

Sierra Leone Indicator Survey Data Set

1. Introduction

This document provides additional information on the data collected in Sierra Leone from 15 September 2008 to 13 February 2009 as part of the Indicator Survey, an initiative of the World Bank.

The objective of the Indicator Surveys is to obtain feedback from enterprises in client countries on the state of the private sector as well as to build a panel of enterprise data that will make it possible to track changes in the business environment over time and allow, for example, impact assessments of reforms.

Through interviews with firms in the manufacturing and services sectors, the Indicator Survey data provides information on the constraints to private sector growth and is used to create statistically significant business environment indicators that are comparable across countries.

The report describes the sampling design of the survey, the structure of the dataset and additional information that may be useful when using the data, including information on non-response rates, the calculation of sample weights and country-specific factors that may have affected survey implementation.

2. Survey Target Population

The whole population, or the universe, covered in the Indicator Surveys is the non-agricultural economy. It comprises: all manufacturing sectors according to the ISIC Revision 3.1 group classification (group D), construction sector (group F), services sector (groups G and H), and transport, storage, and communications sector (group I). Note that this population 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 under study), and all public or utilities-sectors.

For Sierra Leone, the sectors included in the sample by two-digit ISIC code are as follows:

Manufactures: 15, 17, 18, 22, 24, 25, 28, 36

Services: 45, 50, 51, 52, 55, 62, 63, 64

Sample selection was carried out by the TNS opinion – UK using the frame. To reduce non-response bias the sample was drawn in matched replicates so that each sampled establishment had at least one matched substitute (where available) in the event of non-contact or refusal.

In the Indicator Surveys, the requirements for registration are defined on a country-by-country basis using the information collected by Doing Business and information from the in-country contractors. In Sierra Leone, registered firms were defined as firms that had a Tax Identification Card (carte d'identification fiscale).

3. Sampling for Registered Establishments

The sample for registered establishments in Sierra Leone was selected using stratified random sampling, following the methodology explained in the *Sampling Manual*.¹ As discussed in greater detail in the *Sampling Manual*, stratified random sampling was preferred over simple random sampling in the Indicator Surveys for several reasons:^{2,3}

- a. To obtain unbiased estimates for different subpopulations within the economy with some known level of precision.
- b. To obtain unbiased estimates for the whole population.
- c. To ensure that the final sample includes establishments from all relevant sectors in the country 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 many cases, will be more precise than using a simple random sampling method (i.e., lower standard errors, other things being equal.)
- e. Stratification may also produce a smaller bound on the estimation errors 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 of collecting the survey data may be reduced by stratifying the population elements into convenient groupings.

Three levels of stratification were used in the Sierra Leone sample: firm sector, firm size, and geographic region.

Industry stratification was designed as follows: the universe was stratified into one manufacturing industry and one services industry (retail).

Size stratification was defined following the standardized definition used for the Indicator Surveys: 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.

Regional stratification was defined in terms of the geographic regions with the largest commercial presence in the country: Kenema and W/A Urban.

4. Sampling implementation

Given the stratified design, sample frames containing a complete and updated list of establishments as well as information on all stratification variables (number of employees, industry, and region) are required to draw the sample for the Indicator Surveys.

¹ The complete text of the *Sampling Manual* can be found at http://www.enterprisesurveys.org/documents/Implementation_note.pdf

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 See Cochran, W., 1977, pp. 89; Lohr, Sharon, 1999, pp. 95.

It was possible to obtain a single usable frame for Sierra Leone. The frame acquired for Sierra Leone was the database for the Census of Business Establishments 2005 provided by Statistics Sierra Leone.

Universe Figures for Sierra Leone

Sources: Statistics Sierra Leone – Census of Business Establishments 2005

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	42	61	103
	20-99	3	8	11
	100+			
Kenema Total		45	69	114
W/A Urban	5-19	117	506	623
	20-99	23	89	112
	100+	4	22	26
W/A Urban Total		144	617	761
Grand Total		189	686	875

The quality of the frame was assessed at the onset of the project and was not immune from the typical problems found in establishment surveys: positive rates of non-eligibility, repetition, non-existent units, etc. 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 0.82% (3 out of 365 establishments for the sample).⁴

5. Database Structure

Only one questionnaire – the Indicator Questionnaire – was used for all sectors.

All variables in the database 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 preceded by a prefix “*AF*” indicate questions specific to the Africa region; these questions may not have been asked in Indicator Surveys conducted in countries in other regions. All other variables are global and are present in all country surveys conducted throughout the world. All variables are numeric with the exception of those variables with an “*x*” at the end of their names. The suffix “*x*” indicates that the variable is alpha-numeric.

The variable *idstd* uniquely identifies each establishment at the global level.

⁴ Appendix B shows the tabulations for the Sierra Leone sample of registered firms of response codes that are classified as eligible and non-eligible.

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. These variables generate the strata cells for each industry/region/size combination. 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 the sampling regions

-*a6a*: coded using the definition for micro, small, medium, and large establishments as discussed above. The code -9 was used to indicate units for which size was undetermined in the sample frame.

-*a4a*: coded using ISIC codes for the industries that comprise the manufacturing, services, and residual categories used in the stratification. These codes include most manufacturing industries (15 to 37), and retail, and IT for services (52, and 72 respectively). All establishments within the 'other manufacturing' stratum were coded with *a4a*=2.

-*id*: each firm is given a unique ID number at the country level

Note that these variables may not coincide with reality for some establishments as sample frames may contain information that is later found to be inaccurate.

The surveys were implemented following a two stage procedure. In the first stage a screener questionnaire was administered over the phone to determine sampled establishment's eligibility for the survey and to make appointments; in the second stage, a face-to-face interview took 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 that was collected in the screening phase.

The main questionnaire contains variables for location (*a3x*), industry (*d1a2*), and number of employees (*l1*, *l6* and *l8*) that more accurately reflect describe the characteristics of establishments than the information provided on these variables in the sample frame or the screener.

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 industry-strata based on information available from the sample frame, whereas variable *d1a2* indicates the actual ISIC code of the main output of the establishment as answered by the interviewee. This variable is probably the most accurate variable with which to classify establishments by activity.

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 on the sample frame but the actual physical location is in another place.

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

6. Universe Estimates

Special care is given to the correct computation of universe estimates and weights in the Indicator Surveys. Considering the varying quality of sample frames across countries, it is important to accurately adjust the universe totals within each region/industry/size stratum to account for the presence of ineligible units in the sampling frame.⁵ The information collected during the screening process is used to scale down the universe estimate for each cell by the observed proportion of ineligible units within the cell.

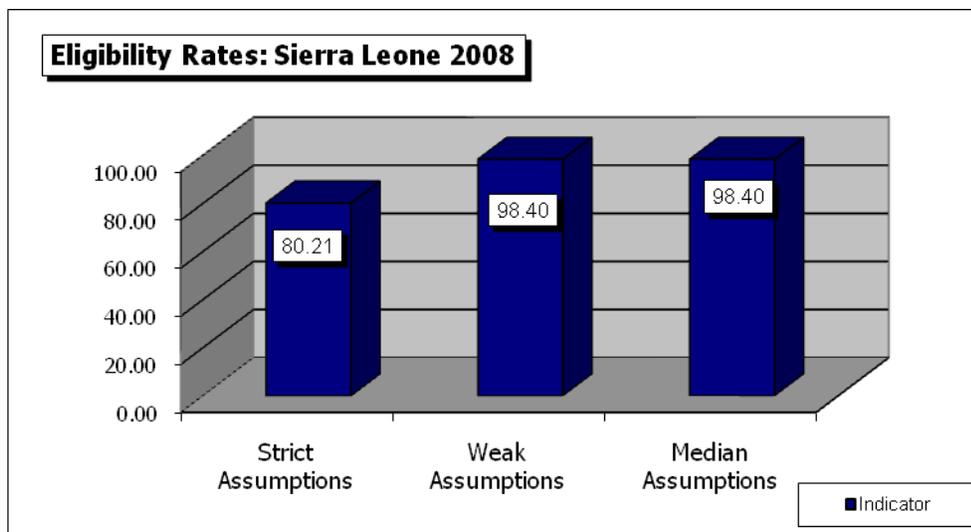
Of course, different assumptions about the eligibility of establishments result in different adjustments to the universe cells and thus different sampling weights. For some establishments where contact was not successfully completed during the screening process it is not possible to directly determine eligibility. Three sets of assumptions on establishment eligibility are considered:

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

b- 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 *w_median*.

c- 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. The resulting weights are included in the variable *w_weak*. Under the weak assumption only observed non-eligible units are excluded from universe projections. The following graph shows the different eligibility rates under each set of assumptions.

⁵ For example, ineligible units could include: firms that discontinued businesses, education or government establishments, establishments with less than 5 employees in the ES sample, establishments where there was no reply after having called in different days of the week and in different business hours, the number was out of order, no tone in the phone line, answering machine, fax line, wrong address or moved away and could not obtain new contact information.



Universe estimates for the number of establishments in each industry-region-size cell in Sierra Leone were produced for the strict, weak and median eligibility definitions. Appendix C shows the universe estimates of the numbers of registered establishments based on the strict, weak and median relative estimates.

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.

7. Weights

Since the sampling design was stratified and employed differential sampling of the strata, 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 p_w in Stata.)⁶

Two sets of weights for each cell were computed using the strict, weak, and median assumptions on establishment eligibility. The first set of estimates calculated proportions using the raw sample count for each cell. However, for many cells the sample numbers of interviewed establishments are small, and eligibility rates and adjusted universe cells projections for those cells are subject to relatively large sampling variations. Therefore a second set of more robust estimates (collapsed weights) that use the multiples of the relative eligibility rates for each industry, size, and region was also produced. The collapsed weights are based on larger samples than the individual cells and thus produce values with smaller sampling variations. The data sets include only the robust weights.

Appendix D shows the cell weights for registered establishments in Sierra Leone.

⁶ This is equivalent to the weighted average of the estimates for each stratum, with weights equal to the population shares of each stratum.

8. Appropriate use of weights

As discussed above, 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.

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

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 as the relationship that would be expected if the whole population were observed.⁷ If the models are developed as structural relationships or behavioral models that may vary for different parts of the population, there is no reason to use weights.

9. Non-response

The Indicator Surveys, along with all other surveys, suffer from both survey non-response and 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. Different strategies were used to address these issues.

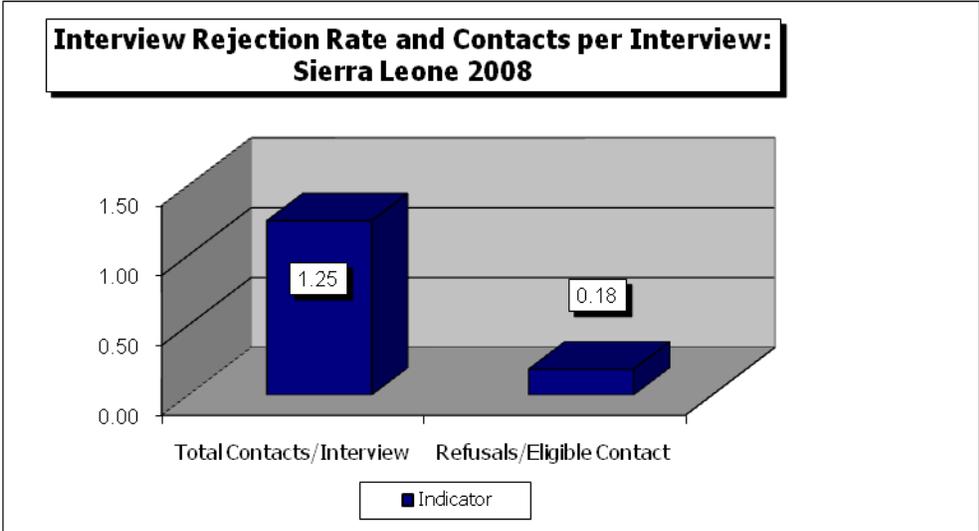
Survey non-response was addressed by maximizing efforts to contact establishments that were initially sampled. When the survey frame was extracted from the sampling frame, several establishments with the same strata characteristics were randomly selected for each interview and each establishment was assigned a preference number.⁸ Substitutions of replacement establishments were made in order to help achieve targets on the number of interviews for each stratum. Extensive efforts were made to complete interviews with each first preference establishment before contact with a replacement establishment was allowed. At least four attempts were made to contact each sampled establishment for an interview at different times/days of the week before a replacement establishment was allowed to be contacted for an interview.

⁷ The use 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.

⁸ In cases where the number of contacts initially drawn from the sample frame are insufficient to obtain an interview with the targeted number of establishments in a given strata, additional contacts for that strata may be drawn from the sampling frame. If all establishments in that strata have already been contacted and the sample target has not been reached, the sample design may be adjusted to allow additional interviews in other strata.

Further research is needed on survey non-response in the Indicator Surveys regarding the potential introduction of bias through substitution and non-response.

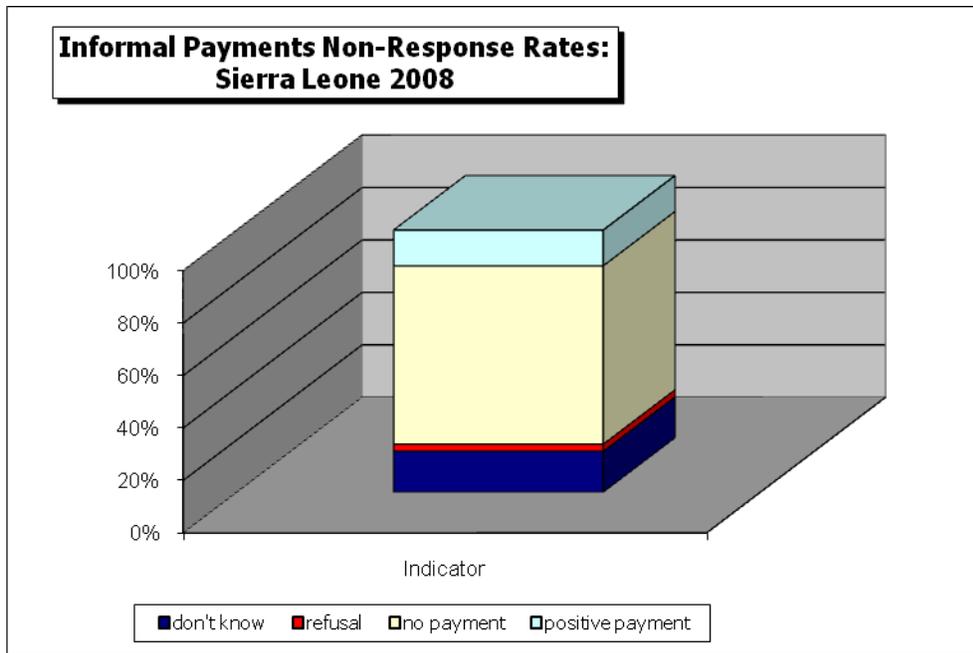
As the following graph shows, the number of contacted establishments per realized interview was 1.25. This number is the result of two factors: explicit refusals to participate in the survey, as reflected by the rate of rejection (which includes rejections of the screener and the main survey) and the quality of the sample frame, as represented by the presence of ineligible units (e.g., establishments that closed or were in ineligible sectors). Refusal rates are also shown in the graph below. For each establishment eligible for an interview, 0.18 refused to participate.



In completed surveys, item non-response was addressed by two strategies:

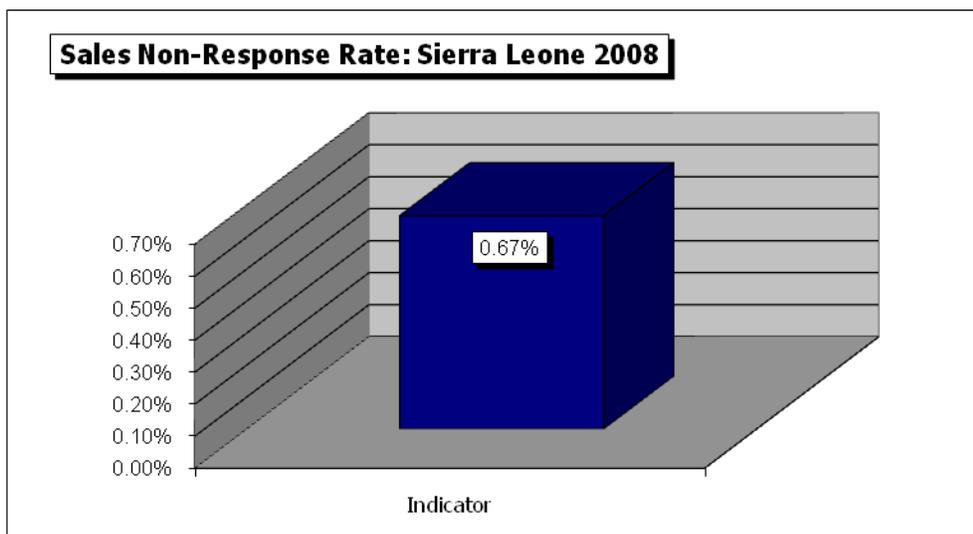
- a- For sensitive questions that may generate negative reactions from the respondent, such as corruption or tax evasion, enumerators were instructed to collect the refusal to respond (-7) as a different option from don't know (-9).

The following graph shows the breakdown of answers about the total amount of informal payments made annually (variable *j7b*) by questionnaire type.



b- Establishments with incomplete information on important questions including total sales, cost figures and employment levels were re-contacted in order to complete this information. However, re-contacts did not fully eliminate low response rates for some items.

The following graph shows non-response rates for the sales variable, *d2*, by type of questionnaire.⁹



This report summarizes statistics on rejection rates, eligibility rates, and item non-response to alert researchers of these issues when using the data and when making inferences. Item non-

⁹ Please note that the question on total sales does not have a “refuse to answer” option, thus the non-response rates in the graph above reflect DKs and NAs as well as any missing values.

response, selection bias, and imperfect sampling frames are not unique to Sierra Leone or the Indicator Surveys. All surveys suffer from these issues although they may not be made explicit.

10. Country specific comments

Local Agency team involved in the study:

Local Agency	Name: Private Consultant (Musa Gbogboto) Country: Sierra Leone Membership of international organization: Activities since: 2000
Name of Project Manager	Gbogboto B Musa- Lead Consultant
Name and position of other key persons of the project:	Emmanuel Musa- Field Coordinator
Enumerators involved:	Enumerators: 10 Recruiters: 3
Other staff involved:	Fieldwork Coordinators: 1 Editing: 3 Data Entry:3

Comments on sample frame:

Characteristic of sample frame used:	The sample frame received from Statistics of SIERRA LEONE contains: <ul style="list-style-type: none"> • Name • Location • Telephone Number • Serial Number-with region, district and chiefdom codes • Main activity • Principal products (goods and/or services) • Industrial classification (ISIC codes) and description • Number of employees
Source:	A nationwide census of business establishments in the country done in August and September, 2005 by Statistics Sierra Leone, in collaboration with stakeholders such as the Bank of Sierra Leone, the National Social Security and Insurance Trust (NASSIT), the National Revenue Authority (NRA), the Ministry of Trade and the Ministry of Labour. Statistics Sierra Leone was the last organization to conduct an economic census. That was in 2005.
Year:	2005
Comments on the quality of sample frame:	Over 95% of the establishments were accessible.

Other sources for companies' statistics	None
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Comments on sample:

Comments/ problems on sectors and regions selected in the sample:	<p>On sectors: The medium and large sectors (especially of manufacturing) were very challenging due to the limited number of establishments present in the Universe, thus most of the selected sample did not have a 2nd preference choice;</p> <p>On regions: No problems</p>
Comments on the response rate:	There was a high response rate especially as a result of positive attitude towards the international community in collaboration with the government in their reconstruction efforts after a period of civil strife. It is period in which a lot of statistics is being collected by the Sierra Leone Statistics for reconstruction thus most respondents are enlightened on research benefits

Comments on Fieldwork:

Date of Fieldwork	1 June through 20 July 2008
Country	Sierra Leone
Interview number	Manufactures: 75 Services: 75
Problems found during fieldwork:	The sensitive issue of financial information was always a challenge with most respondents seemingly giving reports of about 80% accuracy. Where possible records given by respondents should be checked against the published audited accounts.
Other observations:	Working with a lead consultant from the Sierra Leone Statistics and the World Bank gave the survey an added advantage in securing interviews.

Questionnaires:

Problems for the understanding of questions (write question number)	<p><i>These were noted during the pilot and appropriate action taken.</i></p> <p>D10: The word "shipped" is confused to mean water transport- thus focus is set on exports- (Freetown being a sea port). The word "transported" would have probably worked better.</p> <p>F1- Due to the complex nature of this question the suggestion of adding this extra explanation is important.</p> <p>F1: A capacity utilization estimate should be compared to a full</p>
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	production capacity capability. (Full production capacity is the maximum level of production that this establishment could reasonably expect to attain under normal and realistic operating conditions fully utilizing the machinery, equipment and employees in place)
Problems found in the navigability of questionnaires (for example, skip patterns).	None
Comments on questionnaire length:	Taking above 1 hour of top executive time is always a challenge and numerous rescheduling and interruptions were experienced.
Suggestions or other comments on the questionnaire:	However the possibility of using more than one respondent (eg. Managing director and Finance manager/or personnel manager) helped to lessen the negative effect. In very large organization (over 99 employees), the possibility of using the three staff to effectively/comprehensively cover Administration, personnel and finance should be explored.

Database:

Comments on the data entry program:	Data entry program chosen: CATI Perts version D2.52
Comments on the data cleaning:	They have created an excel work sheet to check data validity during fieldwork which led to rework (double data entry) and delay in data entry and getting validation reports. This also resulted in difficulties in verification of data caused by long lapses between the period of interviewing and call backs.

Country situation:

General aspects of economic, political or social situation of the country that could affect the results of the survey:	A more stable political situation has seen a steady increase in economic activity during the past 2 years prior to the survey.
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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. Sampling: Design and Techniques, 1999.

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

Appendix A

Original Sample Design

Sample selection was carried out by the TNS opinion – UK using the frame. To reduce non-response bias the sample was drawn in matched replicates so that each sampled establishment had at least one matched substitute (where available) in the event of non-contact or refusal.

Completed interviews - Sierra Leone

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	21	22	43
	20-99	2	6	8
	100+			
Kenema Total		23	28	51
W/A Urban	5-19	25	16	41
	20-99	23	16	39
	100+	4	15	19
W/A Urban Total		52	47	99
Grand Total		75	75	150

Appendix B

Indicator Survey Sample

Status Codes

ELIGIBLES		
Eligible	1. Eligible establishment (<i>Correct name and address</i>)	140
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	2
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	1
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	7
	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	0
	8. Ineligible activity: education, agriculture, finances, governments...	3
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	0
	92. Line out of order	0
	93. No tone	0
	10. Answering machine	0
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	0
	13. Refuses to answer the screener	34
	14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)	0
	151. Out of target - outside the covered regions, firm moved abroad	0
	152. Out of target - firm moved abroad	0
	Total	187

Eligibility criteria

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

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

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

Response Outcomes

Complete interviews (<i>Total</i>)	150
Incomplete interviews	0
Eligible in process	0
Refusals	0
Out of target	3
Impossible to contact	0
Ineligible - coop.	0
Refusal to the Screener	34
Total	187

Appendix C

Universe Estimates, Sierra Leone:

Strict Universe estimates

Individual Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	34	46	80
	20-99	2	6	8
	100+			
Kenema Total		36	52	89
W/A Urban	5-19	102	417	519
	20-99	23	72	95
	100+	4	16	20
W/A Urban Total		129	505	634
Grand Total		165	558	723

Collapsed Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	34	263	297
	20-99	2	6	8
	100+			
Kenema Total		36	269	305
W/A Urban	5-19	102	191	293
	20-99	23	72	95
	100+	4	16	20
W/A Urban Total		129	279	408
Grand Total		165	549	713

Median Universe estimates

Individual Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	40	61	101
	20-99	3	8	11
	100+			
Kenema Total		43	68	111
W/A Urban	5-19	115	506	621
	20-99	23	88	111
	100+	4	22	26
W/A Urban Total		142	616	758
Grand Total		185	684	869

Weak Universe estimates

Individual Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	40	61	101
	20-99	3	8	11
	100+			
Kenema Total		43	68	111
W/A Urban	5-19	115	506	621
	20-99	23	88	111
	100+	4	22	26
W/A Urban Total		142	616	758
Grand Total		185	684	869

Collapsed Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	40	328	369
	20-99	3	8	11
	100+			
Kenema Total		43	336	379
W/A Urban	5-19	115	239	353
	20-99	23	88	111
	100+	4	22	26
W/A Urban Total		142	349	491
Grand Total		185	685	870

Median Universe estimates

Collapsed Cells

Region	Employees	Sector		Grand Total
		Manufacturing	Services	
Kenema	5-19	40	328	369
	20-99	3	8	11
	100+			
Kenema Total		43	336	379
W/A Urban	5-19	115	239	353
	20-99	23	88	111
	100+	4	22	26
W/A Urban Total		142	349	491
Grand Total		185	685	870

Appendix D

Cell Weights Sierra Leone:

Strict Cell weights

Individual Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	2
	20-99	1	1
	100+		
W/A Urban	5-19	4	26
	20-99	1	5
	100+	1	1

Collapsed Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	12
	20-99	1	1
	100+		
W/A Urban	5-19	4	12
	20-99	1	5
	100+	1	1

Median Cell weights

Individual Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	3
	20-99	1	1
	100+		
W/A Urban	5-19	5	32
	20-99	1	6
	100+	1	1

Weak Cell weights

Individual Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	3
	20-99	1	1
	100+		
W/A Urban	5-19	5	32
	20-99	1	6
	100+	1	1

Collapsed Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	15
	20-99	1	1
	100+		
W/A Urban	5-19	5	15
	20-99	1	6
	100+	1	1

Median Cell weights

Collapsed Cell Weights

Region	Employees	Sector	
		Manufacturing	Services
Kenema	5-19	2	15
	20-99	1	1
	100+		
W/A Urban	5-19	5	15
	20-99	1	6
	100+	1	1