The Effect of Targeted Outreach on Compliance

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While the IRS has conducted educational outreach for years, the Service knows little about its impact on voluntary tax compliance. The available evidence was ambiguous. Governments have engaged in public service education campaigns for years. Some observers have found public service education to be effective in a number of areas, including environmental regulation compliance, driver's education, and prescription compliance.[1] However, other studies have shown that there is a limit to its effectiveness, even when the issue is one of direct benefit to the individual such as the use of seatbelts.[2] Furthermore, while researchers have yet to do the definitive study of the effect of tax compliance education, there is some analytical evidence that outreach is effective on all classes of taxpayers except small proprietors.[3]

As a result, Communications and Liaison: Stakeholder Liaison (CLD--formerly Taxpayer Education and Communications) has asked SB/SE Research, Seattle/San Jose to study the effect of outreach on compliance. One project, completed several years ago, studied the effect of untargeted outreach on compliance.[4] However, CLD also has a number of targeted programs designed to effect compliance or behavior in a particular area. This current project seeks to determine whether such a targeted approach is effective.

Our research was important because CLD has a limited budget, and using their budget effectively means sending the right message to the right taxpayers. Knowing whether to invest in targeted market educational outreach or mass-market educational outreach would be a major contribution to their strategic decisionmaking.

Market Segment

The market segment for our study includes all customers of CLD. The extent to which noncompliance behavior is volitional is a matter of debate. Nevertheless, SB/SE taxpayers do have significantly more complex, obscure, and numerous tax issues than W&I (the Wage and Investment division) taxpayers. At the same time, SB/SE taxpayers probably have significantly less tax help than do the customers of LMSB (the Large and Mid-Size Business division). Large and midsize businesses have retained external tax professionals in addition to their fulltime inhouse accountants.

To fulfill their tax responsibilities, SB/SE customers must engage in extensive recordkeeping; they must adhere to numerous tax deadlines; and they must understand complex and often arbitrary tax rules.

Objectives

The objective of our research was to find out whether CLD's targeted educational outreach programs, in general, can be successful in increasing voluntary compliance and achieving other institutional goals (such as electronic filing).

For us to test educational-outreach programs in all situations, on all issues, and in all market segments was logically impossible. We could only test the effect of several specific programs on particular compliance issues. By doing this, we hoped to determine if targeted educational outreach could work in a variety of situations and support the conclusion that targeted educational outreach can work in general.

We discuss below the specific issues and industries chosen for our analysis. These issues and industries were chosen to represent a range of possibilities and cannot meaningfully be compared to one another. To be clear, we were not interested in these particular issues or industries or geographical areas per se. The taxpayers and tax issues we selected were only a means to our end: finding out whether targeted educational-outreach programs are effective in general.

Structure

This report is organized as follows. We first discuss our experimental approach and its limitations in the current situation. We then discuss the results of the experiments we performed. Finally, our conclusions and recommendations are presented.

Research Methods

General Description of Methodology

To achieve our objectives, we conducted two controlled field experiments. The customer chose four issues in two industries to investigate. The customer designed and delivered outreach programs focusing on:

1. Reporting tip income on Form 941 (restaurant industry),
2. Issuing Forms W2 (construction industry),
3. Issuing Forms 1099 MISC--Nonemployee Compensation (construction industry),
4. Filing Forms W2 and 1099 MISC electronically (construction industry)

The restaurant industry outreach was delivered during November and December 2003, while the construction industry outreach has continued to be delivered since 2003.

Sampling Design

Educational outreach programs rely on mass media. CLD cannot deliver them to individuals; CLD can deliver them only to geographic areas. Therefore, we could not adopt a completely randomized design. That is, we could not randomly select individuals to receive or not to receive the program.

For each outreach program, we identified two "separate but equal" geographical locations in which to conduct the experiments. CLD and Research collaborated to choose these locations based on their geographical separation (to avoid spillover effects) and on their similarity with regard to levels of compliance, the size of the market segment, average total taxes, and risk preference (as measured by the percentage of returns with a Schedule C). We also considered political and social factors on a subjective basis.

For the tip income issue, the customer designed and delivered a targeted outreach program in the test city, Chicago, Illinois. The corresponding control cities were Jacksonville, Florida and Newark, New Jersey.[5] Similarly, the customer designed outreach focusing on issuing the Forms W2 and 1099 MISC and filing them electronically and delivered it in the construction industry in the test cities of Seattle, Washington and Nashville, Tennessee. The corresponding control cities were Austin, Texas and Baltimore, Maryland.

Hypothesis

Our research hypothesis is that targeted, industry and issue-specific CLD educational outreach is effective in increasing voluntary compliance and changing taxpayer behavior. We discuss specific statistical hypotheses below.

Measures of Results

We used a number of measures of compliance and behavior, which vary somewhat by specific issue. For each issue, the primary measure included the change in proportion of taxpayers or entities in compliance or issuing the form in question. Specifically, for tip reporting compliance, our measure was the proportion of taxpayers reporting any tip wages on Form 941.

For issuance of Forms W2, our measure was the proportion of business taxpayers issuing any Forms W2. For issuance of Forms 1099 MISC, our measure was the proportion of business taxpayers issuing any Forms 1099 MISC. Finally, our measure of the electronic filing rate was the number of taxpayers

filing any Forms W2 or 1099 MISC electronically as a proportion of taxpayers issuing any Forms W2 or 1099 MISC.

In addition, in the construction industry experiment, we repeated our analysis for two definitions of our market segment. The first market segment consisted only of businesses in the construction industry with revenues; the second consisted of any business in the targeted region.[6]

Analysis Plan

We conducted our analysis for all taxpayers in the market and for a panel of taxpayers present both before and after the outreach.

Market Level Analysis

For the entire market, we had the "before" and the "after" measures computed as the proportion of taxpayers in compliance (or behaving as desired) for the test and control groups. We measured the effect of the CLD's educational outreach program on the market segment as the change in the test group minus the change in the control group. Statistically, the hypotheses are stated as the difference of differences:

$$H_o: (T_a - T_b) - (C_a - C_b) <= 0$$
$$H_A: (T_a - T_b) - (C_a - C_b) > 0$$

where "T" and "C" represent the proportion of taxpayers who were compliant in the test and control cities,[7] and the subscripts "a" and "b" indicate "after" and "before."

By using the difference of differences approach, we minimized the threats to internal validity: history, maturation, testing, instrumentation selection, and statistical regression.[8]

As always, the threats to external validity are more serious. Normally, experiments introduce doubts about external validity because experiments are artificial; they involve the experimenters interfering with the normal course of events. However, in our case, the experiment was the intervention. The experimental intervention was the same as the treatment. Furthermore, the fact that CLD conducted our experiment in the field added additional realism and therefore external validity.

Market level analysis provides insight into the compliance of a market segment. Therefore, the analysis was relevant to the achievement of IRS strategic goals. However, by focusing exclusively on market segments, we neglected individual behavior. The analysis described above does not tell us

whether any (or how many) individuals actually changed their behaviors. To do this, we needed to do another sort of analysis.

Analysis of Taxpayers Present Before and After Outreach

Since we had data covering several periods, we were able to identify a panel of individual taxpayers who were present in the database both before and after the CLD educational outreach treatment. Focusing on how the behavior of these taxpayers changed (or did not change) because of the outreach program highlighted the effect of the treatment on individuals.

We tested four hypotheses.

The first hypothesis was that, among all taxpayers present before and after the outreach, the improvement in the test city was greater than the improvement in the control city.

The second hypothesis was that, among taxpayers compliant before the outreach and present after the outreach, a larger proportion of taxpayers remained compliant in the test group than in the control group.

The third hypothesis was that, among taxpayers noncompliant before the outreach and present after the outreach, a larger proportion of taxpayers became compliant in the test group than in the control group.

Finally, the fourth hypothesis was that, among taxpayers new in the market segment in 2004, a larger proportion was compliant in the test cities than in the control cities.

Statistically, we stated these four hypotheses as:

$$H_o: P_t - P_c <= 0$$
$$H_A: P_t - P_c > 0$$

where "P" refers to the proportion of taxpayers who were compliant prior to the experiment, and remain so, or were noncompliant and became complaint after the experiment. The subscript "t" refers to the test group, and subscript "c" refers to the control group.

Data

The data for all four issues tested came from information transcribed in BMF (Business Master File) and IRTF (Information Returns Transaction File). We obtained our data from MITS (Modernization Information Technology Services) via a RIS (Request for Information Services). For the restaurant experiment, we requested quarterly extracts beginning with the third calendar-quarter of 2001 and ending in the last calendar-quarter of 2004. For construction, we requested three annual extracts (2002 through 2004).

As the data included taxpayer-identifying information, privacy and security were unusually important. We checked the data for impossible values, outliers, and errors.

Deviations From Plan and Limitations

There were two major deviations from the plan. Originally, CLD planned to develop outreach focusing on the timely payment and correct reporting on Form 941 in the construction industry. The customer changed their focus to the issuance of Forms W2 and 1099-MISC and filing them electronically. In addition, the plan was to deliver the Form W2 and the Form 1099 MISC outreach programs separately, in different cities, so that their effect could be measured separately. However, CLD delivered both outreach programs in both test cities. Thus, we will be able to determine if outreach had an effect on the behavior we are studying, but we will not know which outreach program was responsible.

In addition, as discussed above, experimental research designs can have somewhat limited external validity due to their artificial nature. We minimized this threat by conducting the experiments in the field as well as by delivering the outreach in its normal manner.

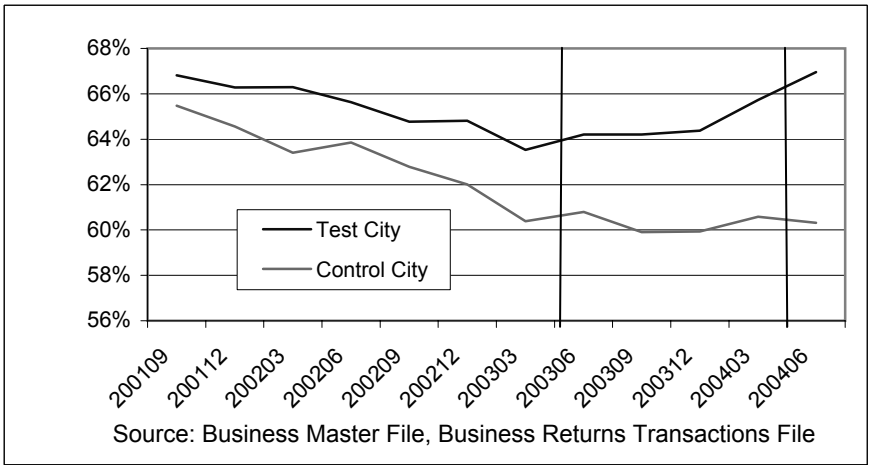
Findings

Unfortunately, the results from the two experiments were quite different. In the restaurant industry, three out of five tests we performed provided evidence that the outreach has a significant effect. On the other hand, in the construction industry, virtually every test failed to find evidence that the outreach had an effect.

Eating and Drinking Places, Tip Income

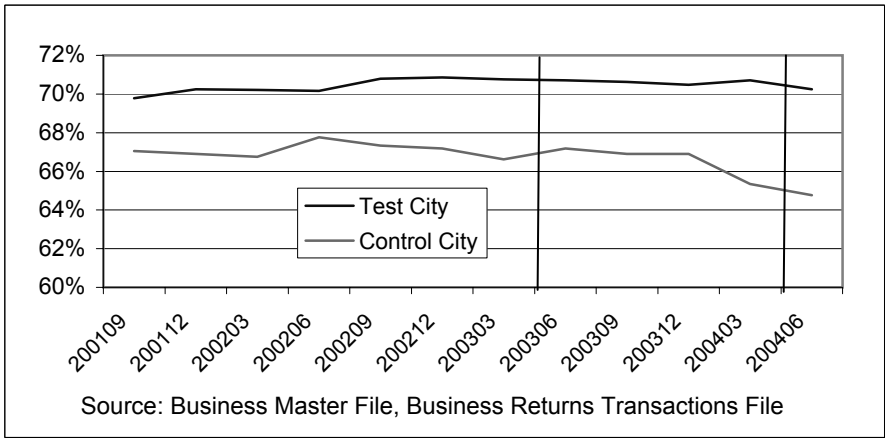
We first tested the effectiveness of the tip outreach by measuring compliance in the market as a whole: did the percentage of taxpayers reporting tips increase more (or decrease less) in the test city than in the control cities? Although the percentage reporting tips increased only slightly in the test city (66.96 percent – 64.20 percent = 2.76 percent), the percentage reporting tips in the control city fell almost 0.5 percent (60.31 percent – 60.79 percent = -0.48 percent[9] resulting in a significant difference. (Refer to Graph 1.)

Graph 1: Percentage of Taxpayers Reporting Tips—Entire Market



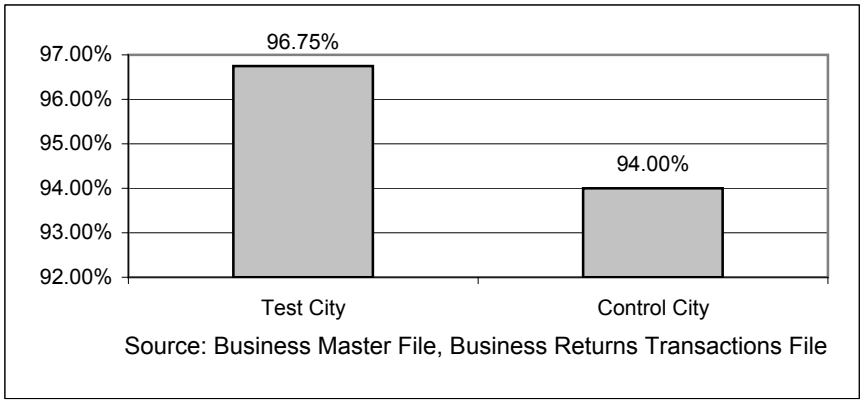
We also analyzed the behavior of individuals present both before and after the outreach: did the percentage of taxpayers reporting tips increase more, or decrease less, in the test city than in the control cities? Although the percentage reporting tips fell slightly in the test city (70.71 percent – 70.25 percent), the percentage reporting tips in the control city fell much more (67.19 percent – 64.76 percent)[10], resulting in a significant difference. (Refer to Graph 2, below.)

Graph 2 : Percentage of Taxpayers Reporting Tips—Individuals Present Before and After Outreach



We also analyzed the effect of the outreach on taxpayers who were compliant before the outreach and those who were not. Graph 3 shows the results. Among taxpayers present both before and after the outreach and reporting tips before, the percentage of taxpayers continuing to report tips after the outreach is significantly higher in the test city. That is, in the test city, of the 1539 taxpayers who were compliant before the outreach, only 3.25 percent became noncompliant. However, in the control city, of the 471 compliant taxpayers before the outreach, 6 percent became noncompliant.

Graph 3: Percentage of Taxpayers Reporting Tips Before the Outreach that Continued To Report Tips After (Panel)

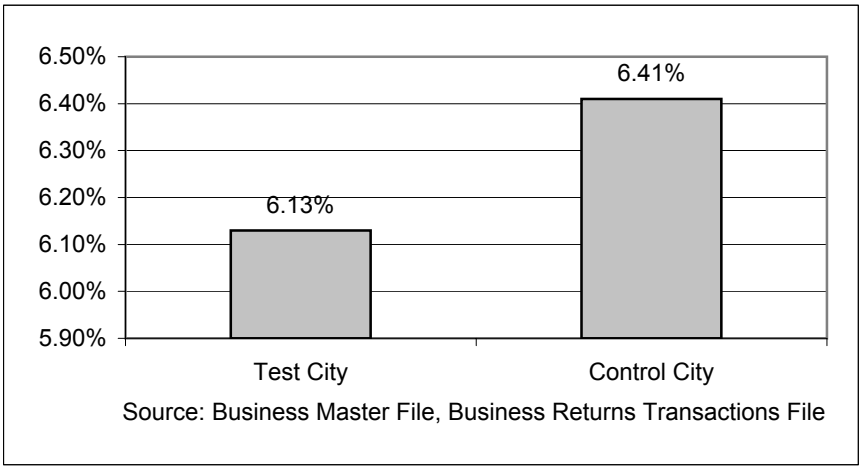


As shown in Graph 4, among taxpayers present both before and after the outreach and not reporting tips before, the percentage starting to report tips increased more in the control cities than in the test city (6.41 percent compared to 6.13 percent), the exact opposite of what was expected.

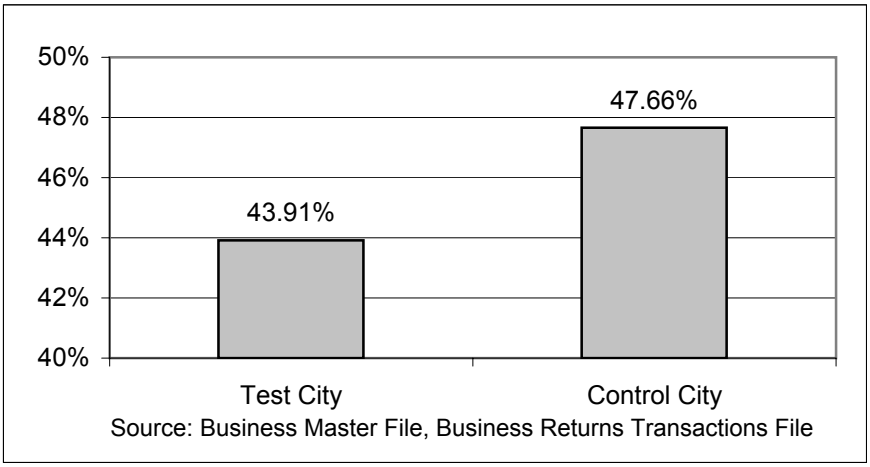
Finally, among taxpayers new to the market segment (i.e., present after the outreach but not before), we found 43.91 percent of the new taxpayers in the test city reported tips in 200306 compared to 47.99 percent of the new taxpayers in the control cities, again, the opposite of what was expected (Graph 5).

To summarize the results of the restaurant industry experiment, the tip reporting outreach appeared to have a significant positive effect on compliance, except among those taxpayers not reporting tips before and among taxpayers new to the market segment.

Graph 4: Percentage of Taxpayers Not Reporting Tips Before the Outreach that Started To Report Tips After (Panel)



Graph 5: Percentage of New Taxpayers Reporting Tips



Cost/Benefit Ratio

CLD expended 400.7 staff hours delivering this outreach[11]. We calculate the program's benefit as follows. Based on Table A-1, the tip reporting rate increased by 3.24 percent [(66.96 – 64.20) – (60.31 – 60.79)] because of CLD 's compliance effort. The market segment included 2,815 taxpayers. Thus, 3.24 percent of 2,815 (or 91) taxpayers began to report tips.

We do not know which taxpayers are reporting tips or how much they are reporting due to CLD's outreach programs. As our upper computed estimate, SB/SE taxpayers who reported tips reported an average of $28,276 in tips, and employers withheld an average of $3,510 per quarter (between tax periods 200309 and 200406). As a lower estimate, among taxpayers who reported taxes and were in the market segment for less than 1 year (that is, "new" taxpayers), $16,816 in tips were reported, and employers withheld and average of $2,085 in taxes per quarter.

Thus, somewhere between $758,940 ($2,085 times 91 taxpayers times 4 quarters) and $1,277,640 ($3,510 times 4 times 91) was withheld. Using the lower estimate, $758,940 / 400.7 = $1,894 per staff hour per year. That is, since the figures above show that, once in compliance, taxpayers tend to stay in compliance, the $1,894 occurs this year, next year, and so on for the life of the restaurant.

This estimate probably exaggerates the multiyear effect somewhat. No doubt, some taxpayers will fall back into their old ways after the outreach project is completed. The figures above do show a recidivism rate of between 1.63 percent (test city) and 5.1 percent (control city). Nevertheless, 95 percent will continue in compliance. If the average life span of a restaurant is 3 years, the overall benefit is $1,894 this year, 95 percent of $1,894 (or $1,799) next year, and 95 percent of that (or $1,709) the year after that or a total of $5,402 per hour.

Construction, Issuing Forms W2 and 1099 MISC and Filing Electronically

We tested for evidence of the effectiveness of the construction industry outreach using three measures: issuance of Form W2, issuance of Form 1099 MISC, and filing those forms electronically. We evaluated these measures in five ways:

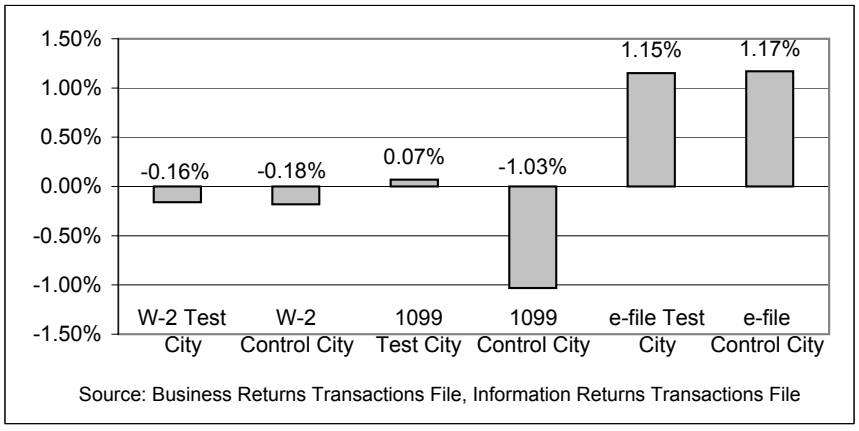
1. The percentage of the overall market that issued or filed,
2. The percentage in the panel that issued or filed,
3. Among those issuing or filing in 2002, the percentage that continued,

4. Among those not issuing or filing in 2002, the percentage that began, and
5. The percentage of new businesses issuing or filing.

We repeated the analysis for two definitions of the market segment: in construction with revenues and all taxpayers filing a business return. Presented below are the results for the market segment narrowly defined: i.e., business returns with positive gross revenues and a construction NAICS code. Appendix D contains details of the tests of hypotheses as well as similar tests for the broadly defined market segment: i.e., all business tax returns in the relevant geographic areas.[12]

We first tested for effectiveness at the aggregate level. For the market as a whole, did the percentage of taxpayers issuing Forms W2, issuing Forms 1099 MISC, or filing those forms electronically increase more in the test cities than in the control cities. Although in two of the three tests, the test cities did increase more than the control cities, as shown in Graph 6, the difference was slight and not statistically significant.

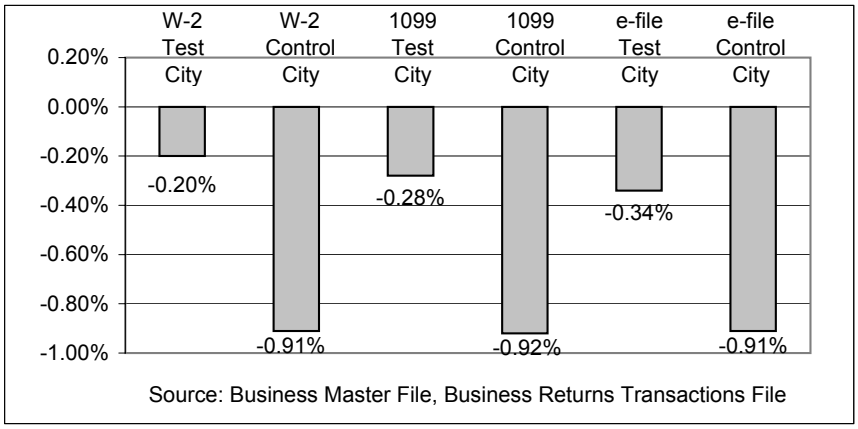
Graph 6: Change in Percentage Issuing Forms W2, 1099 MISC, or Filing Them Electronically (Entire Market Segment)



We also analyzed a panel of taxpayers present both before and after the outreach. Among those individuals, did the percentage of taxpayers issuing Forms W2, issuing Forms 1099 MISC, or filing those forms electronically increase more or decrease less in the test city than in the control cities?

As Graph 7 shows, the test cities decreased more than the control cities in three out of three tests, the opposite of what was expected.

Graph 7: Percentage Issuing Forms W2 or 1099 MISC and Filing Them Electronically (Panel)



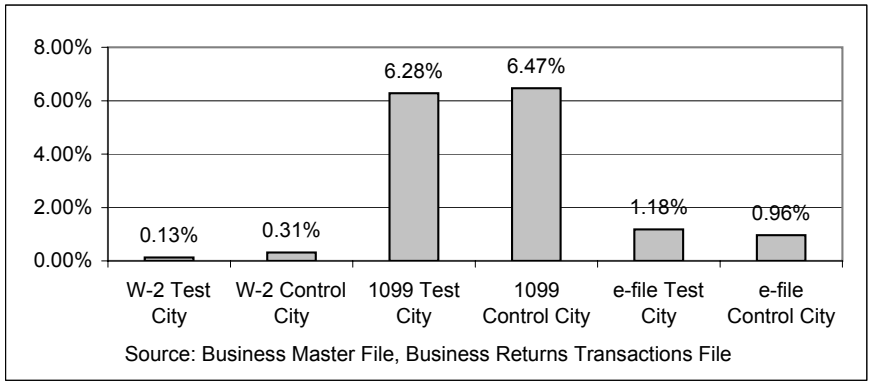
Third, we subdivided the panel (three times) according to whether they had issued Forms W2, 1099 MISC, and whether they had filed those forms electronically in 2002, and what was their behavior regarding those issues in 2004.

Thus, the question takes the form "among firms in the construction industry, having revenues, present both before and after the outreach, and not issuing Forms W2 in 2002, did a greater percentage begin to issue them in 2004 in the test cities than in the control cities?" Correspondingly, "among firms in the construction industry, having revenues, present both before and after the outreach, and issuing Forms W2 in 2002, did a greater percentage continue to issue them in 2004 in the test cities than in the control cities?"

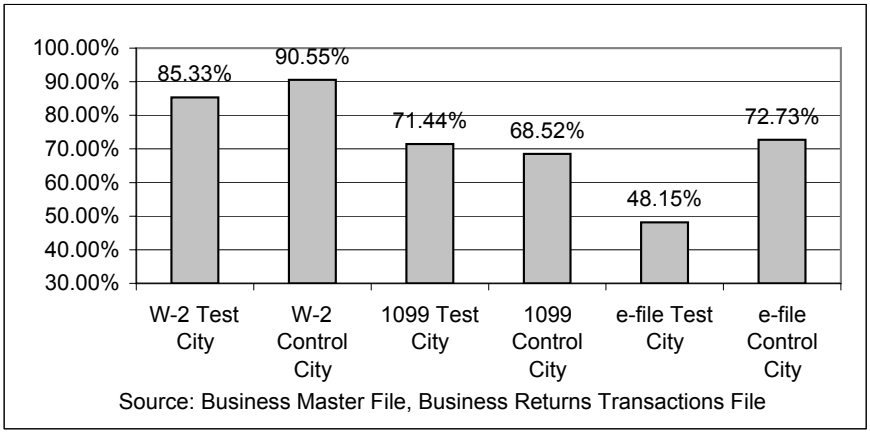
As in the earlier test, and as Graphs 8 and 9 below show, the answer is no. For no group of taxpayers, grouped this way, did the outreach appear to have an effect in 2004.[13]

Graph 8 shows the results for taxpayers not issuing the forms or not filing them electronically. Again, in only one case did the test city outperform the control city and the difference was not significant.

Graph 8: Percentage Beginning To Issue Forms or File Electronically Among Taxpayers Not Doing So in 2002 (Panel)



Graph 9: Percentage Continuing To Issue Forms or File Electronically Among Taxpayers Doing So in 2002 (Panel)

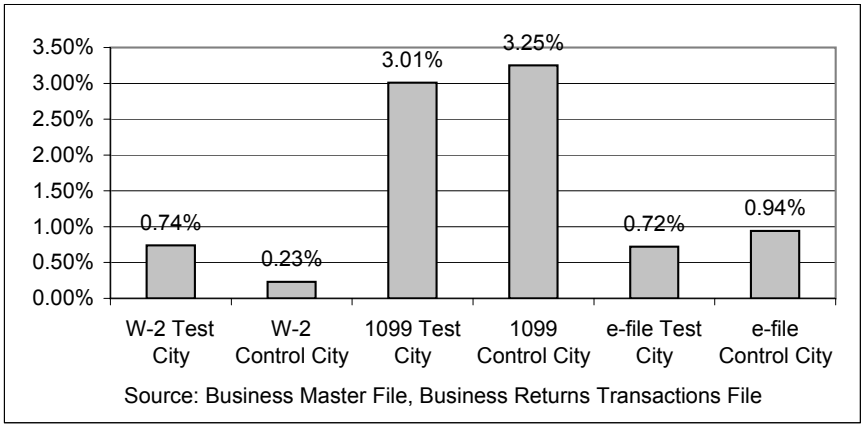


Graph 9, above, gives the results for taxpayers who did issue the forms or who did file them electronically in 2002 before the outreach. Only for Form 1099 MISC did the test city outperform the control city, and the difference was not significant

Finally, we looked at businesses new in 2004, i.e. which were not present in our database in 2002 or 2003. Again, we compared the percentage issuing Forms W2 and 1009 MISC and the percentage filing them electronically, in the test and control cities. Graph 10 shows the percentage of new businesses issuing the forms and filing electronically. Unfortunately, insufficient data

existed for testing the difference between the test and control cities in terms of W2 issuances and electronic filing. Only Forms 1099 MISC issuances could be properly analyzed, and the test cities failed to outperform the control cities.

Graph 10: Percentage of New Businesses Issuing Forms or Filing Electronically in 2004



As discussed above, we also conducted these same tests for the broadly defined market segment. The results are presented in Appendix D. For this broader definition of the market segment, the outreach appeared to have an effect in two tests (out of fifteen hypotheses evaluated).

Cost/Benefit Ratio

Given the lack of positive results, no cost/benefit analysis was performed for the construction industry experiment.

Conclusions

In the restaurant experiment, three of our five tests provided evidence of the effectiveness of targeted outreach. In the construction industry, the very opposite is the case. None of our tests provided evidence of the effectiveness of this type of outreach.

With results so diverse, we can reach no conclusions about the effectiveness of targeted outreach in general. However, since the experiments were (intentionally) so different, the results prove suggestive of several lines of future research.

1) Perhaps the issue matters. In the restaurant industry, the outreach related directly to the owners' self-interest, while, in construction, it did not.

2) Perhaps, the different mode of delivery is the key. In restaurants, the outreach was delivered one-on-one, while, in construction, it was delivered through industry association meetings and publications.

3) Perhaps, industries simply have different characteristics that make them more or less susceptible to outreach. For example, restaurants have permanent locations, while many construction contractors work out of the back of the pickup.[14]

Recommendations

We set out to determine if targeted outreach can have an impact on compliance. We have found that it appears to have an impact sometimes. Other times, it is ineffective. We recommend that CLD place an emphasis on measuring the results of its various targeted outreach efforts and partner with Research to develop a system to collect the data necessary to discover patterns of industries and/or issues that are conducive to outreach.

The benefit of such research would be the same as that which spurred this current project: determine for CLD whether focusing on targeted outreach is the best use of their limited resources.

Endnotes

[1] Sudds, Jenna (2001), *Impact of Education on Compliance*, Canada Customs and Revenue Agency. Governments have engaged in public service education campaigns for years.

[2] Robertson, L.S. et al. (1974), "A Controlled Study of the Effect of Television Messages on Safety Belt Use," *American Journal of Public Health*, 64, pp. 1071-1080.

[3] Witte, Ann D. and Woodbury, Diane F., "The Effect of Tax Laws and Tax Administration on Tax Compliance: The Case of the U.S. Individual Income Tax", *National Tax Journal*, Volume 38, March 1985, p. 9.

[4] See: *Measuring the Effect of TEC Outreach on Construction Contractors*, November 2003.

[5] Originally, the restaurant industry experiment was designed to have one test and one control city. Newark was added, after the fact, as Jacksonville turned out to be smaller than expected. Since Jacksonville was the control city, this was possible.

[6] This was done to measure any "spillover" from the construction industry receiving the outreach to the general population.

[7] $$T = \frac{Compliant_{(testcity)}}{Compliant_{(testcity)} + Noncompliant_{(testcity)}} and, C = \frac{Compliant_{(controlcity)}}{Compliant_{(controlcity)} + Noncompliant_{(controlcity)}}$$

[8] O'Sullivan and Rassel (1995), Research Methods for Public Administrators, Longman, White Plains, pp. 50-53.

[9] The data underlying the graphs presented in this section are included in Appendix A. The details of the test of hypotheses are presented in Appendix B.

[10] See Appendix A, Table A-2.

[11] Budny, Richard, *Time Analysis Report by Activity Type*, February 18, 2005.

[12] The results for the "all business" definition of the market segment are slightly better than for businesses in construction with revenues. Nevertheless, as the tables in Appendix C show, in only two of the fifteen tests did the test city outperform the control city.

[13] In two of these six tests, the test cities did outperform the control cities, but, again, the difference was slight and not statistically significant.

[14] This research was not designed to test the effectiveness of one outreach program over another nor the effectiveness of one group of CLD personnel over another. No conclusions regarding these issues can be drawn from this research. These results are merely suggestive of directions for further study.

Appendix A: Restaurant Industry Data

Table A-1: Percentage of Taxpayers Reporting Tips—Entire Market

Tax Period	Test City		Control Cities	
	Count	Percent	Count	Percent
200109	2,817	66.81%	1,028	65.47%
200112	2,897	66.28%	1,061	64.56%
200203	2,994	66.30%	1,101	63.40%
200206	3,061	65.63%	1,126	63.85%
200209	3,332	64.77%	1,236	62.78%
200212	3,397	64.82%	1,274	62.01%
200303	3,471	63.53%	1,320	60.38%
200306	3,430	64.20%	1,321	60.79%
200309	3,397	64.20%	1,317	59.91%
200312	3,380	64.38%	1,313	59.94%
200403	3,233	65.73%	1,238	60.58%
200406	2,815	66.96%	1,038	60.31%

Source: Business Master File, Business Returns Transactions File

Table A-2: Percentage of Taxpayers Reporting Tips—Taxpayers Present Before and After Outreach

Tax Period	Test City (N=2175)	Control Cities (N=701)
200109	69.79%	67.05%
200112	70.25%	66.90%
200203	70.21%	66.76%
200206	70.16%	67.76%
200209	70.80%	67.33%
200212	70.85%	67.19%
200303	70.76%	66.62%
200306	70.71%	67.19%
200309	70.62%	66.90%
200312	70.48%	66.90%
200403	70.71%	65.34%
200406	70.25%	64.76%

Source: Business Master File, Business Returns Transactions File

Appendix B: Test of Restaurant Hypotheses

Table B-1: Change in Percent Reporting Tip Income (Entire Market Segment)

	Difference (FY2002 FY2004)	In the difference significant?
Control City	-0.48%	Yes
Test City	2.76%	p value = 3.27%

Source: Business Master File, Business Returns Transactions File

Table B-2: Change in Percent Reporting Tip Income (Panel)

	Difference (FY2002 FY2004)	In the difference significant?
Control City	-2.43%	Yes
Test City	-0.46%	p value = 2%

Source: Business Master File, Business Returns Transactions File

Table B-3: Were Taxable Tips Reported (Panel)

Were Tips Reported Before?		% Reporting Tips	Count	Is the difference Significant?
No	Test City	6.13%	636	No
	Control City	6.41%	234	p value > 50%
Yes	Test City	96.75%	1539	Yes
	Control City	94.00%	467	p value < 1%

Source: Business Master File, Business Returns Transactions File

Table B-4: Were Tips Reported Among New Taxpayers

	% Reporting Tips	Count	Is the difference Significant?
Test City	43.91%	271	No
Control City	47.66%	107	p value > 50%

Source: Business Master File, Business Returns Transactions File

Appendix C: Construction Industry Data

Table C-1: Percentage and count of businesses issuing Forms W2 (Entire Market Segment)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% issuing W2	1.07%	1.05%	0.89%	3.37%	3.52%	3.44%	3.21%	3.35%	2.97%
Control	count	22,784	23,655	19,157	29,058	30,106	23,780	304,556	315,002	257,883
	% issuing W2	0.60%	0.54%	0.44%	1.96%	2.01%	1.78%	2.54%	2.66%	2.21%
Test	count	25,695	26,908	22,709	31,087	32,439	26,745	325,992	334,798	275,896

Source: Business Returns Transaction File, Information Returns Transaction File

Table C-2: Percentage and count of businesses issuing Forms 1099 (Entire Market Segment)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% filing electronically	12.47%	12.34%	11.44%	17.34%	17.30%	16.55%	7.79%	7.87%	6.83%
Control	count	22,784	23,655	19,157	29,058	30,106	23,780	304,556	315,002	257,883
	% issuing 1099	10.87%	10.94%	10.94%	15.29%	15.31%	15.01%	8.07%	8.12%	7.28%
Test	count	25,695	26,908	22,709	31,087	32,439	26,745	325,992	334,798	275,896

Source: Business Returns Transaction File, Information Returns Transaction File

Table C-3: Percentage and count of businesses filing Forms W2 and/or 1099 electronically (Entire Market Segment)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% filing electronically	1.23%	1.57%	2.40%	2.28%	2.76%	2.96%	2.97%	3.32%	3.77%
Control	count	22	29	45	78	97	105	511	597	691
	% filing electronically	1.43%	1.77%	2.58%	1.30%	1.56%	2.26%	1.78%	2.30%	2.83%
Test	count	27	36	55	43	54	80	327	442	549

Source: Business Returns Transaction File, Information Returns Transaction File

Table C-4: Percentage and count of businesses issuing Forms W2 (Panel)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% issuing W2	1.30%	15.75%	0.39%	4.48%	21.40%	0.70%	4.14%	9.61%	0.45%
Control	count	150	1,819	45	675	3,226	105	6,382	14,826	691
	% issuing W2	0.58%	14.81%	0.39%	2.18%	19.64%	0.46%	2.90%	9.91%	0.32%
Test	count	83	2,108	55	375	3,382	80	4,989	17,067	549

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-5: Percentage and count of businesses issuing Forms 1099 (Panel)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% issuing 1099	1.17%	15.56%	0.25%	4.16%	21.44%	0.64%	3.88%	9.58%	0.39%
Control	count	135	1,797	29	627	3,233	97	5,981	14,775	597
	% issuing 1099	0.53%	14.07%	0.25%	2.02%	19.11%	0.31%	2.78%	9.83%	0.26%
Test	count	76	2,002	36	348	3,290	54	4,791	16,940	442

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-6: Percentage and count of businesses filing Forms W2 and/or 1099 electronically (Panel)

		All construction with revenues			All construction			All business returns		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
	% filing electronically	1.10%	14.96%	0.19%	3.93%	20.82%	0.52%	9.57%	9.71%	8.51%
Control	count	127	1,728	22	592	3,139	78	5,542	14,137	511
	% filing electronically	0.53%	13.09%	0.19%	1.97%	18.29%	0.25%	2.58%	9.45%	0.19%
Test	count	75	1,863	27	340	3,150	121	4,436	16,285	327

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-7: Issued Form W2 in 2004? (Panel)

Issued Form 1099 in 2002?		Construction w/ Revenues		All construction		All business returns	
		%	count	%	count	%	count
	No	0.31%	35	1.20%	174	1.01%	1,508
Control	Yes	90.55%	115	84.63%	501	87.95%	4,874
	No	0.13%	19	0.56%	95	0.67%	1,117
Test	Yes	85.33%	64	82.35%	280	87.29%	3,872

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-8: Issued Form 1099 in 2004? (Panel)

Issued W2 in 2002?		Construction w/ Revenues		All construction		All business returns	
		%	count	%	count	%	count
	No	0.31%	635	8.00%	955	3.29%	4,608
Control	Yes	90.55%	1,184	72.35%	2,271	72.28%	10,218
	No	0.13%	777	7.37%	1,037	3.26%	5,085
Test	Yes	85.33%	1,331	74.44%	2,345	73.58%	11,982

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-9: Filed Forms W2 or 1099 electronically 2004? (Panel)

Filed electronically in 2002?		Construction w/ Revenues		All Construction		All business returns	
		%	count	%	count	%	count
	No	0.96%	17	1.17%	39	1.55%	258
Control	Yes	72.72%	16	56.41%	44	55.38%	283
	No	1.18%	22	1.07%	35	1.21%	219
Test	Yes	48.14%	13	51.16%	22	59.33%	194

Source: Business Returns Transactions File, Information Returns Transactions File

Table C-10: Businesses New in 2004

		In Construction with Revenues		In Construction		All Businesses	
		%	Count	%	Count	%	Count
% Issuing Forms W2 in 2004	Control	d	d	1.40%	68	0.85%	498
	Test	d	d	0.67%	35	0.77%	444
% Issuing Forms 1099 in 2004	Control	3.23%	139	5.70%	276	1.85%	1,075
	Test	3.00%	141	4.70%	245	2.05%	1,180
% Of Issuers Filing Electronically	Control	d	d	0.27%	13	0.09%	50
	Test	d	d	d	d	0.08%	46

d- not shown to avoid disclosure of information about individual taxpayers.

Source: Business Returns Transactions File, Information Returns Transactions File

Appendix D: Tests of Construction Hypotheses

Table D-1: Percent Issuing Forms W2 (Entire Market Segment)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	-0.24%	No
	Test cities	-0.33%	p value > 50%
Firms in Construction with Revenues	Control cities	-0.18%	No
	Test cities	-0.16%	p value = 40.13%

Source: Business Returns Transaction File, Information Returns Transaction File

Table D-2: Percent Issuing Forms 1099-Misc (Entire Market Segment)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	-0.96%	No
	Test cities	-0.79%	P value < 1%
Firms in Construction with Revenues	Control cities	-1.03%	No
	Test cities	0.07%	p value = 12.10%

Source: Business Returns Transaction File, Information Returns Transaction File

Table D-3: Percent Filing Forms W2 and/or 1099 Electronically (Entire Market Segment)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	0.80%	No
	Test cities	1.05%	p value = 44.4%
Firms in Construction with Revenues	Control cities	1.17%	No
	Test cities	1.15%	p value > . 50%

Source: Business Returns Transaction File, Information Returns Transaction File

Table D-4: Percent Issuing Forms W2 (Panel)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	-3.69%	No
	Test cities	-2.58%	p value = 48.0%
Firms in Construction with Revenues	Control cities	-0.91%	No
	Test cities	-0.20%	p value = 48.8%

Source: Business Returns Transactions File, Information Returns Transactions File

Table D-5 Percent Issuing Forms 1099-Misc (Panel)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	-3.49%	No
	Test cities	-2.52%	p value = 48.8%
Firms in Construction with Revenues	Control cities	-0.92%	No
	Test cities	-0.28%	p value = 47.6%

Source: Business Returns Transactions File, Information Returns Transactions File

Table D-6 Percent Filing Forms W2 and/or 1099 Electronically (Panel)

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
All business returns	Control cities	-1.05%	No
	Test cities	-2.39%	p value > 50%
Firms in Construction with Revenues	Control cities	-0.91%	No
	Test cities	-0.34%	p value = 49.2%

Source: Business Returns Transactions File, Information Returns Transactions File

Table D- 7: Percent Filing Forms W2 by Filing Behavior in FY2002 (Panel)

Did the Firm Issue Forms W2 in FY2002?		% Issuing Forms w2 in FY2004	Are the test cities significantly greater than the control cities?
All business return - No	Control cities Test cities	1.01% 0.67%	No p value > 50%
All business return - Yes	Control cities Test cities	87.95% 87.29%	No p value > 50%
Firms in Construction with Revenues - No	Control cities Test cities	0.31% 0.13%	No p value > 50%
Firms in Construction with Revenues - Yes	Control cities Test cities	90.55% 85.33%	No p value > 50%

Source: Business Returns Transactions File, Information Returns Transactions File

Table D-8: Percent Filing Forms 1099 in FY 2004 by Filing Behavior in FY2002 (Panel)

Did the Firm Issue Forms 1099-Misc in FY2002?		% Issuing Forms 1099 in FY2004	Are the test cities significantly greater than the control cities?
All business returns - No	Control cities Test cities	3.29% 3.26%	No
All business returns - Yes	Control cities Test cities	72.28% 73.58%	Yes p value = .0324
Firms in Construction with Revenues - No	Control cities Test cities	6.47% 6.28%	No
Firms in Construction with Revenues - Yes	Control cities Test cities	68.52% 71.44%	No

Source: Business Returns Transactions File, Information Returns Transactions File

Table D-9: Percent Filing Forms W2 or 1099 Electronically by Filing Behavior in FY2002 (Panel)

Did the Firm File Electronically in FY2002?		% Filing Electronically in FY2004	Are the test cities significantly greater than the control cities?
All business return - No	Control cities	1.55%	No
	Test cities	1.21%	p value > 50%
All business return - Yes	Control cities	55.38%	No
	Test cities	59.33%	p value = 26.2%
Firms in Construction with Revenues - No	Control cities	0.96%	No
	Test cities	1.18%	p value = 49.4%
Firms in Construction with Revenues - Yes	Control cities	72.73%	No
	Test cities	48.15%	p value > 50%

Source: Business Returns Transactions File, Information Returns Transactions File

Table D-10: New Taxpayers in the Construction Experiment

		Difference (FY2004 - FY 2002)	Is the test city difference significantly greater than the control city difference?
Percent of New Businesses Issuing Forms W2			
All business returns	Control cities	0.86%	No
	Test cities	0.77%	p value > 50%
Firms in Construction with Revenues	Control cities		
	Test cities	Numbers too small for analysis	
Percent of New Businesses Issuing Forms 1099 - MISC			
All business returns	Control cities	1.85%	Yes
	Test cities	2.05%	(p value< .01)
Firms in Construction with Revenues	Control cities	3.23%	No
	Test cities	3.00%	p value > . 50%
% of New Businesses Issuing Forms W2 or 1099_MISC that filed them electronically			
All business returns	Control cities	0.09%	No
	Test cities	0.08%	p value > 50%
Firms in Construction with Revenues	Control cities		
	Test cities	Numbers too small for analysis	

Source: Business Returns Transactions File, Information Returns Transactions File