THE Power OF Survey Design

A User's Guide for Managing Surveys, Interpreting Results, and Influencing Respondents

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THE WORLD BANK

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Table of Contents

Figures

Tables

Abbreviations and Acronyms

ACS	Association for Survey Computing
BEEPS II	Business Environment and Enterprise Performance Survey II
BOSS	brief, objective, simple, and specific
DCF	discounted cash flow
DK	don't know
HQ	headquarters
IC	Productivity and Investment Climate Surveys
ID	identifier
LCU	local currency
LSMS	Living Standards and Measurement Study
NA	not applicable
NP	not provided
NPV	net present value
PPS	probability proportional to size
REF	refuse to answer
ROE	return on equity
SAS	Statistical Analysis System
SRS	simple random sampling
TOR	terms of reference
UNDP	United Nations Development Programme

Chapter 1

Taking A Closer Look at Survey Implementation

When I was a student in graduate school, I was often intrigued by the ambiguity of survey results. Whether it was politics, the economy, or even human behavior it was common to find contradicting results, sometimes from the same survey. Little has changed since then. A Latinobarometro poll in 2004 showed that while a clear majority (63 percent) in Latin America would never support a military government, 55 percent would not mind a nondemocratic government if it solved economic problems (see table 1.1).

Years have passed since I was finally able to solve this puzzle. If we were to conduct a survey today and ask, "Are you in favor of financial incentives for poor countries?" very likely many respondents would be inclined to answer yes. Yet the result of this poll would be different if the question were "Are you in favor of subsidies for poor countries?" Experiments have proven that a single word, *incentives* or *subsidies,* can sway the outcome of a poll.

The way a question is worded can often lead the respondent toward one answer or another. And this effect can be significant, in the order of up to 30 percent change in attitude. Hence, the cause of survey inconsistencies does not rest, as I originally thought, on the respondents, but rather on the question designer. Respondents are not irrational. Questionnaire designers, on the contrary, are often either skillful enough (or inexperienced enough) to exploit or to understand, respectively, the many "tricks" of the survey business. I tried one of these tricks myself while teaching a class on survey methodology at the Johns Hopkins University. On the first day of class, I randomly split the students into two groups and asked each member of the groups to answer the same question, worded differently (see table 1.2). My covert intention was to lead students of the first group toward answer A and students of the second group toward answer B. From this simple experiment, I learned how easy it is to influence respondents.

Table 1.1
Attitudes and Ambiguities toward Democracy in Latin America (Percent of Respondents)

	Under No Circumstances Would Support a Military Government	Wouldn't Mind a Nondemocratic Government If It Solved Economic Problems
Costa Rica	89	42
Panama	77	56
Dominican Republic	74	62
Uruguay	72	33
Venezuela, R.B. de	71	48
Nicaragua	70	70
Ecuador	69	49
Bolivia	67	49
Argentina	64	46
Chile	64	45
Mexico	60	67
Colombia	58	64
Brazil	56	54
Guatemala	54	57
El Salvador	48	56
Honduras	47	70
Peru	47	64
Paraguay	41	75
Latin America	**63**	**55**

Source: The Economist 2004.

Response artifacts are not limited to question wording. The international comparison of survey results is today a common occurrence. When this comparison happens, however, it is important to consider the way the survey is implemented in each country and how this might affect each country's survey results. For example, we are all aware that underreporting occurs when questions on corruption or taxes are asked by a government official. Therefore, if we wish to obtain a meaningful international comparison of these phenomena, we must investigate and control any such survey fixed effect. Survey results are often used, com-

Table 1.2
Same Question (Leading to) Different Answers

Group 1	Group 2
With which of the following statements do you agree most?	
a. Democracy is the best form of government preferable to any other kind of government b. An authoritarian government is preferable to a democratically elected government	a. Democracy is the only system of government in any circumstance b. In some limited circumstances and for a short period of time, a nondemocratic government could be temporarily installed if it solves deep economic and/or political crises.

Source: Author.

bined, and presented without due attention to the methodology employed in the data collection. People do not pay attention to *who* is asking the question or *how* the question is asked and hence they combine different answers. Unless these fixed effects are properly identified and corrected, survey results might be misleading. Contrary to what Transparency International reports, for example, El Salvador appears to be more corrupt than China if we simply combine data from the Investment Climate Surveys in these two countries. Once we account for the underreporting, because the survey in China was conducted by government officials, the adjusted ranking of El Salvador and China corresponds to that of Transparency International.[1]

And this is the goal of this book: to show the host of survey fixed effects that play a subtle but critical role on survey results. This work is presented in manuscript form and is directed to two audiences: those who *use* survey data (the majority) and those who *produce* survey data. The former group should read the chapter on questionnaire design (chapter 3) and the last section of the chapter on sampling (chapter 4). Too often survey results are loosely presented as representative of the broad population, while the subset of the population they really represent is not

[1] See http://www.transparency.org/cpi/2004/cpi2004.en.html, retrieved on June 13, 2005.

clearly identified and the levels of precision and confidence are not always disclosed.

For those directly involved in the production of survey data, this work is a unique and concise source of information on all the steps of survey implementation from planning to data cleaning. Although written with an eye on business surveys, and in particular the Investment Climate Surveys conducted by the World Bank and other international financial institutions, anyone who manages surveys will find this book extremely useful.

Chapter 2 on survey management provides an overview of the main organizational hurdles that must be addressed when planning a survey. The chapter on training (chapter 5) includes an interesting discussion on one of the most difficult tasks for the interviewer, convincing the respondent to participate in the survey. It highlights the psychological factors contributing to the decision to participate. Finally, the chapter on data cleaning (chapter 6) is, to my knowledge, the first attempt to present, in a systematic way, a methodology aimed at improving data accuracy after the field work has been completed.

Whether we like it or not surveys are part of our life. Even the inhabitants of the most remote village are affected by surveys as long as they care about inflation because price changes are monitored through surveys. After reading the chapter on questionnaire design, you will be able to detect how skillful question designers can lure respondents toward one answer and you will be more cautious in pooling results from different surveys. Additionally, you will acquire a critical eye in interpreting results from polls reported in the media.

Box 1.1

One Poll, Multiple Interpretations

On January 19, 2005, BBC News published the results of a world poll following the U.S. elections. The highlight of the poll was that "More than half of people surveyed in a BBC World Service poll say the reelection of U.S. President George W. Bush has made the world more dangerous." According to the results of this poll, "only 3 countries out of 21 polled believed the world was now safer" (see box table 1.1.1).

Box Table 1.1.1

BBC World Poll Results

Question: As you may know, George Bush has been reelected as president of the United States. Do you think this is positive or negative for peace and security in the world? (percent respondents)

Country	Positive	Negative	No Effect Either Way	Don't Know/NA
Argentina	8	79	4	9
Australia	31	61	5	3
Brazil	17	78	3	2
Canada	26	67	2	5
Chile	19	62	6	13
China	27	56	5	12
France	13	75	4	7
Germany	14	77	8	2
Great Britain	29	64	4	4
India	62	27	2	8
Indonesia	21	68	5	6
Italy	34	54	3	9
Japan	15	39	31	15
Korea, Rep. of	36	54	7	3
Lebanon	23	64	9	4
Mexico	4	58	28	10
Philippines	63	30	2	5
Poland	44	27	7	23
Russian Federation	16	39	32	13
South Africa	35	57	3	5
Turkey	6	82	6	7
United States	56	39	1	4
Total	27	57		

(*continued*)

Box 1.1 (continued)

Are these results really true? Two basic questions should be asked: Do these countries represent the world community? Do the people interviewed represent the world population?

To determine whether this sample is representative of the world, the sample of countries should have been random. Nowhere in the article, or in the methodology, does it appear as though the sample of 21 countries was randomly chosen from among the world's 191 countries.

Even assuming that the selection was random, we next need to ask ourselves the following question: What level of confidence have we obtained from these results? A sample of 21 elements in a population of 191 gives a level of precision of +/–20 percent (at 95 percent confidence). This implies that the true share of respondents with negative attitude could be anywhere between 37 percent and 77 percent. Similarly, the true share with positive attitude could be anywhere between 7 percent and 47 percent. Because the two confidence intervals overlap, we cannot conclude that the observed difference in attitude is statistically significant.

Although the poll is not representative of the countries in the word, it can be argued that it is representative of the world population. If we follow this argument, however, we need to weight each country by its share of the world population. It would not be correct to give China, with a population of 1.2 billion inhabitants, the same weight as Lebanon, with 5 million inhabitants. By weighting the results of the poll, we can see that the difference between negative and positive perceptions persists, even if at a lower level, with 49 percent of respondents having a negative attitude versus 36 percent having a positive attitude.

There is, however, another interesting survey fixed effect to keep in mind. From the methodology, it appears that, in some countries, the survey has been conducted by phone while in others it was conducted through a face-to-face interview. To the extent that the question asked is considered sensitive by the respondents, the mode of interview can influence answers. In particular, we would expect that the nonresponse rate in the face-to-face interviews would be higher than in the phone survey. If we look at the data from the BBC poll, this is exactly what happened. In the face-to-face surveys, the share of nonresponse is double (20%) that of the phone survey. Such a high nonresponse rate might have an impact on the results of the survey itself, unless it is assumed that the distribution of nonresponses in each mode is the same (but this is a strong assumption given the sensitivity of the question). Hence, if we look at the survey results by mode of interview, we can see that, if the survey is conducted by face-to-face interview, then the difference between positive and negative attitude vanishes. Hence, it appears that the results of the survey are dependent on the mode of interview (see box table 1.1.2 and box figure 1.1.1). Not a conclusive result for a world opinion poll.

Box 1.1 (continued)

Box Table 1.1.2

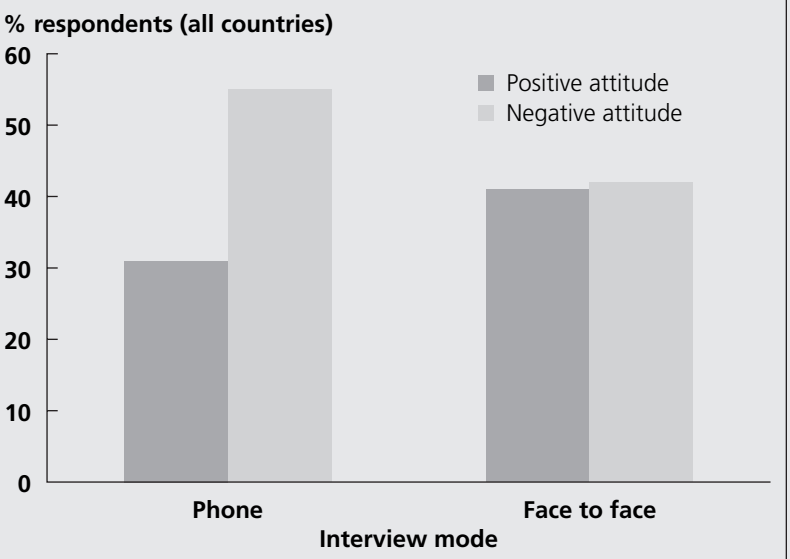
BBC Polls by Mode of Interview and Weighted Results

Country	Positive	Negative	No Effect	DK/ NA	Population (thousands)	Weight	Positive Weighted	Negative Weighted
				Face to Face				
Argentina	8	79	4	9	38,377	0.018	0.14	1.43
Brazil	17	78	3	2	176,596	0.083	1.41	6.48
Chile	19	62	6	13	15,774	0.007	0.14	0.46
India	62	27	2	8	1,064,399	0.501	31.05	13.52
Indonesia	21	68	5	6	214,471	0.101	2.12	6.86
Japan	15	39	31	15	127,210	0.060	0.90	2.33
Korea, Rep. of	36	54	7	3	47,912	0.023	0.81	1.22
Lebanon	23	64	9	4	4,498	0.002	0.05	0.14
Mexico	4	58	28	10	102,291	0.048	0.19	2.79
Philippines	63	30	2	5	81,503	0.038	2.42	1.15
Poland	44	27	7	23	38,195	0.018	0.79	0.49
Russian Federation	16	39	32	13	143,425	0.067	1.08	2.63
Turkey	6	82	6	7	70,712	0.033	0.20	2.73
Total face to face	26	54	11	9			41	42
				Phone				
Australia	31	61	5	3	19,890	0.010	0.32	0.63
Canada	26	67	2	5	31,630	0.016	0.42	1.09
China	27	56	5	12	1,288,400	0.666	17.97	37.28
France	13	75	4	7	59,725	0.031	0.40	2.31
Germany	14	77	8	2	82,551	0.043	0.60	3.28
Great Britain	29	64	4	4	59,280	0.031	0.89	1.96
Italy	34	54	3	9	57,646	0.030	1.01	1.61
South Africa	35	57	3	5	45,294	0.023	0.82	1.33
United States	56	39	1	4	291,044	0.150	8.42	5.86
Total phone	29	61	4	6			31	55

Source: Author's calculations.

Box 1.1 (continued)

Box Figure 1.1.1.
Poll Results by Survey Mode



Results are weighted by population.
Source: Author's calculations.

Source: BBC World Poll data were retrieved on January 25, 2005, from http://news.bbc.co.uk/1/hi/world/americas/4185205.stm#.