The Lebanon 2013 Enterprise Surveys Data Set

I. Introduction

1.   This document provides additional information on the data collected in Lebanon between April 2013 and September 2014. The survey was part of the Joint World Bank/European Bank for Reconstruction and Development (EBRD)/European Investment Bank (EIB) Enterprise Survey, which is an enterprise survey whose objective is to gain an understanding of firms' perception of the environment in which they operate. This has added an important element of dynamics in the study of business environment in transition countries.

The Enterprise Surveys, through interviews with firms in the manufacturing and services sectors, capture business perceptions on the biggest obstacles to enterprise growth, the relative importance of various constraints to increasing employment and productivity, and the effects of a country's business environment on its international competitiveness. They are used to create statistically significant business environment indicators that are comparable across countries. The Enterprise Surveys are also used 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.

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 Lebanon 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 under study), and all public or utilities-sectors.

c. To make sure 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.

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[1] The complete text 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] Cochran, W., 1977, pp. 89; Lohr, Sharon, 1999, pp. 95

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.

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 two manufacturing industries (food manufacturing and other manufacturing), and two service industries (retail/wholesale, and other services). In addition, due to limitations in information available in the sample frame, an additional sector stratum for "no information" was included, to avoid biasing the sample via exclusion of firms with no sector information.

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). Additionally, due to missing information in the sample frame, an additional size category for "no information" was included.[4] 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 a common practice, except in the sectors of construction and agriculture.

6.   Regional stratification was defined in 6 regions (city and the surrounding business area) throughout Lebanon. The six regional strata included were: Beirut, the Bekaa Valley, Mount Lebanon, Nabatieh, North Lebanon, and South Lebanon.

III. Sampling implementation
7.   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. Great efforts were made to obtain the best source for these listings. However, the quality of the sample frames was not optimal and, therefore, some adjustments were needed to correct for the presence of ineligible units. These adjustments are reflected in the weights computation (*see below*).

8.   The Gallup Organization and InfoPro were hired to implement the Lebanon 2013 enterprise survey.

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[4] Note that despite the inclusion of these stratification categories of "no information", enterprises were duly screened and only included for interview if the main study criteria were met.

9.	The sample frame used for the survey in Lebanon was collated from multiple available sources, including chambers of commerce, by InfoPro. For some companies, information about industry and number of employees was unavailable.

The database contained the following information
- Coverage;
- Up to datedness;- Availability of detailed stratification variables;
- Contact name(s).

Counts from the sample frame are shown below.

Sample Frame (Source: InfoPro)

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	56	158	535	385	0	1,134
	Medium	47	74	210	219	0	550
	Large	9	20	38	45	0	112
	No info.	50	74	290	261	0	675
REGIONAL TOTAL		162	326	1,073	910	0	2,471
Bekaa Valley	Small	25	18	47	21	0	111
	Medium	20	14	13	6	0	53
	Large	5	6	0	0	0	11
	No info.	8	9	42	8	500	567
REGIONAL TOTAL		58	47	102	35	500	742
Mount-Lebanon	Small	175	424	1,009	497	0	2,105
	Medium	148	299	391	233	0	1,071
	Large	37	63	55	70	0	225
	No info.	132	190	593	349	5	1,269
REGIONAL TOTAL		492	976	2,048	1,149	5	4,670
Nabatieh	Small	3	1	1	4	0	9
	Medium	2	2	0	0	0	4
	Large	0	0	0	0	0	0
	No info.	54	106	1,101	8	98	1,367
REGIONAL TOTAL		59	109	1,102	12	98	1,380
North Lebanon	Small	18	23	50	46	0	137
	Medium	11	15	22	18	0	66
	Large	5	0	0	0	0	5
	No info.	10	13	51	21	0	95
REGIONAL TOTAL		44	51	123	85	0	303
South Lebanon	Small	10	14	39	18	0	81
	Medium	5	7	11	7	0	30
	Large	0	5	4	3	0	12
	No info.	119	254	1,972	34	222	2,601
REGIONAL TOTAL		134	280	2,026	62	222	2,724
GRAND TOTAL		949	1,789	6,474	2,253	825	**12,290**

10.   The enumerated establishments were then used as the frame for the selection of a sample with the aim of obtaining interviews at 570 establishments with five or more employees.

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 20.4% (447 out of 2187 establishments).[5] Breaking down by stratified industries, the following sample targets were achieved (using a4a and a6a):

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[5] Based on out of target contacts and impossible to contact establishments

Achieved Sample:

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	10	9	7	11	0	37
	Medium	11	13	14	8	0	46
	Large	1	5	5	8	0	19
	No info.	7	4	1	4	0	16
REGIONAL TOTAL		29	31	27	31	0	118
Bekaa	Small	9	9	9	10	0	37
	Medium	7	10	5	3	0	25
	Large	1	3	0	0	0	4
	No info.	3	5	4	1	5	18
REGIONAL TOTAL		20	27	18	14	5	84
Mount-Lebanon	Small	8	9	7	13	0	37
	Medium	11	10	10	9	0	40
	Large	11	15	8	12	0	46
	No info.	3	6	1	4	2	16
REGIONAL TOTAL		33	40	26	38	2	139
Nabatieh	Small	1	0	0	3	0	4
	Medium	0	2	0	0	0	2
	Large	0	0	0	0	0	0
	No info.	7	11	8	2	9	37
REGIONAL TOTAL		8	13	8	5	9	43
North Lebanon	Small	7	8	8	9	0	32
	Medium	5	8	8	6	0	27
	Large	4	0	0	0	0	4
	No info.	2	5	5	3	0	15
REGIONAL TOTAL		18	21	21	18	0	78
South Lebanon	Small	6	8	13	7	0	34
	Medium	4	3	7	1	0	15
	Large	0	3	3	2	0	8
	No info.	9	6	11	9	7	42
REGIONAL TOTAL		19	20	34	19	7	99
GRAND TOTAL		127	152	134	125	23	**561**

IV. Data Base Structure:

13. The structure of the data base reflects the fact that 3 different versions of the questionnaire were used. The basic questionnaire, the Core Module, includes all common questions asked to all establishments from all sectors. The second expanded variation, the Manufacturing Questionnaire, is built upon the Core Module and adds some specific questions relevant to manufacturing sectors. The third expanded variation, the Retail Questionnaire, is also built upon the Core Module and adds to the core specific questions

relevant to retail 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 *"MNA"* indicate questions specific to the Middle East and North Africa region, 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 3 establishment identifiers, *idstd, phoneid* and *id*. The first is a global unique identifier. The second two are country unique identifiers. 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 Lebanon 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 Lebanon 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.
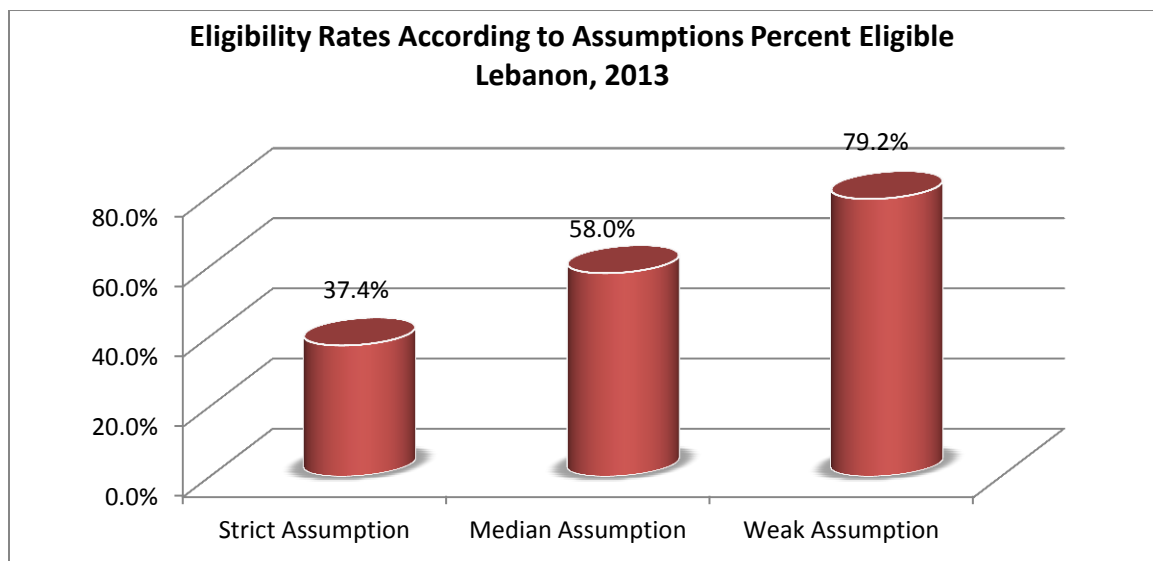
31. Universe estimates for the number of establishments in each industry-region-size cell in Lebanon were produced for the strict, weak and median eligibility definitions. Appendix D shows the universe estimates of the numbers of registered establishments that fit the criteria of the Enterprise Surveys.

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).[6]

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[7], 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 Lebanon.

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 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.)[8]

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 as the relationship

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

[7] For the surveys that implemented a screener over the phone.

[8] 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.

that would be expected if the whole population were observed.[9] 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).

**Sales Non-response Rates
Lebanon, 2013**

Sector	Rate
Manufacturing	12.35%
Services	16.26%
Core	14.36%
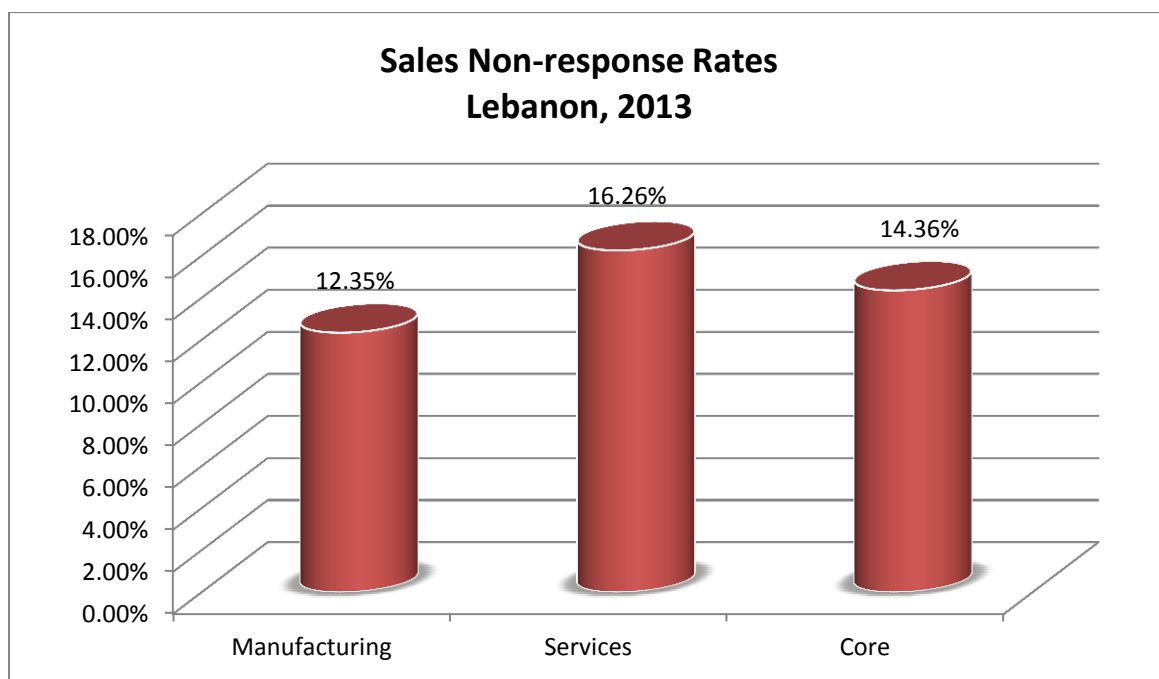
41.   Survey non-response was addressed by maximizing efforts to contact establishments that were initially selected for interview. Attempts were made to contact the establishment for interview at different times/days of the week before a replacement

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[9] 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.

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 0.26.[10] 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 0.29.

Rejection rate and Interviews per Contact
Lebanon, 2013

	Rejection/Contact	Interviews/Contact
	0.29	0.26
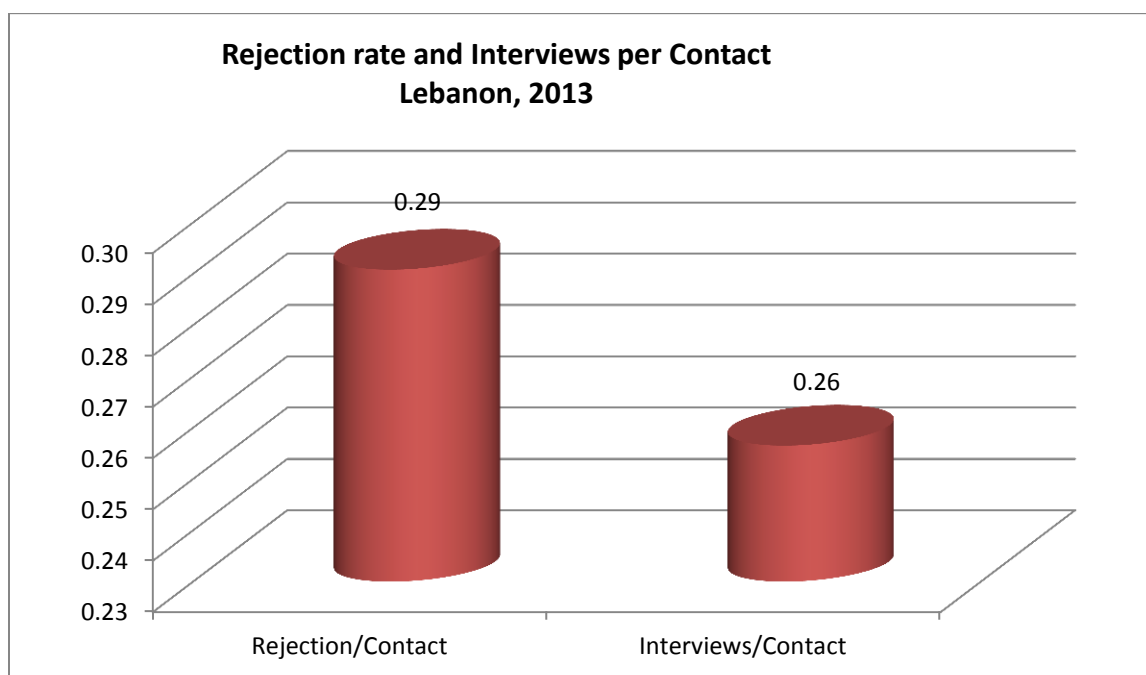
43.   Details on the rejection rate, eligibility rate, and item non-response are available at the strata level. This report summarizes these numbers to alert researchers of these issues when using the data and when making inferences. Item non-response, selection bias, and faulty sampling frames are not unique to Lebanon. All Enterprise Surveys suffer from these shortcomings, but in very few cases they have been made explicit.

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[10] The estimate is based on the total number of firms contacted including ineligible establishments.

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:

Eligibles	1.Eligible establishment (Correct name and address)	760
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	1
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	32
	4. Eligible establishment (Wrong address - the firm/establishmen has changed address and the address could be found)	25
Ineligible	5. The establishment has less than 5 permanent full time employees	296
	616 The firm discontinued businesses - (Establishment went bankrupt)	26
	618 The firm discontinued businesses - (Original establishment disappeared and is now a different firm)	9
	619 The firm discontinued businesses - (Establishment was bought out by another firm)	1
	620 The firm discontinued businesses - (It was impossible to determine for what reason)	14
	621 The firm discontinued businesses - (Other: SPECIFY in COMMENTS)	7
	7. Not a business: private household	58
	8. Ineligible activity: education, agriculture, finances, governments…	36
Unobtainable	91. No reply *(after having called in different days of the week and in different business hours)*	334
	92. Line out of order	19
	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	110
	121. Wrong address/wrong name moved away and could not get the new references	0
	13. Refuses to answer the screener	451
	14. In process *(the establishment is being called/ is being contacted - previous to ask the screener)*	**0**
Out of target	151. Out of target - outside the covered regions, firm moved abroad	0
	152. Out of target - firm moved abroad	7
	153. Out of target - Not registered with SAT	1
	Total	**2187**

Response Outcomes Total:

	Lebanon		COMPLETE
Sample Target	**570**		561
1. Complete interviews **(Total)**	173	ELIGIBLES (Status Codes)	
6. Completed, eligible but refused to answer innovation	5		
2. Incomplete interviews	2		
4. Eligible in process	0		
3. Refusals	185		
5. Complete interviews with innovation (Total)	383		
7. Quota is met	70		
Ineligible	447		
Unobtainable	463		
Out of Target	8		
(Screener) In Process	**0**		
Refusal to the Screener	451		
Total	**2187**		

Response rate	**68.7%**
Ineligible	**20.4%**
Impossible to contact	**21.2%**
Out of target	**0.4%**

Appendix B

Universe Estimates, Lebanon:

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
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REGIONAL TOTAL		134	280	2,026	62	222	2,724
GRAND TOTAL		949	1,789	6,474	2,253	825	**12,290**

Source: InfoPro

Appendix C

Strict Cell Weights Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.
Beirut	Small	2.8	8.5	28.0	14.6	
	Medium	2.0	2.5	5.1	10.5	
	Large	3.8	1.6	2.3	2.0	
	No info.	2.2	5.4	63.7	16.3	
Bekaa Valley	Small	2.3	1.6	3.1	1.4	
	Medium	2.1	1.0	1.4	1.2	
	Large	3.4	1.3			
	No info.	1.3	1.0	3.7	3.2	22.5
Mount-Lebanon	Small	12.3	25.2	58.2	17.6	
	Medium	6.9	14.7	14.5	11.0	
	Large	1.6	1.9	2.3	2.2	
	No info.	14.8	10.1	143.7	24.1	1.0
Nabatieh	Small	1.0			1.0	
	Medium		1.0			
	Large					
	No info.	1.6	1.8	20.0	1.0	1.0
North Lebanon	Small	1.7	1.8	2.9	2.7	
	Medium	1.3	1.1	1.2	1.5	
	Large	1.0				
	No info.	2.0	1.0	2.9	2.3	
South Lebanon	Small	1.0	1.0	1.2	1.2	
	Medium	1.0	1.2	1.0	3.0	
	Large		1.0	1.0	1.0	
	No info.	4.5	13.8	44.2	1.1	5.0

Median Cell Weights Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.
Beirut	Small	4.5	12.5	49.6	25.9	
	Medium	3.6	4.2	10.2	21.1	
	Large	6.2	2.5	4.3	3.6	
	No info.	3.4	7.9	113.2	29.0	
Bekaa Valley	Small	2.8	1.8	4.3	2.0	
	Medium	3.0	1.3	2.2	1.9	
	Large	4.3	1.5			
	No info.	1.6	1.0	5.2	4.5	22.7
Mount-Lebanon	Small	19.3	37.0	103.4	31.2	
	Medium	12.4	24.5	29.3	22.0	
	Large	2.6	2.9	4.3	4.1	
	No info.	23.3	14.9	255.5	42.8	1.0
Nabatieh	Small	1.3			1.0	
	Medium		1.0			
	Large					
	No info.	2.0	2.2	28.7	1.0	1.1
North Lebanon	Small	2.3	2.3	4.5	4.2	
	Medium	2.1	1.6	2.1	2.6	
	Large	1.0				
	No info.	2.7	1.2	4.4	3.5	
South Lebanon	Small	1.2	1.1	1.7	1.6	
	Medium	1.0	1.5	1.0	4.7	
	Large		1.0	1.0	1.0	
	No info.	5.5	15.7	60.6	1.5	5.0

Weak Cell Weights Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.
Beirut	Small	5.5	17.0	67.7	34.1	
	Medium	4.7	6.2	14.9	29.9	
	Large	10.1	4.5	7.8	6.3	
	No info.	4.8	12.4	178.5	44.1	
Bekaa Valley	Small	2.7	1.9	4.6	2.0	
	Medium	3.1	1.5	2.6	2.2	
	Large	5.6	2.2			
	No info.	1.8	1.2	6.4	5.4	35.7
Mount-Lebanon	Small	21.8	46.6	130.6	38.1	
	Medium	15.0	33.1	39.7	28.9	
	Large	3.9	4.8	7.2	6.7	
	No info.	30.5	21.7	373.3	60.4	1.0
Nabatieh	Small	1.6			1.0	
	Medium		1.0			
	Large					
	No info.	2.9	3.6	47.5	1.5	2.2
North Lebanon	Small	2.3	2.5	5.1	4.5	
	Medium	2.2	1.9	2.5	3.0	
	Large	1.3				
	No info.	3.1	1.6	5.7	4.3	
South Lebanon	Small	1.2	1.3	2.0	1.9	
	Medium	1.0	1.9	1.2	5.8	
	Large		1.4	1.0	1.3	
	No info.	6.8	21.6	83.9	1.9	8.7

Appendix E

Strict Universe Estimates Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	28	76	196	161	0	462
	Medium	22	33	71	84	0	210
	Large	4	8	12	16	0	39
	No info.	15	21	64	65	0	166
REGIONAL TOTAL		69	139	342	326	0	876
Bekaa Valley	Small	20	14	28	14	0	76
	Medium	15	10	7	4	0	36
	Large	3	4	0	0	0	7
	No info.	4	5	15	3	112	139
REGIONAL TOTAL		43	33	50	21	112	259
Mount-Lebanon	Small	98	226	408	229	0	961
	Medium	76	147	145	99	0	467
	Large	17	28	19	27	0	91
	No info.	44	61	144	96	2	347
REGIONAL TOTAL		236	462	715	451	2	1866
Nabatieh	Small	1	0	0	3	0	4
	Medium	0	2	0	0	0	2
	Large	0	0	0	0	0	0
	No info.	11	20	160	2	9	202
REGIONAL TOTAL		12	22	160	5	9	208
North Lebanon	Small	12	14	24	25	0	74
	Medium	7	9	10	9	0	34
	Large	4	0	0	0	0	4
	No info.	4	5	14	7	0	30
REGIONAL TOTAL		26	28	47	40	0	142
South Lebanon	Small	6	8	16	8	0	38
	Medium	4	3	7	3	0	18
	Large	0	3	3	2	0	8
	No info.	41	83	486	10	35	654
REGIONAL TOTAL		51	97	512	23	35	718
GRAND TOTAL		437	782	1826	866	158	4068

Median Universe Estimates Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	45	112	348	284	0	789
	Medium	39	55	142	169	0	405
	Large	6	12	21	29	0	69
	No info.	24	32	113	116	0	285
REGIONAL TOTAL		114	211	624	598	0	1548
Bekaa Valley	Small	25	16	38	20	0	99
	Medium	21	13	11	6	0	51
	Large	4	5	0	0	0	9
	No info.	5	5	21	4	114	149
REGIONAL TOTAL		55	39	70	30	114	308
Mount-Lebanon	Small	154	333	724	405	0	1617
	Medium	136	245	293	198	0	873
	Large	28	43	34	49	0	155
	No info.	70	90	255	171	2	588
REGIONAL TOTAL		389	711	1306	824	2	3232
Nabatieh	Small	1	0	0	3	0	4
	Medium	0	2	0	0	0	2
	Large	0	0	0	0	0	0
	No info.	14	24	230	2	9	279
REGIONAL TOTAL		15	26	230	5	9	286
North Lebanon	Small	16	18	36	38	0	109
	Medium	10	12	17	16	0	55
	Large	4	0	0	0	0	4
	No info.	5	6	22	10	0	44
REGIONAL TOTAL		36	37	75	64	0	212
South Lebanon	Small	7	9	22	12	0	49
	Medium	4	5	7	5	0	20
	Large	0	3	3	2	0	8
	No info.	49	94	667	13	35	858
REGIONAL TOTAL		60	110	698	31	35	935
GRAND TOTAL		669	1134	3004	1552	160	6520

Weak Universe Estimates Lebanon

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	55	153	474	375	0	1057
	Medium	51	80	209	239	0	579
	Large	10	22	39	51	0	122
	No info.	34	50	179	177	0	439
REGIONAL TOTAL		150	305	900	841	0	2197
Bekaa Valley	Small	24	17	41	20	0	103
	Medium	22	15	13	7	0	56
	Large	6	7	0	0	0	12
	No info.	5	6	26	5	178	221
REGIONAL TOTAL		57	45	80	32	178	393
Mount-Lebanon	Small	174	419	915	495	0	2003
	Medium	165	331	397	260	0	1154
	Large	43	72	57	80	0	252
	No info.	91	130	373	241	2	839
REGIONAL TOTAL		474	953	1743	1077	2	4249
Nabatieh	Small	2	0	0	3	0	5
	Medium	0	2	0	0	0	2
	Large	0	0	0	0	0	0
	No info.	21	40	380	3	20	463
REGIONAL TOTAL		22	42	380	6	20	470
North Lebanon	Small	16	20	40	41	0	118
	Medium	11	15	20	18	0	64
	Large	5	0	0	0	0	5
	No info.	6	8	29	13	0	56
REGIONAL TOTAL		38	43	89	72	0	242
South Lebanon	Small	7	10	26	13	0	57
	Medium	4	6	8	6	0	24
	Large	0	4	3	3	0	10
	No info.	61	130	923	17	61	1192
REGIONAL TOTAL		73	150	961	39	61	1283
GRAND TOTAL		814	1538	4153	2068	261	8834

Appendix F

Original Sample Design, Lebanon:

Region		Food	Other Manuf.	Retail/Wholesale	Services	No. info.	Grand Total
Beirut	Small	7	8	8	9		32
	Medium	8	9	10	10		37
	Large	6	12	14	13		45
	No info.	4	4	4	4		16
REGIONAL TOTAL		25	33	36	36		130
Bekaa Valley	Small	4	4	4	5		17
	Medium	4	5	6	6		21
	Large	5	6				11
	No info.	4	4	4	4	4	20
REGIONAL TOTAL		17	19	14	15	4	69
Mount-Lebanon	Small	6	7	8	8		29
	Medium	7	9	10	9		35
	Large	10	12	13	12		47
	No info.	4	4	4	4	3	19
REGIONAL TOTAL		27	32	35	33	3	130
Nabatieh	Small	3	1	1	4		9
	Medium	2	2				4
	Large						
	No info.	8	10	10	8	11	47
REGIONAL TOTAL		13	13	11	12	11	60
North Lebanon	Small	4	4	4	5		17
	Medium	5	5	7	6		23
	Large	5					5
	No info.	4	4	4	4		16
REGIONAL TOTAL		18	13	15	15		61
South Lebanon	Small	10	12	12	12		46
	Medium	5	7	11	7		30
	Large		5	4	3		12
	No info.	5	6	7	7	7	32
REGIONAL TOTAL		20	30	34	29	7	120
GRAND TOTAL		120	140	145	140	25	570

Appendix G – COUNTRY MAP