%
MD	test	814	1301	62.57%	
NE	ctrl	452	509	88.80%	-1.67%
NE	test	440	505	87.13%	
PA	ctrl	1366	2765	49.40%	-2.61%
PA	test	1322	2825	46.80%	
all	ctrl	3642	6158	59.14%	-1.00%
all	test	3737	6427	58.15%	

Table 3. Adjusted Units Response Rates Based on the Final Deliverable – Fall Panel

State	Group	Count	Total	Percent	Difference
AK	ctrl	149	233	63.95%	-4.50%
AK	test	151	254	59.45%	
CO	ctrl	879	1203	73.07%	2.64%
CO	test	860	1136	75.70%	
ID	ctrl	274	359	76.32%	0.52%
ID	test	302	393	76.84%	
MD	ctrl	773	1073	72.04%	-0.20%
MD	test	931	1296	71.84%	
NE	ctrl	452	510	88.63%	-1.50%
NE	test	440	505	87.13%	
PA	ctrl	1895	2749	68.93%	-0.61%
PA	test	1915	2803	68.32%	
all	ctrl	4422	6127	72.17%	-0.17%
all	test	4599	6387	72.01%	

Part 2 – Spring 2008 Panel

Table 4 shows the progress of the unadjusted early response rates for units for the Spring 2008 panel. The rates are based on central printer mailout files only. These rates are not final response rates; they have not been adjusted for units that were later determined to be out of scope or out of business, were later inactivated, or were not present in the second mailing files.

⁴ Any units that were not part of the December base were removed from the analysis.

The response rate for the postcard group was 1.5 percent higher than the response rate for the control group following the second mailing. By the fourth mailing, the gap widens to 2.9 percent.

Table 4. Unadjusted Response Rates Based on Mailout Files – Spring Panel

Record Counts/Non-Response (Unadjusted)						Percent Difference			
State	Group	Mailing1	Mailing2	Mailing3	Mailing4	M2-M3	M3-M4	M2-M4	Cumulative
Alaska	Ctl		230	169	138	26.5%	18.3%	40.0%	
	Test		250	160	125	36.0%	21.9%	50.0%	
	Total	665	480	329	263	31.5%	20.1%	45.2%	60.5%
					Differences	9.5%	3.5%	10.0%	
Colorado	Ctl		1013	755	631	25.5%	16.4%	37.7%	
	Test		1061	777	632	26.8%	18.7%	40.4%	
	Total	2817	2074	1532	1263	26.1%	17.6%	39.1%	55.2%
					Differences	1.3%	2.2%	2.7%	
Idaho	Ctl		385	316	258	17.9%	18.4%	33.0%	
	Test		397	313	248	21.2%	20.8%	37.5%	
	Total	1236	782	629	506	19.6%	19.6%	35.3%	59.1%
					Differences	3.2%	2.4%	4.5%	
Maryland	Ctl		1068	796	641	25.5%	19.5%	40.0%	
	Test		1296	976	751	24.7%	23.1%	42.1%	
	Total	3104	2364	1772	1392	25.0%	21.4%	41.1%	55.2%
					Differences	-0.8%	3.6%	2.1%	
Nebraska	Ctl		430	247	110	42.6%	55.5%	74.4%	
	Test		388	216	75	44.3%	65.3%	80.7%	
	Total	1413	818	463	185	43.4%	60.0%	77.4%	86.9%
					Differences	1.8%	9.8%	6.3%	
Pennsylvania	Ctl		2323	1839	1646	20.8%	10.5%	29.1%	
	Test		2273	1758	1562	22.7%	11.1%	31.3%	
	Total	6409	4596	3597	3208	21.7%	10.8%	30.2%	49.9%
					Differences	1.8%	0.7%	2.1%	
All Test States	Ctl		5449	4122	3424	24.4%	16.9%	37.2%	
	Test		5665	4200	3393	25.9%	19.2%	40.1%	
	Total	15644	11114	8322	6817	25.1%	18.1%	38.7%	56.4%
					Differences	1.5%	2.3%	2.9%	

Tables 5 and 6 show the Spring panel adjusted response rates for units for the control and test groups. These rates are adjusted for out of scope, out of business, and inactivated schedules. As with the Fall panel, any units that were not part of the June base were also removed. As of the interim file the adjusted response rates for the control group were 62.45 percent while the test group had 62.36 percent, with a difference of 0.09 percent. The difference in response widened to 0.5 percent, this time with the test group being higher, by the final file deliverable in January 2009.

Table 5. Adjusted Units Response Rates Based on the Interim File Deliverable – Spring Panel

State	Group	Count	Total	Percent	Difference
AK	ctrl	131	196	66.84%	3.16%
AK	test	161	230	70.00%	
CO	ctrl	574	963	59.61%	1.03%
CO	test	607	1001	60.64%	
ID	ctrl	223	349	63.90%	2.96%
ID	test	232	347	66.86%	
MD	ctrl	609	994	61.27%	-1.53%
MD	test	721	1207	59.73%	
NE	ctrl	357	411	86.86%	3.32%
NE	test	340	377	90.19%	
PA	ctrl	1304	2208	59.06%	-0.83%
PA	test	1253	2152	58.22%	
all	ctrl	3198	5121	62.45%	-0.09%
all	test	3314	5314	62.36%	

Table 6. Adjusted Units Response Rates Based on the Final Deliverable – Spring Panel

State	Group	Count	Total	Percent	Difference
AK	ctrl	131	196	66.84%	3.60%
AK	test	162	230	70.43%	
CO	ctrl	676	962	70.27%	1.09%
CO	test	710	995	71.36%	
ID	ctrl	252	343	73.47%	2.03%
ID	test	262	347	75.50%	
MD	ctrl	712	982	72.51%	0.19%
MD	test	860	1183	72.70%	
NE	ctrl	357	411	86.86%	3.59%
NE	test	341	377	90.45%	
PA	ctrl	1520	2195	69.25%	-0.55%
PA	test	1462	2128	68.70%	
all	ctrl	3648	5089	71.68%	0.50%
all	test	3797	5260	72.19%	

Employment Response Rates

In addition to calculating the response rate based on the number of establishments that respond, OES also calculates response rates based the number of employees found in the establishment. Tables 7 and 8 show the adjusted employment response rates for the interim and final files. As of the interim deliverable, the Fall 2007 employment response rate for the postcard group was 3.5 percent less than the response rate for the control group. By early July, that gap had closed to 1.7 percent. The large difference seen in Alaska is probably due to their smaller sample size. That the overall difference is much smaller supports this.

The Spring 2008 panel has similar results. As of the interim deliverable, the employment response rate for the postcard group was 0.62 percent more than the response rate for the control group. By the final deliverable in early January, that gap had widened to 1.86 percent.

Table 7. Interim and Final Employment Response Rates (Adjusted) – Nov Panel

FIPS	Group	Interim Response	Interim Difference	Final Response	Final Difference
02	ctrl	25.1%		87.7%	
02	test	47.9%	22.8%	50.4%	-37.3%
08	ctrl	37.9%		70.5%	
08	test	35.0%	-2.9%	58.4%	-12.0%
16	ctrl	65.7%		72.5%	
16	test	60.7%	-5.0%	67.0%	-5.5%
24	ctrl	61.1%		66.5%	
24	test	45.5%	-15.6%	51.1%	-15.4%
31	ctrl	85.5%		85.4%	
31	test	80.3%	-5.2%	80.3%	-5.2%
42	ctrl	25.4%		42.8%	
42	test	25.6%	0.1%	57.0%	14.2%
All	ctrl	40.1%		59.2%	
All	test	36.6%	-3.5%	57.4%	-1.7%

Table 8. Interim and Final Employment Response Rates (Adjusted) – Spring Panel

State	Group	Interim Response	Interim Difference	Final Response	Final Difference
AK	ctrl	55.53%		45.05%	
AK	test	59.36%	3.82%	49.01%	3.96%
CO	ctrl	53.93%		52.50%	
CO	test	52.65%	-1.28%	55.94%	3.44%
ID	ctrl	51.24%		65.91%	
ID	test	50.66%	-0.58%	68.79%	2.88%
MD	ctrl	56.79%		55.05%	
MD	test	53.73%	-3.06%	61.66%	6.61%
NE	ctrl	45.87%		84.15%	
NE	test	49.88%	4.01%	86.43%	2.28%
PA	ctrl	44.65%		56.73%	
PA	test	47.71%	3.06%	55.57%	-1.17%
All	ctrl	49.93%		57.31%	
All	test	50.55%	0.62%	59.17%	1.86%

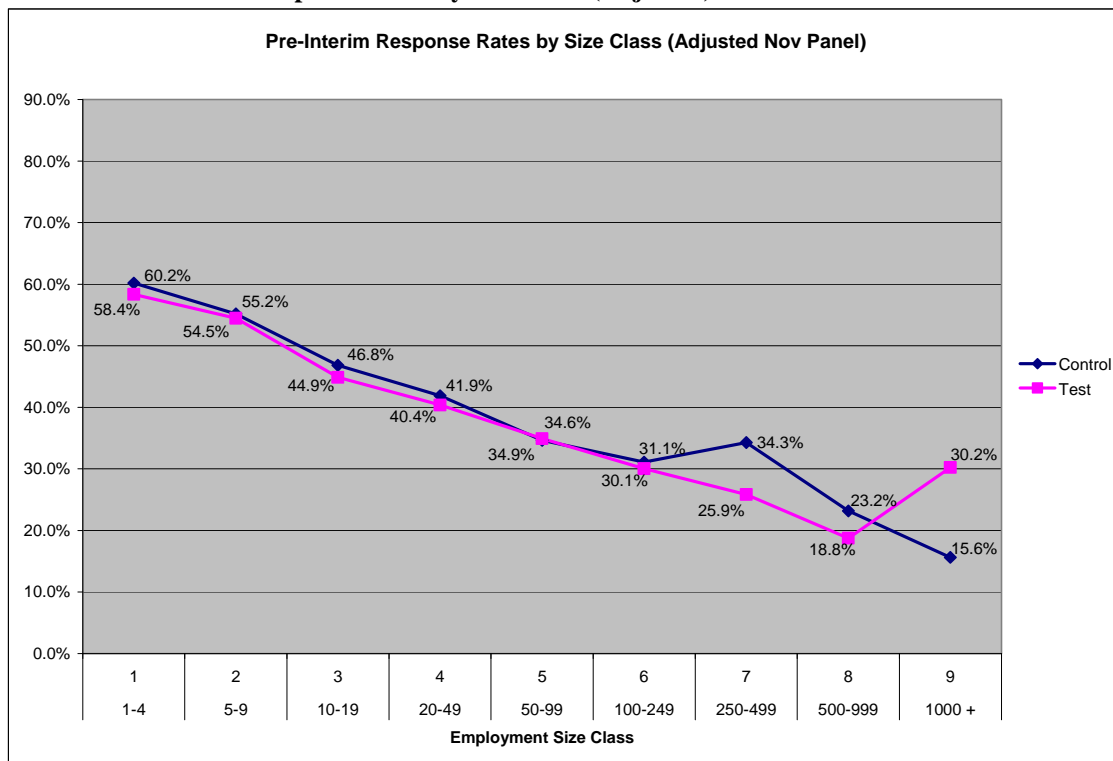
Responses by Size of the Establishment

Chart 1 shows the adjusted Fall panel pre-interim response rates by establishment size class graphed out in a line. The size class categories are based on the number of employees in the establishment. While the pattern is quite similar to the usual size class response pattern seen in OES data⁵, there does appear to be a difference between the control and test groups. There is a gap starting with size class 7, units with more than 250 employees. The response rates are higher for the control group for size classes 7 and 8, units with more than 250 – 499 employees and 500 – 999 employees, by about 8 and 5 percentage points. However, the test group is noticeably higher for the largest establishments, those with more than 999 employees⁶. These differences become less pronounced by the end of the panel, presumably due to an intentional effort on the part of the State to acquire data from those units. However, there remains a substantial gap in response for size class 7, units with 250 – 499 employees. Charts 2 and 3 show the response rates for the interim and final deliverables.

The data for the Spring 2008 panel (Charts 4 and 5) show a different trend. There is still a gap in response rates, starting with size class 8, units with 500 – 999 employees. However, for this panel the test group has the higher response rates. Up until units with more than 499 employees the response rates are identical.

Given that the size class response rates for both panels are virtually identical up to size class 7, it can be argued that for smaller units the type of contact does not matter. Also, the overall difference in response rates is due to non-response in the larger units. These differences also suggest that for the larger units the postcard alone is not effective and that perhaps a mixed approach is warranted. Postcards could be sent to size classes 1 through 6, units with less than 250 employees while a full packet is sent to larger units. There are a few hypotheses as to why larger establishments respond differently. One hypothesis is that larger establishments treat the mail differently than smaller establishments and the postcard is not reaching the person responsible for responding to the survey. Another theory is that larger firms are busier and it takes them longer to respond.

Chart 1. Pre-Interim Response Rates by Size Class (Adjusted) – Fall Panel



⁵ In OES the response rates decline as the size of the establishment increases until we reach the largest establishments. For the largest units, those that employ more than 999 workers, there is a slight improvement in response rates.

⁶ The number of size class 9 units in this sample is quite small and therefore more volatile. Also, in terms of collection, such large units often garner special attention from State OES personnel making it harder to tell if the postcard is the driving factor behind the difference in response rates.

Chart 2. Interim Response Rates by Size Class (Adjusted) – Fall Panel

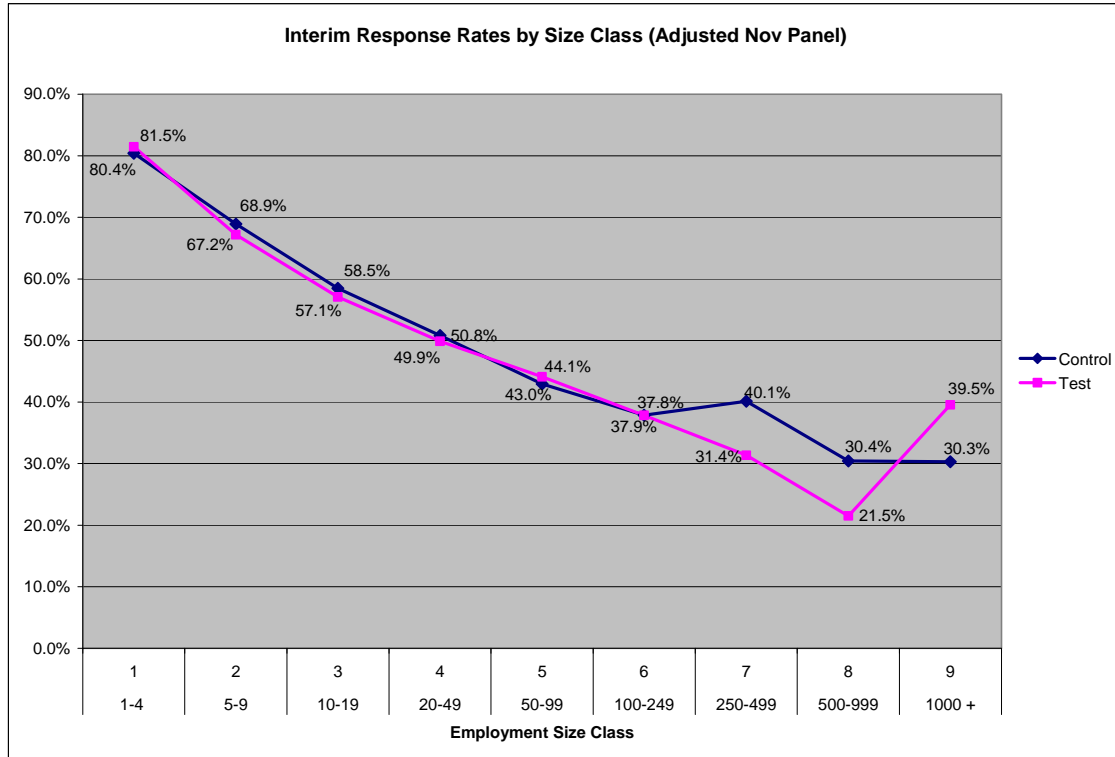


Chart 3. Final Response Rates by Size Class (Adjusted) – Fall Panel

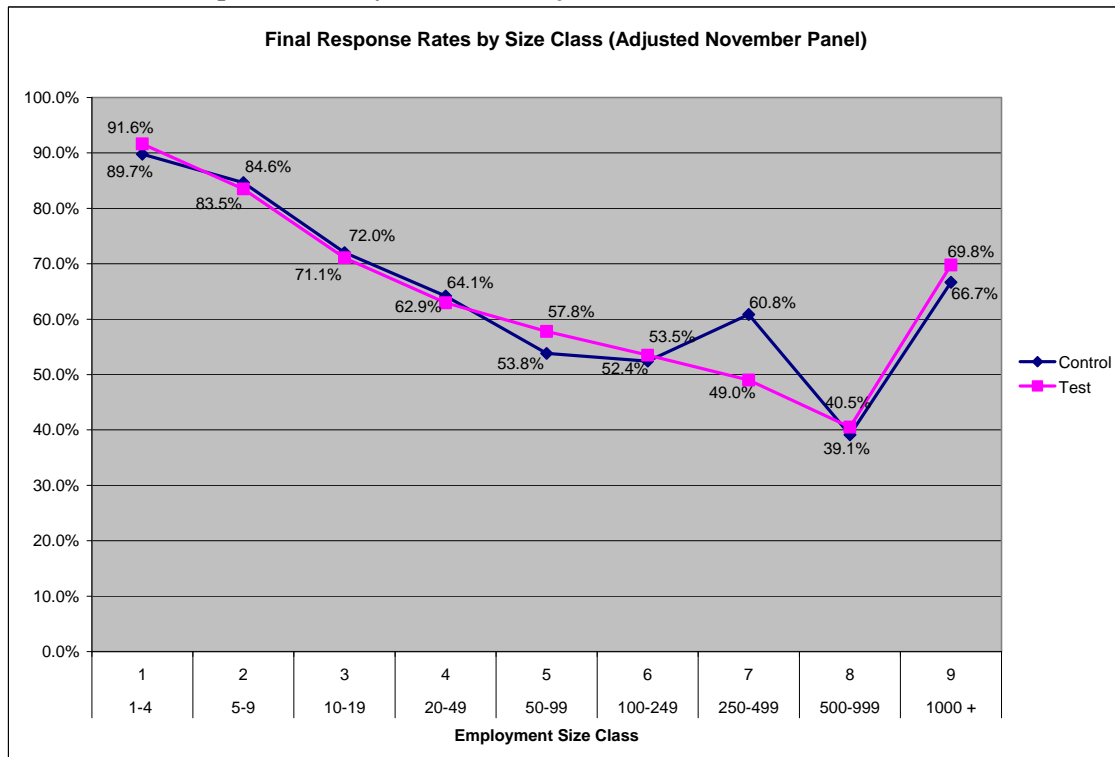


Chart 4. Interim Response Rates by Size Class (Adjusted) – Spring Panel

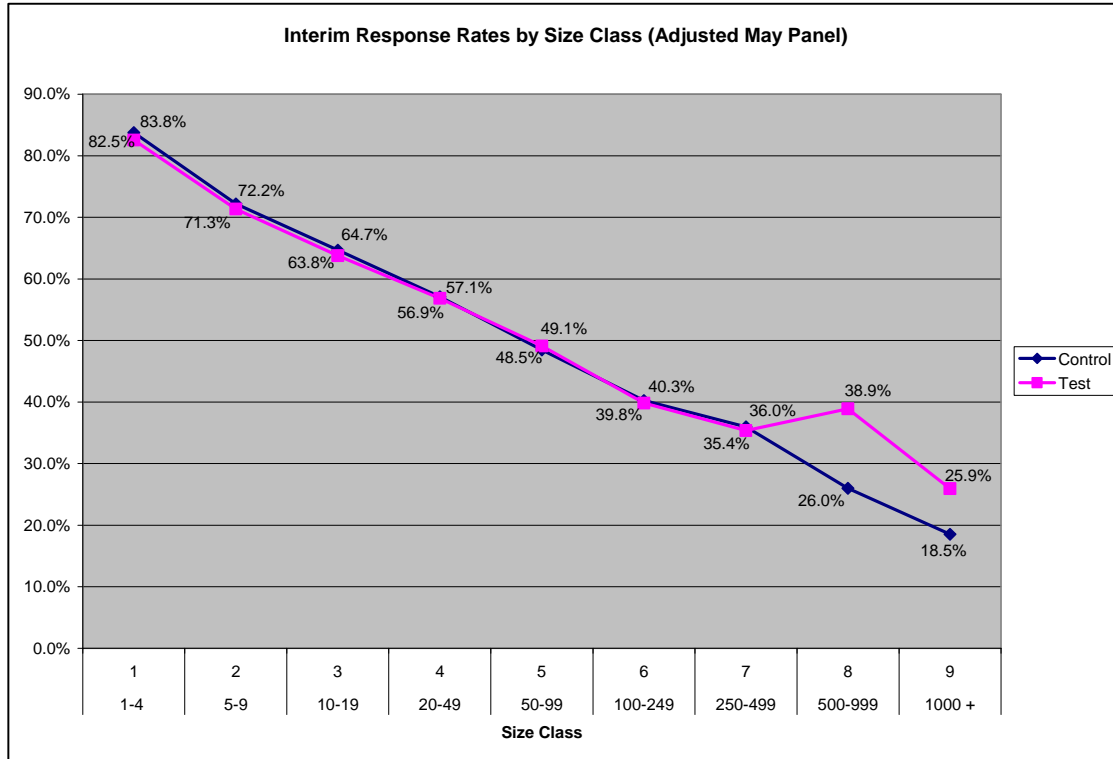
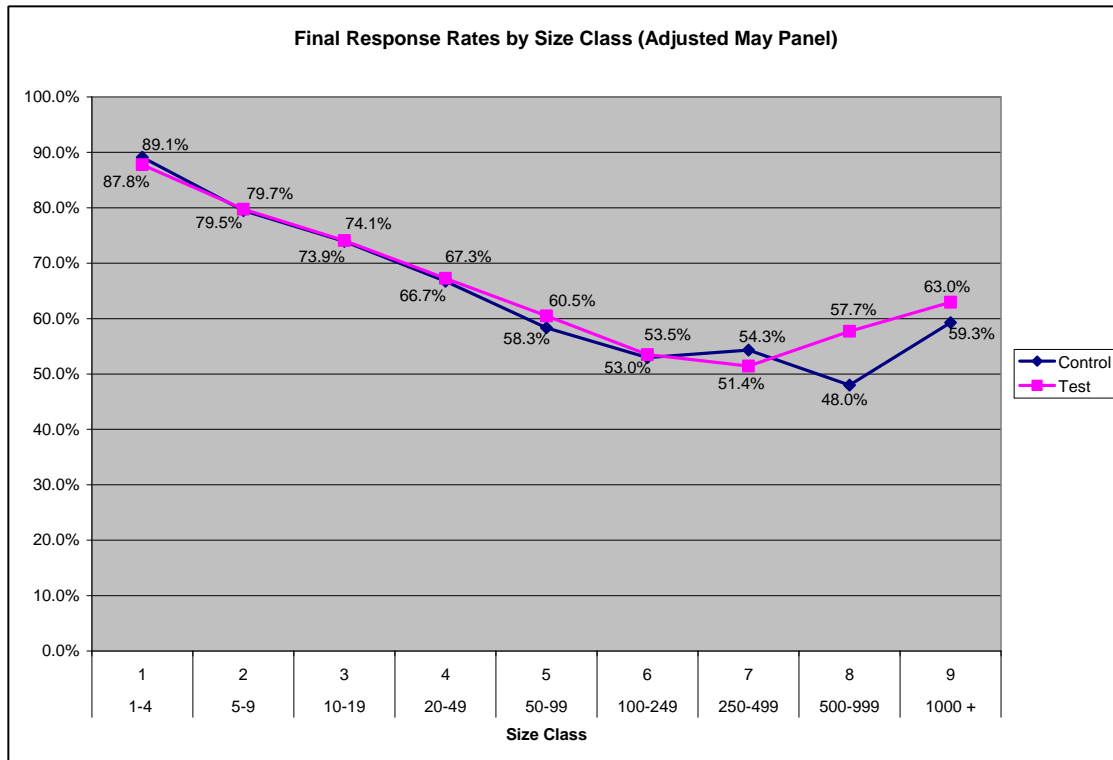


Chart 5. Final Response Rates by Size Class (Adjusted) – Spring Panel



Date Stamp Analysis

OES examined the date stamp (the date the state changed the establishment record from a nonresponse to a response) in the State data files. Allowing for transit times, we were able to identify units that responded during the overlap period - the time after the State has generated the first follow-up mailing file but before the establishment would have received the follow-up survey packet or postcard. In the Fall panel, the test group received 451 units during the overlap while the control group received 581. In the Spring panel 536 control group units sent in responses and 514 test units sent in responses. These numbers simply demonstrate that there are a significant number of responses still in transit when the production for the first follow-up mailing begins and that there is a savings in not mailing a full survey packet to these establishments.

Table 9. Date Stamp Analysis – Adjusted Fall Panel

Group	During Overlap	After Postcard	After Packet	After the 3 rd Mailing	After the 4 th ^d Mailing	After All Mailings
Control	581	0	1196	768	604	1275
Test	415	812	0	1197	679	1499

Table 10. Date Stamp Analysis – Adjusted Spring Panel

Group	During Overlap	After Postcard	After Packet	After the 2 nd Follow-up	After the 3 rd Follow-up	After All Mailings
Control	536	0	972	590	356	1196
Test	514	1195	0	569	313	1197

Cost Savings

Standardized Approach

Because the groups are different sizes, it is worthwhile to look at per-unit costs. The per-unit cost of the second mailing for the test group was \$0.30. The per-unit cost for the control group was between \$1.43 and \$2.88 depending on whether the unit received an unstructured form or a structured form (and the number of pages in the structured form). The second mailing typically has about 140,000 units. Projecting the potential cost saving of \$1.13 to \$2.58 per unit, we see a potential savings of \$158,200 to \$361,200 per panel.

Given that there are differences in the response rates for the two groups, we also looked at the printing and postage costs stretched over the panel to see if mailing out extra forms to non-respondents in subsequent mailings would increase the costs for the test group. The average cost per unit⁷ for the test group was \$3.26 while the average cost per unit for the control group was \$4.98. Even with mailing out more survey packets in subsequent mailings the postcard group has significantly lower costs. The difference of \$1.72 per unit projected across the panel, using the second mailing base of 140,000 units, also shows a potential savings of approximately \$240,000 per panel.

Table 11. Cost Analysis - Postcard Treatment for All Units

	M2 - Ctl	M2 - Test	Mailing3	Mailing4	Total	Per-unit
Test units		5763	4906	3933		
Control units	5419		4267	3394		
postage	\$1.31	\$0.26	\$1.31	\$0.97		
printing	\$0.94	\$0.04	\$0.94	\$0.56		
Combined	\$2.25	\$0.30	\$2.25	\$1.53		
Test costs		\$1,728.90	\$11,038.50	\$6,017.49	\$18,784.89	\$3.26
Control costs	\$12,192.75		\$9,600.75	\$5,192.82	\$26,986.32	\$4.98
					Difference	\$1.72
					M2 base	140000
			Projected Savings			\$240,852.74

⁷ The average cost per unit does not take into account the first mailings. The first mailing occurred prior to designating the test and control groups. Therefore the groups were not distinguished from each other and received the same treatment in terms of mailout; both groups received regular survey packets.

Mixed Approach 1 - Postcard for Units 1-6 / Regular Packet for Units 7-9

Cost projections for a mixed treatment approach, where size classes 1 through 6 receive postcard reminders while the larger sized firms receive a regular survey packet, also shows a significant savings of about \$238,000 per panel. Approximately 5,500 units of the first follow up mailing are size class 7, 8, and 9 units. Applying the observed higher response rate to that number as well as the appropriate costs over the course of the panel shows a cost of \$27,690. The total costs of size class 1-6 are \$438,887 for a combined cost of \$466,577. This figure is substantially lower than our normal operating costs for a panel of \$704,844⁸. Again, even with a mixed approach we see projected saving of around \$238,000. This approach does not cost anything in terms of response rates; the size class analysis shows no significant decrease in response rates for the small and medium size units receiving the postcard.

Table 12. Cost Analysis – Mixed Treatment Approach 1

Groups	Mailing 2 - Sizes 7-9	Mailing 2 - Sizes 1-6	Mailing 3	Mailing 4	Subtotals	Total
Postcards		134,500	111,635	89,308		
full packet	5,500		4,290	3,432		
Combined	\$2.25	\$0.30	\$2.25	\$1.65		
size class 1-6		\$40,350.00	\$251,178.75	\$147,358.20	\$438,886.95	
size class 7-9	\$12,375.00		\$9,652.50	\$5,662.80	\$27,690.30	\$466,577.25
Unaltered	140,000		109,200	87,360		
	\$315,000.00		\$245,700.00	\$144,144.00	\$704,844.00	\$704,844.00
Projected Savings					\$238,266.75	

Mixed Approach 2 - Postcard for Units 1-6 / Postcard + Follow-up Packet for Units 7-9

Table 13 shows the cost projections for a mixed treatment approach, where size classes 1 through 6 receive postcard reminders while the larger sized firms receive a postcard and a follow-up survey packet. This treatment also shows a significant savings of over \$200,000 per panel. There are approximately 140,000 units in thesecond mailing. About 5500 units of those units are in size classes 7, 8, and 9. Applying the observed response rate to the different groups as well as the appropriate charges over the course of the panel shows a cost of \$474,142. This figure is substantially lower than the normal operating costs for a panel of \$690,250⁹. Again, even with this mixed approach we see projected saving of around \$240,000. This approach also does not cost anything in terms of response rates but may have a small positive impact on the response rates of the largest units.

Table 13. Cost Analysis – Mixed Treatment Approach 2

	M2 - Pkt	M2 – PC	Mailing3	Mailing4	Total	Per-unit
Different	5500	134500	121769	96266	<i>based on test resp rates</i>	
Normal	140000		115195	92565	<i>based on ave resp rates</i>	
postage	\$1.31	\$0.26	\$1.31	\$0.97		
printing	\$0.94	\$0.04	\$0.94	\$0.56		
combined	\$2.25	\$0.30	\$2.25	\$1.53		
Diff costs	\$12,375.00	\$40,350.00	\$273,979.23	\$147,287.27	\$473,991.50	\$3.52
Norm costs	\$315,000.00		\$259,189.75	\$141,625.02	\$715,814.77	\$5.11
					difference	\$1.59
Projected Savings					\$241,823.27	

⁸ These figures do not include costs associated with the initial mailings. We are not advocating a change in that mailing so it remains a constant and does not affect this analysis.

⁹ These figures do not include costs associated with the initial mailings. We are not advocating a change in that mailing so it remains a constant and does not affect this analysis.

Additive Approach – Adding the Postcard for All Units

Cost projections (found in Table 14) for adding a postcard mailing to all units in the follow-up mailing base is approximately \$31,000 per panel. There are approximately 140,000 units in the first follow-up mailing. If all units receive the postcard we can expect an immediate bump in response rates of about 2-3 percent over a standard mailing and about 8-9 percent over a postcard mailing alone. However, the increase in response rates waivers as the panel progresses. By the end of the panel the response rates are within 0.5 percent. Is the extra cost of adding the postcard worth this small increase in response? Considering the original intent was to save money, we have to question the effectiveness of a simple addition of postcards to the mailing regimen.

Table 14. Cost Analysis – Adding the Postcard

	M2 - Ctl	M2 - Test	Mailing3	Mailing4	Total	Per-unit
Test units		5665	4200	3393		
Control units	5449		4122	3424		
postage	\$1.31	\$0.26	\$1.31	\$0.97		
printing	\$0.94	\$0.04	\$0.94	\$0.56		
combined	\$2.25	\$0.30	\$2.25	\$1.53		
Test costs		\$14,445.75	\$9,450.00	\$5,191.29	\$29,087.04	\$5.13
Control costs	\$12,260.25		\$9,274.50	\$5,238.72	\$26,773.47	\$4.91
					difference	-\$0.22
					M2 base	140000
			Projected Savings			-\$30,947.33

State Feedback

All test States were sent a feedback questionnaire to help evaluate the results of the postcard test. The States were asked the following questions:

1. Do you think the postcard was effective?
2. What suggestions do you have for improving the procedure of using a reminder postcard? (Please list each suggestion on a separate line below.)
3. Did you receive requests from any establishments for additional survey forms during the time between the postcard mailing and the next centralized mailing of survey forms?
4. Did you make follow-up telephone calls during the time between the postcard mailing and the next centralized mailing of survey forms?
5. What, if any, feedback did you receive from respondents regarding the postcards? (Please list types of feedback on separate lines below.)
6. Do you have any additional feedback or recommendations:

Four of the five final test States believed that the postcards were effective. Some States reported that they received calls for new survey forms but that they were able to fulfill those requests. Three States began telephone follow-up calls to both groups (since the States were not informed of which establishments were in each group). Respondent feedback was minimal, and was limited to claims that they had either not received the original form or that they had already sent in the form.

States reported receiving more email and phone responses from the postcard group than the control group. However an analysis of the collection mode in their data files revealed that there were no significant differences between the control and test groups. We feel that the report of receiving more emails and phone calls is a reflection of the general increase in respondents using alternative modes of reporting data.

Most States participating in the postcard test were positive about the feasibility of using it successfully as an alternative to mailing a survey packet, although two States feel that we should still adjust the timing and allow more time between mailouts. Some also identified the postcard as a valuable tool for accomplishing address refinement. Two States stated on their questionnaires that the postcard is an effective cost-saving measure.

Table 15. State Questionnaire Results

Question	Yes	No	Don't Know
1. Was postcard effective?	4	1	
2. Did you receive requests for survey forms	3	1	1
If yes, were you able to fill the requests	3		
If yes, how many requests were received	1, 25, 75		
If yes, were requests from the postcard group	3		
3. Did you make telephone follow-up calls	3	2	
If yes, which groups did you call (postcard, control, both, other)	both groups		
If yes, did the postcard group need more calls, same, fewer calls	About the same - 2 Fewer - 1		
4. Respondent Feedback			
<i>Did not receive the original survey form</i>	3 States - multiple calls		
<i>Already sent in the filled form</i>	1 State, several calls		
<i>Can I do this on-line?</i>	1		
5. State Feedback			
<i>More respondents reported data over the phone</i>	3		
<i>More respondents sent in data via email</i>	1		
<i>Postcards generated postal returns for address correction</i>	1		
<i>This is a good cost-saving measure</i>	2		
<i>Would like to use the postcard later in the mailout process for small units</i>	1		
<i>There is little difference between a follow-up mailing and a follow-up postcard</i>	1		
<i>Would like to continue the use of the postcard</i>	4		
6. Suggestions to make the postcard effective			
<i>Put a tracking feature in SPAM to track who receives a postcard</i>	1		
<i>Enlarge the title of the survey form in the picture on the postcard</i>	1		
<i>Identify to the States which establishments receive the postcard</i>	2		
<i>Use postcards for address refinement</i>	2		
<i>Change the postcard mailing to before the final packet mailing</i>	1		

Statistical Analysis

A statistical analysis of the overall response rates from the fall panel of the test did not show any significance at the 95 percent confidence interval¹⁰ using a chi-square test, meaning that the postcard did not have an effect on response rates. While most of the establishment size class data also did not meet the criteria for significance, there does appear to be a stronger association between postcard units not responding and those units being in a larger size class. Only chi-square values for size class 7 met the threshold for significance at the 95-percent confidence interval. For these units, being in the test group increased the likelihood of non-response. Lower response rates for size class 7 are seen across all States in the test. This is not the case for size class 8 and 9 units. It could be that the common State practice of concentrating on collecting data

¹⁰ With such a large sample size, it is not recommended to use a 90-percent confidence interval.

from the largest units prevented size classes 8 and 9 from also showing increased non-response for the test group. With regard to test group response rates in individual States, none of the States had chi-square values showing significance. Using a logistic regression analysis, controlling for the experiment, we only see the typical OES response patterns; smaller States and smaller establishments have higher response rates. Considering the findings in the size class analysis, a conservative course for implementing the reminder postcard would be a mixed approach; send postcards to size class 1 through 6 units, while continuing to send full survey packets and a postcard as well to size class 7 through 9 units.

Analysis of the Spring panel data showed no significance at the 95 percent confidence interval using chi-square tests. Chi-square tests were run on response rates by size class and State. The only trend revealed is already known to OES; response is more likely in smaller establishments. None of the test groups met the criteria for significance. This is not unexpected since the methodology for the Spring panel test was simply adding the postcard to the regular mailings as opposed to substituting it for a regular survey packet. Given this analysis, there is no advantage to adding a postcard mailing to supplement the regular survey packet mailings. However, since substituting a postcard has a negative impact on response for at least one size class among the larger units, adding a postcard mailing for the larger units would not only maximize response but it could also generate more savings (according to our cost models) due to increased immediate response.

Conclusions and Recommendations

Based on the State data from the combined phases of the test, incorporating the use of a reminder postcard for the second mailing is a viable cost-saving measure that has little measurable impact on response rates. The impact of the reminder postcard on response rates is minimal for the small and medium sized firms. Larger units see a decrease in response. A mixed approach where small and medium sized firms receive a reminder postcard while the larger firms receive a full survey packet appears to be an efficient and cost-effective option. Similarly, sending postcards to small and medium sized firms while sending both a postcard and a regular survey packet to large-sized firms also achieves significant cost-savings while minimizing the impact on response rates. Table 16 summarizes the response rates for each treatment group. Table 17 shows the cost savings per panel associated with each treatment.

Table 16. Combined Response Rates

Response Rates by Size Class Group and Treatment				
	After 2 nd Follow-up	After 3 rd Follow-up	Interim	Final
size 1- 6 packet*	21.5%	37.2%	61.9%	72.8%
size 7 - 9 packet*	14.7%	26.2%	34.4%	54.8%
size 1- 6 postcard	12.9%	31.4%	59.6%	73.2%
size 7 - 9 postcard	9.4%	19.9%	30.1%	49.7%
size 1- 6 both	26.2%	40.5%	63.6%	73.0%
size 7 - 9 both	16.0%	28.1%	35.1%	54.3%

*Combined control groups from both panels

Table 17. Summary Cost Savings Potential per Panel

Replacement Scenarios	Potential Savings per panel
Standard Replacement	\$240,853
Mixed 1 - Postcards 1-6/Packets 7-9	\$238,267
Mixed 2 - Postcards 1-6/Both 7-9	\$241,823
Add Postcards	-\$30,947

Sending reminder postcards to small and medium sized firms while sending both a postcard and a regular survey packet to large-sized firms achieves the most cost-savings. The response rates associated with this treatment are most similar to the response rates using our current procedures. This treatment is therefore our recommendation for final implementation. We also suggest that OES reconsider the mailout schedule in order to better incorporate the postcard.

Acknowledgements

The author would like to thank Polly Phipps of the Bureau of Labor Statistics, Office of Survey Methods Research for her assistance in running and interpreting chi-square values for the statistical portion of this paper.

Disclaimer

Any opinions expressed in this paper are those of the author and do not constitute policy of the Bureau of Labor Statistics.

References

Dillman, Don A. Mail and Internet Surveys – The Tailored Design Method, Second Edition. New York: John Wiley & Sons, Inc., 2000.