The Bangladesh 2013 Enterprise Surveys Data Set

I. Introduction

1.   This document provides additional information on the data collected in Bangladesh between April 2013 and September 2013. The objective of the Enterprise Survey is to gain an understanding of what firms experience in the private sector.

The Enterprise Surveys, through interviews with firms in the manufacturing and service sectors, capture data covering measures of firm performance, firm structure as well as business perceptions on the biggest obstacles to enterprise growth, and the business environment in general. They are used to create statistically important business environment indicators that are comparable across countries.

The report outlines and describes the sampling design of the data, the data set structure as well as additional information that may be useful when using the data, such as information on non-response cases and the appropriate use of the weights.

II. Sampling Structure

2.   The sample for Bangladesh was selected using stratified random sampling, following the methodology explained in the *Sampling Manual*[1]. Stratified random sampling[2] was preferred over simple random sampling for several reasons[3]:

a. To obtain unbiased estimates for different subdivisions of the population with some known level of precision.

b. To obtain unbiased estimates for the whole population. The whole population, or universe of the study, is the non-agricultural economy. It comprises: all manufacturing sectors according to the group classification of ISIC Revision 3.1: (group D), construction sector (group F), services sector (groups G and H), and transport, storage, and communications sector (group I). Note that this definition excludes the following sectors: financial intermediation (group J), real estate and renting activities (group K, except sub-sector 72, IT, which was added to the population), and all public or utilities-sectors.

c. To ensure that the final total sample includes establishments from all different sectors and that it is not concentrated in one or two of industries/sizes/regions.

d. To exploit the benefits of stratified sampling where population estimates, in most cases, will be more precise than using a simple random sampling method (i.e., lower standard errors, other things being equal.)

e. Stratification may produce a smaller bound on the error of estimation than would be produced by a simple random sample of the same size. This result is particularly true if measurements within strata are homogeneous.

f. The cost per observation in the survey may be reduced by stratification of the population elements into convenient groupings.

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[1] The complete text can be found at http://www.enterprisesurveys.org/Methodology
[2] A stratified random sample is one obtained by separating the population elements into non-overlapping groups, called strata, and then selecting a simple random sample from each stratum. (Richard L. Scheaffer; Mendenhall, W.; Lyman, R., "Elementary Survey Sampling", Fifth Edition).
[3] Cochran, W., 1977, pp. 89; Lohr, Sharon, 1999, pp. 95

3.   Three levels of stratification were used in this country: industry, establishment size, and region. The original sample design with specific information of the industries and regions chosen is described in Appendix E.

4.   Industry stratification was designed in the way that follows: the universe was stratified into 7 manufacturing industries (food, apparel, leather, chemicals, transport, furniture, and other manufacturing), and 2 service industries (retail and other services)

5.   Size stratification was defined following the standardized definition for the rollout: small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). For stratification purposes, the number of employees was defined on the basis of reported permanent full-time workers. This seems to be an appropriate definition of the labor force since seasonal/casual/part-time employment is not common practice, apart from the construction and agriculture sectors which are not included in the survey.

6.   Regional stratification was defined in 4 regions (Dhaka, Chittagong, Khulna-Jessore, and Rajshahi-Bogra) which include both city and the surrounding business area) throughout Bangladesh.

III. Sampling implementation

7.   Given the stratified design, a sample frame containing a complete and updated list of establishments as well as information on all stratification variables (number of employees, industry, and region) is required to draw the sample. Great efforts were made to obtain the best source for these listings. The quality of the sample frame was not optimal due to its being slightly out of date; therefore, some adjustments were needed to correct for the presence of ineligible units. These adjustments are reflected in the weights computation (see below)

8.   Nielsen Company Bangladesh Limited was hired to implement the Bangladesh 2013 Enterprise Survey. 38 enumerators were involved in the enterprise survey and 12 enumerators were involved in the panel survey.

9.   The sample frame used for the survey in Bangladesh was from the Bangladesh Bureau of Statistics, Business Register 2009 database. The database contained the following information
   - Business name;
   - Business address;
   - Division, Zila, and Upazila codes;
   - Business sector classification code;
   - Total numbers of male and female employees;
   - Ownership;
   - Inception.

Counts from sample frame are shown below.

Sample Frame

Source: Bangladesh Bureau of Statistics, Business Register 2009

http://www.bbs.gov.bd/PageWebMenuContent.aspx?MenuKey=105

Region	Employee Size	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf.	Retail	Other Services	Grand Total
Dhaka	Small 5-19	462	1239	326	91	76	723	2454	439	2431	8241
	Med 20-99	235	985	194	175	41	408	2288	109	1030	5465
	Large 100+	52	1896	54	58	11	86	1093	10	110	3370
		749	4120	574	324	128	1217	5835	558	3571	17076
Chittagong	Small 5-19	163	27	24	71	18	66	201	88	731	1389
	Med 20-99	139	69	16	120	16	92	331	15	295	1093
	Large 100+	41	474	14	16	2	25	200	1	27	800
		343	570	54	207	36	183	732	104	1053	3282
Khulna-Jessore	Small 5-19	35		1	13	1	10	49	21	67	197
	Med 20-99	42			14	1	7	35	8	51	158
	Large 100+	27		1	3		2	12		6	51
		104		2	30	2	19	96	29	124	406
Rajshahi-Bogra	Small 5-19	48	6	7	9	3	27	87	15	128	330
	Med 20-99	32	10		14	1	19	50	2	51	179
	Large 100+	1			7	1	1	12		1	23
		81	16	7	30	5	47	149	17	180	532
Grand Total		1277	4706	637	591	171	1466	6812	708	4928	21296

10.   The Business Register 2009 from BBS was used as the frame for the selection of a sample with the aim of achieving 1320 interviews with establishments of five or more employees. This target of 1320 interviews was for fresh firms, i.e. firms that were not interviewed in the previous Enterprise survey

11.   The quality of the frame was assessed at the onset of the project through visits to a random subset of firms and local contractor knowledge. The sample frame was not immune from the typical problems found in establishment surveys: positive rates of non-eligibility, repetition, non-existent units, etc.

12.   Given the impact that non-eligible units included in the sample universe may have on the results, adjustments may be needed when computing the appropriate weights for individual observations. The percentage of confirmed non-eligible units as a proportion of the total number of sampled establishments contacted for the survey was 1.72% (70

out of 4072 establishments)[4]. Breaking down by stratified industries, the following sample targets were achieved (using a4a and a6a):

Realized Sample – Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	3	1	1	1	0	0	6	0	0	12
	20-99	2	2	3	4	0	0	5	1	0	17
	100+	3	39	3	5	0	0	12	0	0	62
	Total	8	42	7	10	0	0	23	1	0	91
Chittagong	5-19	2	0	0	0	1	0	0	0	0	3
	20-99	1	1	0	1	0	0	1	1	0	5
	100+	2	15	0	0	0	0	6	0	0	23
	Total	5	16	0	1	1	0	7	1	0	31
Grand Total		13	58	7	11	1	0	30	2	0	122

Realized Sample – Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	19	24	24	3	17	58	104	48	91	388
	20-99	15	12	38	19	7	47	87	23	1	249
	100+	11	86	23	14	1	17	5	5	4	166
	Total	45	122	85	36	25	122	196	76	96	803
Chittagong	5-19	11	3	3	18		11	30	14	5	95
	20-99	35	10	2	27	4	14	31	6	4	133
	100+	11	10	5	5		6	23		6	66
	Total	57	23	10	50	4	31	84	20	15	294
Khulna-	5-19	5			1	1	1	19	5	7	39
	20-99	12			2		3	17	4	9	47
	100+	15			3			4		2	24
	Total	32	0	0	6	1	4	40	9	18	110
Rajshahi-	5-19	5		4	3	3	7	17	9	6	54
	20-99	9	3		9		6	11	1	7	46
	100+	1			4	1	1	6			13
	Total	15	3	4	16	4	14	34	10	13	113
Grand Total		149	148	99	108	34	171	354	115	142	1320

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4 Based on out of target contacts and impossible to contact establishments

IV. Data Base Structure:

13.   The structure of the data base reflects the fact that 2 different versions of the questionnaire were used for 3 categories of businesses (manufacturing, retail, and other services/non-retail). The Manufacturing Questionnaire includes all common questions asked to all establishments and some specific questions relevant to manufacturing firms. The Services Questionnaire, administered to retail and other services/non-retail establishments, includes all common questions asked to all establishments and some specific questions relevant retail and other services firms. Each variation of the questionnaire is identified by the index variable, *a0*.

14.   All variables are named using, first, the letter of each section and, second, the number of the variable within the section, i.e. *a1* denotes section *A*, question *1*. Variable names proceeded by a prefix *"SAR"* or *"BG"* indicate questions specific to the South Asia region or Bangladesh only, therefore, they may not be found in the implementation of the rollout in other countries. All other suffixed variables are global and are present in all country surveys over the world. All variables are numeric with the exception of those variables with an "x" at the end of their names. The suffix "x" denotes that the variable is alpha-numeric.

15.   There are 2 establishment identifiers, *idstd* and *id*. The first is a global unique identifier. The second is a country unique identifier. The variables *a2* (sampling region), *a6a* (sampling establishment's size), and *a4a* (sampling sector) contain the establishment's classification into the strata chosen for each country using information from the sample frame. The strata were defined according to the guidelines described above.

16.   There are three levels of stratification: industry, size and region. Different combinations of these variables generate the strata cells for each industry/region/size combination. A distinction should be made between the variable a4a and d1a2 (industry expressed as ISIC rev. 3.1 code). The former gives the establishment's classification into one of the chosen industry-strata, whereas the latter gives the actual establishment's industry classification (four digit code) in the sample frame.

17.   All of the following variables contain information from the sampling frame. They may not coincide with the reality of individual establishments as sample frames may contain inaccurate information. The variables containing the sample frame information are included in the data set for researchers who may want to further investigate statistical features of the survey and the effect of the survey design on their results.
   -*a2* is the variable describing sampling regions
   -*a6a*: coded using the same standard for small, medium, and large establishments as defined above. The code *-9* was used to indicate units for which size was undetermined in the sample frame.
   -*a4a*: coded using ISIC Rev 3.1 codes for the chosen industries for stratification. These codes include most manufacturing industries (15 to 37), retail (52), and (45, 50, 51, 55, 60-64, 72) for other services.

18.   The surveys were implemented following a 2 stage procedure. Typically first a screener questionnaire is applied over the phone to determine eligibility and to make appointments. Then a face-to-face interview takes place with the Manager/Owner/Director of each establishment. The variables *a4b* and *a6b* contain the industry and size of the establishment from the screener questionnaire. Variables *a8* to *a11* contain additional information and were also collected in the screening phase.

19.   Note that there are additional variables for location (*a3x*) and size (*l1*, *l6* and *l8*) that reflect more accurately the reality of each establishment. Advanced users are advised to use these variables for analytical purposes.

20.   Variable *a3x* indicates the actual location of the establishment. There may be divergences between the location in the sampling frame and the actual location, as establishments may be listed in one place but the actual physical location is in another place.

21.   Variables *l1*, *l6* and *l8* were designed to obtain a more accurate measure of employment accounting for permanent and temporary employment. Special efforts were made to make sure that this information was not missing for most establishments.

22.   Variables *a17x* gives interviewer comments, including problems that occurred during an interview and extraordinary circumstances which could influence results. Please note that sometimes this variable is removed due to privacy issues.

V. Universe Estimates
23.   Universe estimates for the number of establishments in each cell in Bangladesh were produced for the strict, median and weak eligibility definitions. The estimates were the multiple of the relative eligible proportions.

24.   Appendix B shows the overall estimates of the numbers of establishments in Bangladesh based on the sample frame.

25.   For some establishments where contact was not successfully completed during the screening process (because the firm has moved and it is not possible to locate the new location, for example), it is not possible to directly determine eligibility. Thus, different assumptions about the eligibility of establishments result in different adjustments to the universe cells and thus different sampling weights.

26. Three sets of assumptions on establishment eligibility are used to construct sample adjustments using the status code information.

27. Strict assumption: eligible establishments are only those for which it was possible to directly determine eligibility. The resulting weights are included in the variable *wstrict*.

Strict eligibility = (Sum of the firms with codes 1,2,3,4,&16) / Total

28. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response. The resulting weights are included in the variable *wmedian*.

Median eligibility = (Sum of the firms with codes 1,2,3,4,16,10,11, & 13) / Total

29. Weak assumption: in addition to the establishments included in points a and b, all establishments for which it was not possible to contact or that refused the screening questionnaire are assumed eligible. This definition includes as eligible establishments with dead or out of service phone lines, establishments that never answered the phone, and establishments with incorrect addresses for which it was impossible to find a new address. Under the weak assumption only observed non-eligible units are excluded from universe projections. The resulting weights are included in the variable *wweak*.

Weak eligibility= (Sum of the firms with codes 1,2,3,4,16,91,92,93,10,11,12,&13) / Total

30. The indicators computed for the Enterprise Survey website use the median weights. The following graph shows the different eligibility rates calculated for firms in the sample frame under each set of assumptions.
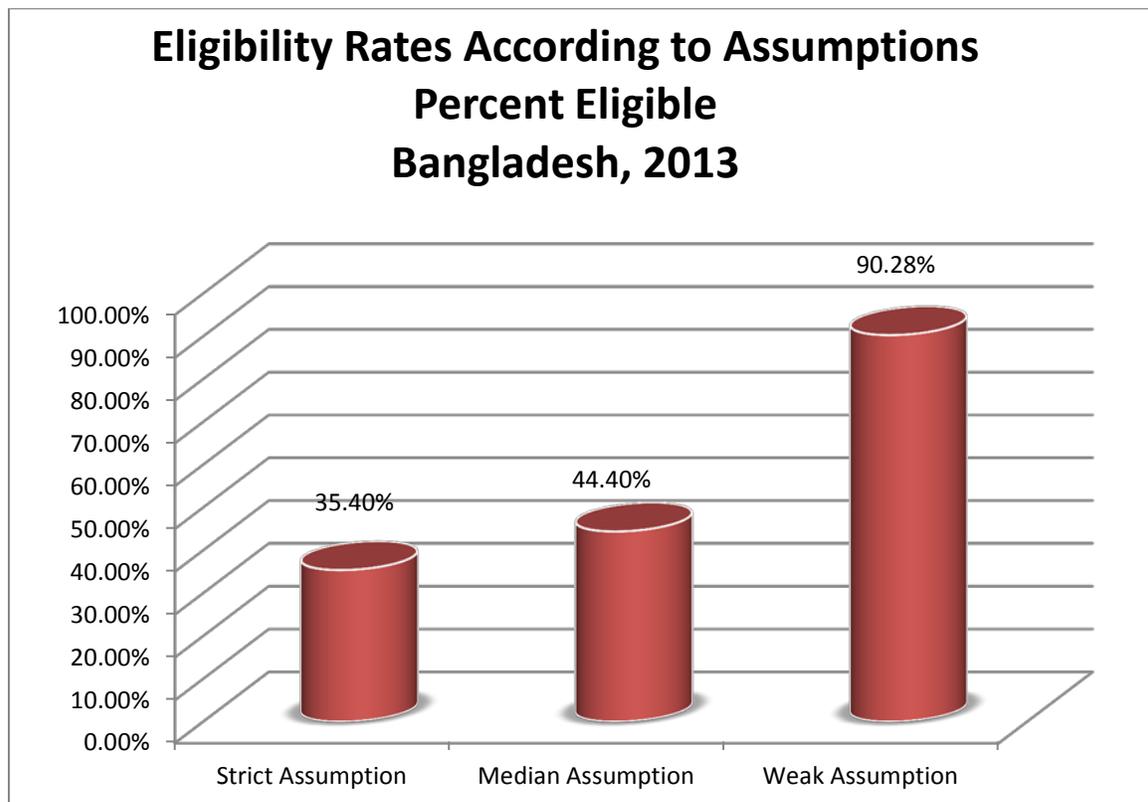
31. Universe estimates for the number of establishments in each industry-region-size cell in Bangladesh were produced for the strict, weak and median eligibility definitions. Appendix D shows the universe estimates of the numbers of registered establishments that fit the criteria of the Enterprise Surveys.

32. Once an accurate estimate of the universe cell projection was made, weights for the probability of selection were computed using the number of completed interviews for each cell.

VI. Weights

33.   Since the sampling design was stratified and employed differential sampling, individual observations should be properly weighted when making inferences about the population. Under stratified random sampling, unweighted estimates are biased unless sample sizes are proportional to the size of each stratum. With stratification the probability of selection of each unit is, in general, not the same. Consequently, individual observations must be weighted by the inverse of their probability of selection (probability weights or *pw* in Stata).[5]

34.   Special care was given to the correct computation of the weights. It was imperative to accurately adjust the totals within each region/industry/size stratum to account for the presence of ineligible units (the firm discontinued businesses or was unattainable, education or government establishments, establishments with less than 5 employees, no reply after having called in different days of the week and in different business hours, no tone on the phone line, answering machine, or fax line[6], wrong address or moved away and could not get the new references). The information required for the adjustment was collected in the first stage of the implementation: the screening process. Using this information, each stratum cell of the universe was scaled down by the observed proportion of ineligible units within the cell. Once an accurate estimate of the universe cell (projections) was available, weights were computed using the number of completed interviews.

35. Appendix C shows the cell weights for registered establishments in Bangladesh.

VII. Appropriate use of the weights

36.   Under stratified random sampling weights should be used when making inferences about the population. Any estimate or indicator that aims at describing some feature of the population should take into account that individual observations may not represent equal shares of the population.

37.   However, there is some discussion as to the use of weights in regressions (see Deaton, 1997, pp.67; Lohr, 1999, chapter 11, Cochran, 1953, pp.150). There is not a

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5 This is equivalent to the weighted average of the estimates for each stratum, with weights equal to the population shares of each stratum.
6 For the surveys that implemented a screener over the phone.

strong large sample econometric argument in favor of using weighted estimation for a common population coefficient if the underlying model varies per stratum (stratum-specific coefficient): both simple OLS and weighted OLS are inconsistent under regular conditions. However, weighted OLS has the advantage of providing an estimate that is independent of the sample design. This latter point may be quite relevant for the Enterprise Surveys as in most cases the objective is not only to obtain model-unbiased estimates but also design-unbiased estimates (see also Cochran, 1977, pp 200 who favors the used of weighted OLS for a common population coefficient.)[7]

38.   From a more general approach, if the regressions are descriptive of the population then weights should be used. The estimated model can be thought of Banglas the relationship that would be expected if the whole population were observed.[8] If the models are developed as structural relationships or behavioral models that may vary for different parts of the population, then, there is no reason to use weights.

VIII. Non-response

39.   Survey non-response must be differentiated from item non-response. The former refers to refusals to participate in the survey altogether whereas the latter refers to the refusals to answer some specific questions. Enterprise Surveys suffer from both problems and different strategies were used to address these issues.

40.   Item non-response was addressed by two strategies:
   a- For sensitive questions that may generate negative reactions from the respondent, such as corruption or tax evasion, enumerators were instructed to collect the refusal to respond as a different option from don't know (-8).
   b- Establishments with incomplete information were re-contacted in order to complete this information, whenever necessary. However, there were clear cases of low response. The following graph shows non-response rates for the sales variable, *d2*, by sector. Please, note that the coding utilized in this dataset does not allow us to differentiate between "Don't know" and "refuse to answer", thus the non-response in the chart below reflects both categories (DKs and NAs).

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7 Note that weighted OLS in Stata using the command regress with the option of weights will estimate wrong standard errors. Using the Stata survey specific commands *svy* will provide appropriate standard errors.

8 The use of weights in most model-assisted estimations using survey data is strongly recommended by the statisticians specialized on survey methodology of the JPSM of the University of Michigan and the University of Maryland.

Sales Non-response Rates
Bangladesh, 2013

	Manufacturing	Services	Core
Rate	2.97%	6.72%	7.03%
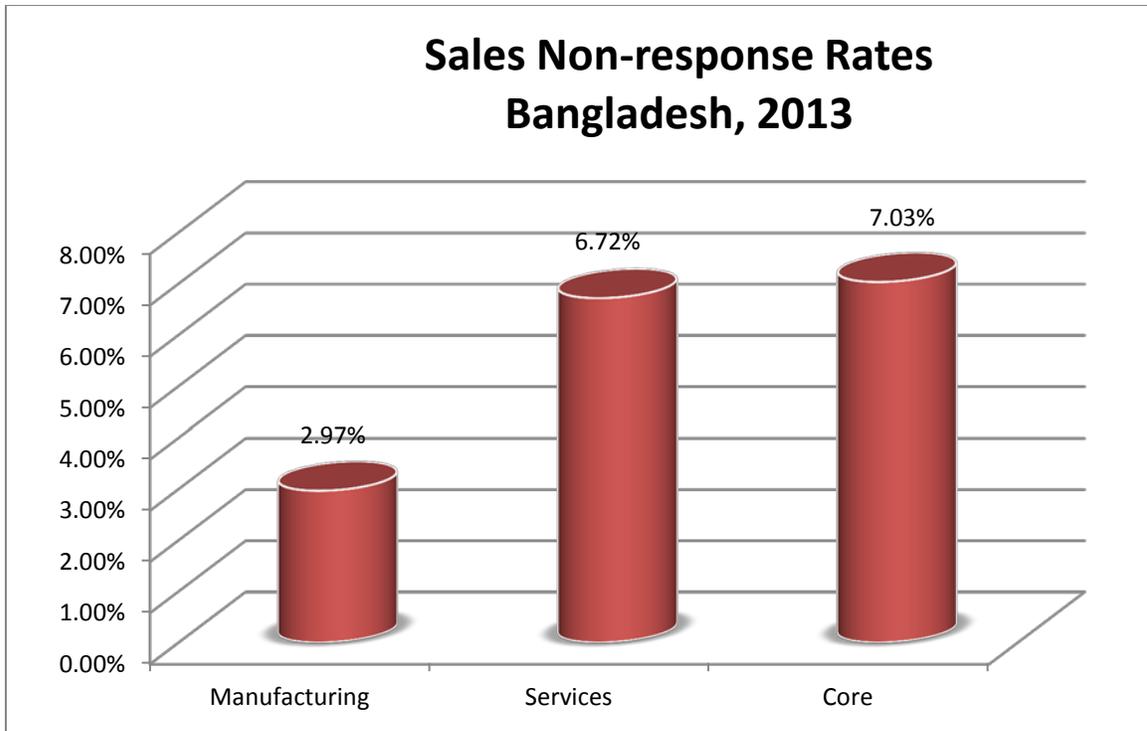
41.   Survey non-response was addressed by maximizing efforts to contact establishments that were initially selected for interview. Attempts were made to contact the establishment for interview at different times/days of the week before a replacement establishment (with similar strata characteristics) was suggested for interview. Survey non-response did occur but substitutions were made in order to potentially achieve strata-specific goals. Further research is needed on survey non-response in the Enterprise Surveys regarding potential introduction of bias.

42.   As the following graph shows, the number of realized interviews per contacted establishment was 0.56[9]. This number is the result of two factors: explicit refusals to participate in the survey, as reflected by the rate of rejection (which includes rejections of the screener and the main survey) and the quality of the sample frame, as represented by the presence of ineligible units. The number of rejections per contact was 0.56.

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9 The estimate is based on the total number of firms contacted including ineligible establishments.

Rejection rate and Interviews per Contact Bangladesh, 2013

[Bar chart showing: Rejection/Contact = 9.01%, Interviews/Contact = 35.40%; y-axis from 0.00% to 40.00% in 5.00% increments]
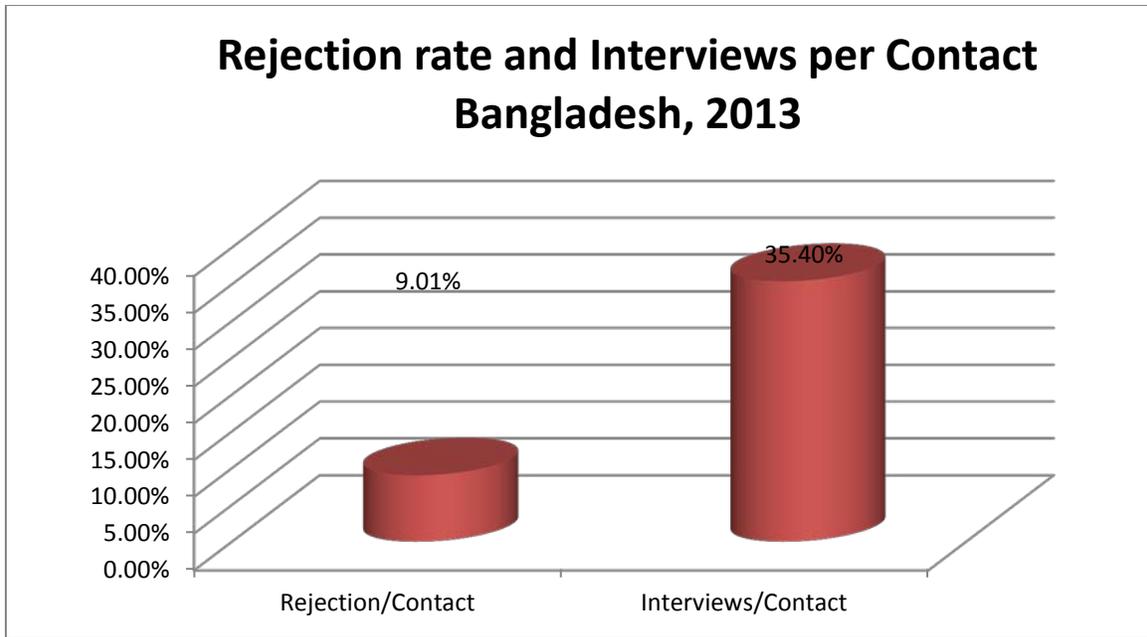
43.   Details on the rejection rate, eligibility rate, and item non-response are available at the strata level. This report summarizes these numbers to alert researchers of these issues when using the data and when making inferences. Item non-response, selection bias, and faulty sampling frames are not unique to Bangladesh. All Enterprise Surveys suffer from these shortcomings, but in very few cases they have been made explicit.

References:

Cochran, William G., Sampling Techniques, 1977.

Deaton, Angus, The Analysis of Household Surveys, 1998.

Levy, Paul S. and Stanley Lemeshow, Sampling of Populations: Methods and Applications, 1999.

Lohr, Sharon L. Samping: Design and Techniques, 1999.

Scheaffer, Richard L.; Mendenhall, W.; Lyman, R., Elementary Survey Sampling, Fifth Edition, 1996.

Appendix A

Status Codes Total:

Eligible	1.Eligible establishment (Correct name and address)	1322
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	117
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	3
	4. Eligible establishment (Wrong address - the firm/establishment has changed address and the address could be found)	0
	16. Panel firm-now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	0
	7. Not a business: private household	50
	8. Ineligible activity: education, agriculture, finances, governments…	20
Unobtainable	91. No reply (after having called in different days of the week and in different business hours)	0
	92. Line out of order	0
	93. No tone	0
	94. Phone number does not exist	0
	10. Answering machine	0
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	1869
	13. Refuses to answer the screener	367
	151. Out of target - outside the covered regions, firm moved abroad	325
	152. Out of target - firm moved abroad	1
	153. Out of target - Not registered with statistical agency	0
	Total	**4074**

Response Outcomes Total:

Complete interviews (Total)	1442
Incomplete interviews	0
Eligible in process	0
Refusals	0
Complete interviews with innovation (Total)	0
Ineligible	70
Impossible to contact	1869
Ineligible - coop.	326
Refusal to the Screener	367
Total	**4074**

Status Codes Fresh:

Eligible	1.Eligible establishment (Correct name and address)	1205
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	113
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	2
	4. Eligible establishment (Wrong address - the firm/establishment has changed address and the address could be found)	0
	16. Panel firm-now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	0
	7. Not a business: private household	43
	8. Ineligible activity: education, agriculture, finances, governments…	20
Unobtainable	91. No reply (after having called in different days of the week and in different business hours)	0
	92. Line out of order	0
	93. No tone	0

94. Phone number does not exist	0
10. Answering machine	0
11. Fax line - data line	0
12. Wrong address/ moved away and could not get the new references	1817
13. Refuses to answer the screener	346
151. Out of target - outside the covered regions, firm moved abroad	323
152. Out of target - firm moved abroad	1
153. Out of target - Not registered with statistical agency	0
Total	**3870**

Response Outcomes Fresh:

Complete interviews **(Total)**	1320
Incomplete interviews	0
Eligible in process	0
Refusals	0
Complete interviews with innovation (Total)	0
Ineligible	63
Impossible to contact	1817
Ineligible - coop.	324
Refusal to the Screener	346
Total	**3870**

Status Codes Panel:

Eligible	1. Eligible establishment (Correct name and address)	117
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	4
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	1
	4. Eligible establishment (Wrong address - the firm/establishment has changed address and the address could be found)	0
	16. Panel firm-now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	0
	7. Not a business: private household	7
	8. Ineligible activity: education, agriculture, finances, governments…	0
Unobtainable	91. No reply *(after having called in different days of the week and in different business hours)*	0
	92. Line out of order	0
	93. No tone	0
	94. Phone number does not exist	0
	10. Answering machine	0
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	52
	13. Refuses to answer the screener	21
	151. Out of target - outside the covered regions, firm moved abroad	2
	152. Out of target - firm moved abroad	0
	153. Out of target - Not registered with statistical agency	0
	Total	**204**

Response Outcomes Panel:

Complete interviews **(Total)**	122
Incomplete interviews	0
Eligible in process	0
Refusals	0
Complete interviews with innovation (Total)	0
Ineligible	7
Impossible to contact	52
Ineligible - coop.	2
Refusal to the Screener	21
Total	**204**

Appendix B

Universe Estimates, Bangladesh:

Source: Bangladesh Bureau of Statistics, Business Register 2009

Region	Employee Size	Food	Apparel	Leather	Chemi-cals	Transport	Furniture	Other Manuf.	Retail	Other Services	Grand Total
Dhaka	Small 5-19	462	1239	326	91	76	723	2454	439	2431	8241
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	Large 100+	27		1	3		2	12		6	51
	Total	104		2	30	2	19	96	29	124	406
Rajshahi-Bogra	Small 5-19	48	6	7	9	3	27	87	15	128	330
	Med 20-99	32	10		14	1	19	50	2	51	179
	Large 100+	1			7	1	1	12		1	23
	Total	81	16	7	30	5	47	149	17	180	532
Grand Total		1277	4706	637	591	171	1466	6812	708	4928	21296

Appendix C

Strict Cell Weights Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	1.2	1.0	2.7	1.0	0.0	0.0	1.0	0.0	0.0
	20-99	1.2	1.7	1.7	1.3	0.0	0.0	1.0	1.2	0.0
	100+	1.0	1.1	1.5	1.6	0.0	0.0	1.2	0.0	0.0
Chittagong	5-19	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
	20-99	2.1	1.5	0.0	2.4	0.0	0.0	2.1	1.0	0.0
	100+	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	6.6	10.1	2.8	5.5	1.0	2.0	6.2	2.2	6.8
	20-99	4.9	18.2	1.2	1.9	1.3	1.6	8.0	1.3	299.9
	100+	1.5	5.0	1.0	1.0	2.5	1.0	69.3	1.0	8.6
Chittagong	5-19	4.7	2.1	2.0	1.0	0.0	1.1	2.1	1.8	43.9
	20-99	1.4	1.7	2.3	1.1	1.0	1.4	3.8	1.0	25.3
	100+	1.4	12.5	1.0	1.0	0.0	1.0	3.2	0.0	1.7
Khulna-Jessore	5-19	3.1	0.0	0.0	3.9	1.0	2.6	1.1	1.7	4.0
	20-99	1.8	0.0	0.0	2.4	0.0	1.0	1.0	1.0	2.7
	100+	1.0	0.0	0.0	1.0	0.0	0.0	1.6	0.0	1.5
Rajshahi-Bogra	5-19	5.2	0.0	1.0	1.1	1.0	1.2	2.7	1.0	10.8
	20-99	2.2	1.5	0.0	1.0	0.0	1.2	2.7	1.1	4.2
	100+	1.0	0.0	0.0	1.0	1.0	1.0	1.3	0.0	0.0

Median Cell Weights Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	1.3	1.0	2.6	1.0	0.0	0.0	1.0	0.0	0.0
	20-99	1.4	2.0	1.7	1.3	0.0	0.0	1.0	1.8	0.0
	100+	1.0	1.2	1.4	1.5	0.0	0.0	1.3	0.0	0.0
Chittagong	5-19	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
	20-99	2.8	2.0	0.0	2.6	0.0	0.0	2.8	1.7	0.0
	100+	1.2	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	8.3	13.6	3.8	7.5	1.2	2.9	7.1	2.9	8.7
	20-99	6.2	25.0	1.6	2.6	1.8	2.3	9.2	1.7	389.5
	100+	2.1	7.4	1.0	1.1	3.8	1.5	86.4	1.0	12.0
Chittagong	5-19	5.5	2.6	2.5	1.1	0.0	1.5	2.2	2.2	52.5
	20-99	1.7	2.2	2.9	1.4	1.3	1.9	4.1	1.0	30.7
	100+	1.7	17.3	1.0	1.2	0.0	1.4	3.7	0.0	2.2
Khulna-Jessore	5-19	3.6	0.0	0.0	4.8	1.0	3.4	1.2	2.0	4.6
	20-99	2.1	0.0	0.0	3.0	0.0	1.0	1.1	1.1	3.1
	100+	1.2	0.0	0.0	1.0	0.0	0.0	1.8	0.0	1.9
Rajshahi-Bogra	5-19	5.4	0.0	1.0	1.2	1.0	1.4	2.5	1.0	11.4
	20-99	2.3	1.7	0.0	1.0	0.0	1.4	2.6	1.2	4.5
	100+	1.0	0.0	0.0	1.0	1.0	1.0	1.3	0.0	0.0

Weak Cell Weights Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	1.7	1.4	3.4	1.0	0.0	0.0	1.3	0.0	0.0
	20-99	1.4	2.4	1.8	1.4	0.0	0.0	1.0	2.0	0.0
	100+	1.0	1.7	1.7	1.9	0.0	0.0	1.7	0.0	0.0
Chittagong	5-19	1.4	1.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0
	20-99	3.2	3.2	0.0	3.2	0.0	0.0	3.7	2.3	0.0
	100+	1.6	1.6	0.0	0.0	0.0	0.0	1.2	0.0	0.0

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services
Dhaka	5-19	17.6	38.5	9.4	20.1	2.8	8.8	18.5	7.0	21.2
	20-99	11.0	59.4	3.4	5.8	3.6	6.0	20.1	3.4	794.3
	100+	3.3	16.0	1.6	2.3	7.1	3.6	170.5	1.5	22.1
Chittagong	5-19	9.7	6.1	5.1	2.4	0.0	3.8	4.7	4.3	105.5
	20-99	2.5	4.4	5.0	2.6	2.2	4.1	7.4	1.7	51.8
	100+	2.3	30.8	1.6	2.0	0.0	2.7	6.1	0.0	3.3
Khulna-Jessore	5-19	5.0	0.0	0.0	8.4	1.0	6.8	2.0	3.1	7.3
	20-99	2.4	0.0	0.0	4.4	0.0	1.5	1.5	1.4	4.2
	100+	1.3	0.0	0.0	1.0	0.0	0.0	2.3	0.0	2.3
Rajshahi-Bogra	5-19	6.5	0.0	1.1	1.8	1.0	2.5	3.7	1.2	15.5
	20-99	2.3	2.2	0.0	1.0	0.0	2.0	3.2	1.4	5.2
	100+	1.0	0.0	0.0	1.1	1.0	1.0	1.5	0.0	0.0

Appendix D

Strict Universe Estimates Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	3	1	3	1	0	0	6	0	0	**14**
	20-99	2	3	5	5	0	0	5	1	0	**22**
	100+	3	41	4	8	0	0	14	0	0	**70**
	Total	**9**	**46**	**12**	**14**	**0**	**0**	**25**	**1**	**0**	107
Chittagong	5-19	2	0	0	0	1	0	0	0	0	**3**
	20-99	2	1	0	2	0	0	2	1	0	**9**
	100+	2	15	0	0	0	0	6	0	0	**23**
	Total	**6**	**16**	**0**	**2**	**1**	**0**	**8**	**1**	**0**	35
Grand Total		**15**	**62**	**12**	**17**	**1**	**0**	**33**	**2**	**0**	**142**

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	126	242	68	16	17	117	650	108	620	**1963**
	20-99	73	219	45	35	9	76	693	30	300	**1480**
	100+	16	432	23	**14**	3	17	346	5	34	**891**
	Total	**215**	**893**	**136**	**66**	**28**	**210**	**1689**	**143**	**954**	4334
Chittagong	5-19	52	6	6	18	0	13	62	26	220	**402**
	20-99	50	17	5	29	4	20	117	6	101	**350**
	100+	15	125	5	**5**	0	6	73	0	10	**240**
	Total	**117**	**149**	**16**	**52**	**4**	**39**	**252**	**32**	**331**	991
Khulna-Jessore	5-19	16	0	0	4	1	3	21	8	28	**81**
	20-99	22	0	0	5	0	3	17	4	24	**75**
	100+	15	0	0	**3**	0	0	6	0	3	**27**
	Total	**52**	**0**	**0**	**12**	**1**	**6**	**45**	**12**	**55**	183
Rajshahi-Bogra	5-19	26	0	4	3	3	9	46	9	65	**165**
	20-99	20	4	0	9	0	7	30	1	29	**101**
	100+	1	0	0	**4**	1	1	8	0	0	**15**
	Total	**47**	**4**	**4**	**16**	**4**	**17**	**84**	**10**	**94**	280
Grand Total		**432**	**1046**	**156**	**145**	**37**	**271**	**2070**	**197**	**1434**	**5789**

Median Universe Estimates Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	4	1	3	1	0	0	6	0	0	**15**
	20-99	3	4	5	5	0	0	5	2	0	**24**
	100+	3	48	4	8	0	0	16	0	0	**78**
	Total	**10**	**53**	**12**	**14**	**0**	**0**	**27**	**2**	**0**	117
Chittagong	5-19	2	0	0	0	1	0	0	0	0	**3**
	20-99	3	2	0	3	0	0	3	2	0	**12**
	100+	2	16	0	0	0	0	6	0	0	**24**
	Total	**7**	**18**	**0**	**3**	**1**	**0**	**9**	**2**	**0**	39
Grand Total		**17**	**70**	**12**	**17**	**1**	**0**	**35**	**3**	**0**	**156**

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	158	327	92	23	20	166	742	139	793	**2459**
	20-99	93	300	62	49	12	108	803	39	390	**1856**
	100+	23	638	23	**16**	4	26	432	5	48	**1215**
	Total	**273**	**1265**	**177**	**88**	**36**	**301**	**1977**	**183**	**1231**	5530
Chittagong	5-19	61	8	8	19	0	17	66	31	262	**471**
	20-99	60	22	6	37	5	27	127	6	123	**413**
	100+	19	173	5	**6**	0	8	85	0	13	**310**
	Total	**140**	**203**	**18**	**62**	**5**	**52**	**278**	**37**	**398**	1193
Khulna-Jessore	5-19	18	0	0	5	1	3	22	10	32	**91**
	20-99	25	0	0	6	0	3	18	4	28	**84**
	100+	18	0	0	**3**	0	0	7	0	4	**32**
	Total	**61**	**0**	**0**	**14**	**1**	**6**	**47**	**14**	**64**	207
Rajshahi-Bogra	5-19	27	0	4	4	3	10	43	9	68	**168**
	20-99	21	5	0	9	0	8	29	1	31	**104**
	100+	1	0	0	**4**	1	1	8	0	0	**15**
	Total	**49**	**5**	**4**	**17**	**4**	**19**	**80**	**10**	**100**	287
Grand Total		**522**	**1473**	**200**	**180**	**46**	**378**	**2381**	**244**	**1793**	**7218**

Weak Universe Estimates Bangladesh

Panel

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	5	1	3	1	0	0	8	0	0	**19**
	20-99	3	5	5	6	0	0	5	2	0	**26**
	100+	3	66	5	9	0	0	20	0	0	**104**
	Total	**11**	**72**	**14**	**16**	**0**	**0**	**34**	**2**	**0**	149
Chittagong	5-19	3	0	0	0	1	0	0	0	0	**4**
	20-99	3	3	0	3	0	0	4	2	0	**16**
	100+	3	23	0	0	0	0	7	0	0	**34**
	Total	**9**	**27**	**0**	**3**	**1**	**0**	**11**	**2**	**0**	53
Grand Total		**20**	**99**	**14**	**19**	**1**	**0**	**44**	**4**	**0**	**202**

Fresh

Region	Employees	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf-acturing	Retail	Other Services	Grand Total
Dhaka	5-19	335	925	226	60	48	509	1925	334	1925	**6287**
	20-99	166	712	128	110	25	280	1751	79	794	**4046**
	100+	36	1373	36.328	33	7.078444	**61**	852.367	7.7058	88.36114	**2496**
	Total	**537**	**3010**	**390**	**203**	**81**	**851**	**4528**	**421**	**2808**	**12828**
Chittagong	5-19	107	18	15	43	0	42	141	61	527	**955**
	20-99	88	44	10	70	9	57	228	10	207	**724**
	100+	26	308	7.7816	10	0	**16**	139.63	0	19.74453	**527**
	Total	**221**	**370**	**33**	**122**	**9**	**116**	**509**	**71**	**754**	**2206**
Khulna-Jessore	5-19	25	0	0	8	1	7	37	15	51	**145**
	20-99	29	0	0	9	0	5	26	6	38	**112**
	100+	19	0	0	3	0	**0**	9.2764	0	4.663969	**36**
	Total	**73**	**0**	**0**	**20**	**1**	**11**	**73**	**21**	**94**	**294**
Rajshahi-Bogra	5-19	32	0	5	6	3	17	63	10	93	**230**
	20-99	21	7	0	9	0	12	35	1	36	**121**
	100+	1	0	0	4	1	**1**	8.8065	0	0	**16**
	Total	**54**	**7**	**5**	**19**	**4**	**30**	**107**	**12**	**129**	**367**
Grand Total		**886**	**3387**	**427**	**365**	**95**	**1009**	**5217**	**525**	**3785**	**15695**

Appendix E

Original Sample Design, Bangladesh:

Region	Employee Size	Food	Apparel	Leather	Chemicals	Transport	Furniture	Other Manuf.	Retail	Other Services	Grand Total
Dhaka	Small 5-19	16	20	27	5	29	33	64	31	82	307
	Med 20-99	13	15	29	18	37	24	65	22	7	230
	Large 100+	16	86	35	25	11	19	6	10	5	213
	Total	45	121	91	48	77	76	135	63	94	750
Chittagong	Small 5-19	10	5	20	12	18	5	5	21	5	101
	Med 20-99	19	5	16	26	16	17	5	15	5	124
	Large 100+	27	10	14	16	2	25	5	1	5	105
	Total	56	20	50	54	36	47	15	37	15	330
Khulna-Jessore	Small 5-19	5	0	1	5	1	5	5	11	5	38
	Med 20-99	7	0	0	13	1	6	5	8	5	45
	Large 100+	21	0	1	3	0	2	5	0	5	37
	Total	33	0	2	21	2	13	15	19	15	120
Rajshahi-Bogra	Small 5-19	5	5	7	6	3	5	5	13	5	54
	Med 20-99	9	5	0	14	1	9	5	2	5	50
	Large 100+	1	0	0	7	1	1	5	0	1	16
	Total	15	10	7	27	5	15	15	15	11	120
Grand Total		149	151	150	150	120	151	180	134	135	1320

Appendix F

Challenges and Difficulties in Fieldwork

The Enterprise Survey was a challenging as well as important task. There were some limitations of this study. The enumerators faced some challenges and difficulties in conducting the interviews. The contemporary unrest political situation of the country, the unfavorable environment for business activities, Stock exchange market, strikes were some of the major problems being faced by the business community and the society at large. During such a point in time, the field staff observed much of anger and frustration amongst the business community.

Hence the major challenge during the fieldwork was to collect genuine data without annoying the respondents in their limited time. In some cases, the respondents even expressed their anger (for examples when they were questioned about giving gift to the respective authority in finalizing any work like: electricity and water connection, political instability, government business relations etc.);

hence a lot of patience was needed in order to get the data amidst the negative mindset of the respondents.

In general, the difficulties and challenges faced during fieldwork were as follows:

A. Difficulties in finding the exact enterprises with the given address
- One of the major challenge and difficulties during the fieldwork of this study was to find out the enterprises with the given addresses from BBS. The information about the addresses of the enterprises was not that much updated which results difficulties to find out the enterprises to do the survey.
- It was hard to locate the address especially for 'Fresh' firms as the location had either changed or the organization was not in existence. Since the Enterprise Survey of 2007 was done by another firm, it was very difficult to locate the establishments with the given address. In some cases phone numbers had been changed so the contacts could not be established easily.

B. High rate of discontinued businesses
- During the fieldwork in Bangladesh Enterprise Survey, 2013, one of the major challenges was getting a high rate of discontinued businesses. From the overall survey the reason can be estimated. The stock exchange market was an important issue for the discontinued businesses. Many enterprises were found to discontinue the business and invested in the stock market.
- Another reason of discontinued business can be an incomplete branch closure. It was found that the overall business was not closed but the branch office where the survey was needed to be done was closed.

C. Changes in Sector of the enterprises
- There was the given sample sectors with the enterprise list. During the survey it was found that the given sector of many enterprises was not matched with the existing sector. For example, the enumerators found changed sectors of enterprises which was listed in furniture sector and by the screening and interview session the firm was found in other manufacturing sector.

D. Changes in size of the enterprises
- During the study many enterprises were found to be in a different size than the given sample size: small, medium and large. Many enterprises shifted from small to medium or medium to large. Some reverse situations were also happened.

E. Length of the Interview
- Due to the length of the questionnaire and to make the respondent understand about the questions the enumerators had to spend enough time for a single interview. The length of the interview was big as the questionnaire was big. In the smaller retail firms, the length of the questionnaire was an issue with the stores having customers coming in at regular intervals because of which the enumerators had to wait for the respondent for a longer period of time.

F. Universal applicability of the questionnaire
- Another challenge faced during fieldwork was the issue of the universal applicability of the survey questions versus the local context which left some of the respondents confused and uninterested. The questions in the "Innovation" section in particular were quite difficult for the respondents from the smaller business (particularly service firms) to comprehend. IN some enterprises, especially in the large enterprises, the respondents were not that much willing to answer about the innovative products as they were concern about the copyright of their products. A lot of patience and persuasion was required to constantly draw their attention to the main subject matter. Many questions did not apply for the smaller family owned enterprises particularly the questions related to labor.

G. Multiple Visit to the same organization
- Due to the unavailability of concerned person, field enumerators had to make multiple visits to the same organization.
- In large firms with an organized structure, the enumerators had to meet the concerned persons in different departments in order to complete all sections of the questionnaire. As all concerned person were not available at the same time, hence the enumerators had to wait for a long time to complete a single interview in such cases.

H. Getting the approval for interview
- During the survey one major problem was to get the approval from the enterprises for the interview. As the questionnaire includes all the sensitive and important information like the annual sales, annual cost etc. many enterprises did not give approval for the interview or stopped it in the middle of the interview when some important issues came out.
- In the panel survey, many enterprises asked for an authorization letter from World Bank or from the surveyor firm. They stated that they would not give the interview unless they got an authorization letter which includes the overall description and evidence of the survey.

I. Interruptions, Delays and Refusal during Fieldwork
- Labor-induced strikes (after the incident of Rana Plaza Building Collapse) at few of the large businesses like the garments sector also delayed the fieldwork.
- Some of the firms were hesitant in managing time for interview although they did not refuse directly (particularly during the time when the appointments were being scheduled), mainly due to their busy schedule and the lengthy nature of the questionnaire. Some of the informants who agreed to participate during screening had been transferred or were out of town during the interviews which caused few delays in the survey process.
- Some of the issues that the respondents brought up to excuse themselves from the survey were as follows –

- Mentioned that they didn't believe their responses would make any difference and they were not interested in the subject matter
- Not interested in the fact that they had been chosen as samples for the survey
- Too busy to participate for the interviews
- Length of the questionnaire as a major issue