

The Iraq 2011 Enterprise Surveys Data Set

I. Introduction

1. This document provides additional information on the data collected in Iraq between March 2011 and October 2011 as part of the Iraq Enterprise Survey, an initiative of the World Bank.

An Enterprise Survey is a firm-level survey of a representative sample of an economy's private sector. The surveys cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The World Bank has collected this data from face-to-face interviews with top managers and business owners in over 130,000 companies in 125+ economies. More detailed information about the Enterprise Surveys can be found on the Enterprise Surveys website (<http://www.enterprisesurveys.org/>).

The report outlines and describes the sampling methodology, the sample 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 Iraq was selected using stratified random sampling, following the methodology explained in the *Sampling Note*¹. Stratified random sampling² was preferred over simple random sampling for several reasons³:

a. To obtain unbiased estimates for different subdivisions of the population of establishments 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 (group D), construction sector (group F), services sector (groups G and H), transportation, storage, and communications sector (group I), and the IT sector (ISIC 72 in group K). Note that this definition excludes the following sectors: financial intermediation (group J), real estate and renting activities (group K, except sub-sector 72, IT), and all public or utilities-sectors. Please refer to ISIC Revision 3.1 (<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17>) for the classification scheme of business activity. Unregistered (informal) firms, firms with less than 5 employees, or 100% state-owned enterprises are not eligible for the survey.

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/locations.

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: business sector, establishment size, and governorate. The original sample design with specific information of the industries and locations chosen is described in Appendix D.

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

4. Business sector stratification was defined by creating 6 levels: the universe was stratified into four manufacturing sub-sectors (food, non-metallic mineral products, and chemicals/rubber products) and an “other manufacturing” category, retail/wholesale, and an “other services” category.

5. Size stratification was defined by 3 levels following the standardized definition for the Enterprise 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.

6. Regional stratification was defined by 10 sub-national locations (governorates) in Iraq: Ninevah, Kirkuk, Baghdad, Babil, Kerbala, Al-Najaf, Thi-Qar, Basra, Suleimaniyah, and Arbil. These 10 governorates were chosen by COSIT (<http://cosit.gov.iq/english/>) with the cooperation of KRSO (<http://www.krso.net/>) when the World Bank initially engaged the Government of Iraq in discussions regarding this first-ever Enterprise Survey.

III. Survey 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, business sector, and location) are required to draw the sample. COSIT (with the cooperation of KRSO) provided the World Bank with this list (generated in 2009). However despite the target sample design of 1,000 firms (which was known to be extremely ambitious at the outset of the survey project), the list from COSIT contained 959 firms. However in this provided sample frame, the transportation, storage, and communications sectors (group I) along with the IT sector were missing.

8. Through a competitive process, ASHARQ Research Company Ltd. was hired to implement the Iraq 2011 Enterprise Survey. ASHARQ was provided both the sample design and the sample frame (list of eligible companies for interview) and ASHARQ conducted the face-to-face interviews and entered the respondents’ responses into an SPSS dataset. 25 interviewers were employed to conduct the survey.

9. Given the missing sectors and below-target total of firms in the sample frame, the implementing contractor solicited and obtained lists of registered companies from local (governorate-level) chambers of commerce. The implementing contractor provided the World Bank with Excel sheets from 7 governorates. 106 firms in sectors group I and ISIC 72 were randomly selected and appended to the list of 959 firms from COSIT. Thus a total of 1,065 firms constituted the sample frame provided to the implementing contractor. Counts from sample frame are shown below in Table 1.

Table 1. Sample Frame (Source: COSIT and 7 Chambers of Commerce)

		Sector						
Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES	Grand Total
Arbil	1-Small	4	4	9	3	14	12	46
	2-Medium	7	7	3	7	14	8	46
	3-Large	1	1		2	3	3	10
	Region Total	12	12	12	12	31	23	102
Babylon	1-Small	9	16	2	13	5	21	66
	2-Medium	17	5			10		32
	3-Large		2					2
	Region Total	26	23	2	13	15	21	100
Baghdad	1-Small	36	22	30	50	15	24	177
	2-Medium	16	2	3	8	30	6	65
	3-Large	5		2	2			9
	Region Total	57	24	35	60	45	30	251
Basra	1-Small	9	7	2	3	5	20	46
	2-Medium	14	3	1	1	10	2	31
	3-Large	1	1				2	4
	Region Total	24	11	3	4	15	24	81
Dhi Qar	1-Small	4	3		2	2	20	31
	2-Medium	5	9			4		18
	3-Large	1						1
	Region Total	10	12		2	6	20	50
Karbala	1-Small	10	9		2	2	18	41
	2-Medium	7	8			6		21
	3-Large	1	1		2			4
	Region Total	18	18		4	8	18	66
Kirkuk	1-Small	11	16	6	12	6	18	69
	2-Medium	8	3	1	2		6	20
	3-Large	1						1
	Region Total	20	19	7	14	6	24	90
Najaf	1-Small	5	8	1	5	4	21	44
	2-Medium	3	2			8	2	15
	3-Large	1	1					2
	Region Total	9	11	1	5	12	23	61
Nineveh	1-Small	7	30	8	30	5	11	91
	2-Medium	11				8	2	21
	3-Large	1			1			2
	Region Total	19	30	8	31	13	13	114
Sulaymaniyah	1-Small	11	6	16	17	15	19	84
	2-Medium	7	10	2	1	17	20	57
	3-Large		2			7		9
	Region Total	18	18	18	18	39	39	150
Grand Total		213	178	86	163	190	235	1065

10. Despite the sub-optimal size of the sample frame (1,065 eligible firms), the target number of interviews remained at 1,000 even though this target was deemed ambitious at the outset of the survey project.

11. English questionnaires (Manufacturing and Services Questionnaires) were provided to the implementing contractor for translation to Arabic and Kurdish. The translated questionnaires were back-translated into English by a third party so that instances of sub-optimal translation could be identified and corrected. In future, ASHARQ recommends shortening the questionnaire as they indicated respondents felt the questionnaire was very long.

12. Two letters of encouragement were obtained from the Government of Iraq. These letters were provided to prospective survey respondents in order to encourage participation in the survey project. One letter was obtained from the Kurdistan Regional Government, Council of Ministers, Ministry of Planning, General Directorate of Development Cooperation & Coordination. The second letter was obtained from the Republic of Iraq, General Secretariat for the Council of Ministers.

13. In addition to the letters of encouragement, there was a World Bank press release announcing the survey, its goals, the implementing contractor, etc. The goal was for Iraqi media to pick up this announcement so that the survey project would be perceived as credible and encourage prospective respondents.

14. In terms of problems experienced during fieldwork relating to the provided sample frame, the implementing contractor indicated address information in the frame did not match with reality, companies had also changed the size of their workforce, and also there sometimes large physical distances between companies within a governorate. The implementing contractor would supplement the contact information from the frame with information from the yellow pages and from a directory lookup service. A team of 2 “inviters” per governorate were tasked with delivering a hard copy of a formal letter of invitation (to participate in the survey) with the selected company and making an appointment for the actual interview. The inviters were asked to aggressively follow-up with companies that were unresponsive.

15. The overall survey response rate was 92%. The distribution of achieved interviews is provided in Appendix D. The implementing contractor indicated that “Iraq suffers from a crisis of political, administrative and financial corruption and political instability and social problems and sectarian” and also indicated that some religious events interrupted fieldwork. Difficulty was experienced due to respondents’ lack of commitment to the scheduled dates of face-to-face interview.

IV. Data Base Structure

16. The structure of the data base reflects the fact that 2 different versions of the Enterprise Surveys questionnaire were used. The Manufacturing Questionnaire is fielded to manufacturers as it contains questions (such as questions on capacity utilization or production workers) that do not apply to services firms. Similarly, the Services Questionnaire is a subset of the Manufacturing Questionnaire with an additional handful of questions that apply only to services

firms (such as the square floor space for retailers). Each variation of the questionnaire is identified by the index variable, $a0$.

17. All variables are named using, first, the letter of each section and, second, the number of the variable within the section, i.e. $b1$ denotes section B , question 1 . Variable names preceded by a prefix “ IQ ” indicate questions specific to Iraq, therefore, they may not be found in the implementation of the Enterprise Surveys 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.

18. 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 location), $a6a$ (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.

19. There are three levels of stratification: business sector, size and location. Different combinations of these variables generate the strata cells for each sector/location/size combination. A distinction should be made between the variable $a4a$ and $d1a2$ (4 digit industry code expressed as ISIC rev. 3.1 code). The former gives the establishment’s classification into one of the chosen industry-strata via the sample frame, whereas the latter, obtained during the actual face-to-face interview, gives the actual establishment’s primary industry classification obtained during the actual face-to-face interview.

20. The following three 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 locations (governorates)

- $a6a$: 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 two digit ISIC codes to represent the establishment’s primary business activity. **NOTE variable *sampling_sector* represents the six levels of the business sector strata used in the sample design**

- $strata$: represents the firm’s membership in the strata cells (governorate X firm size X sampling sector), i.e. stratum identifiers. All firms with the same value correspond to being in the same particular cell- being located in governorate x , with firm size y , having business activity z .

21. 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. However, sometimes the phone numbers were unavailable in the sample frame or from the yellow pages, and thus the enumerators applied the screeners in person. 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.

22. Note that there is an additional variable for location size by population (a3). Also there are additional variables representing firm size by number of workers (*l1*, *l6* and *l8*) that reflect more accurately the reality of each establishment. Advanced users are advised to use these variables for analytical purposes.

23. 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.

24. Variable *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

25. Appendix B shows the overall estimates of the numbers of establishments in Iraq for the business sectors of interest for the Enterprise Survey. These numbers were provided by COSIT in 2010 and are reflective of the economy in 2009.

26. 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 different sampling weights.

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

28. 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) / Total

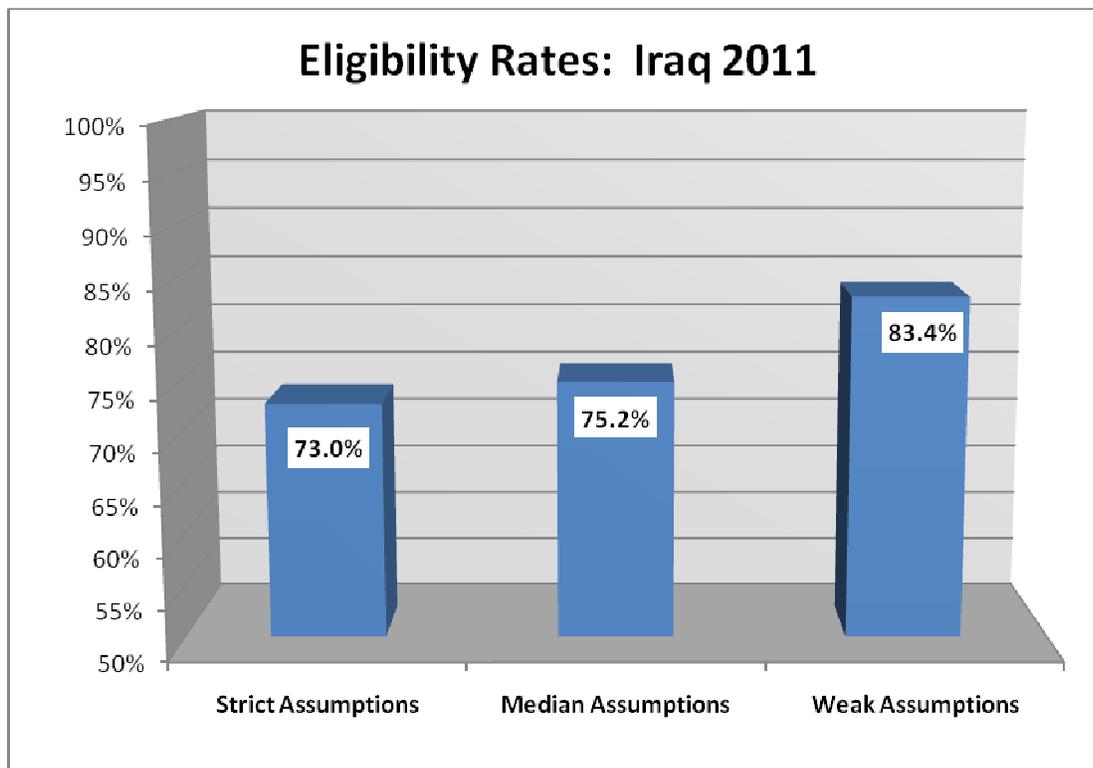
29. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response. The resulting weights are included in the variable *wmedian*.

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

30. 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 *wweak*.

Weak eligibility= (Sum of the firms with codes 1,2,3,4,91,92,93,94,10,11,12,&13) / Total

31. 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.



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.)⁴

34. Special care was given to the correct computation of the weights. It was imperative to accurately adjust the totals within each location/industry/size stratum to account for the presence of ineligible units (the firm discontinued business 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 in the phone line, answering machine, fax line⁵, 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 Iraq.

⁴ This is equivalent to the weighted average of the estimates for each stratum, with weights equal to the population shares of each stratum.

⁵ For the surveys that implemented a screener over the phone.

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 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.)⁶

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 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, then, there is no reason to use weights.

VIII. Non-Response

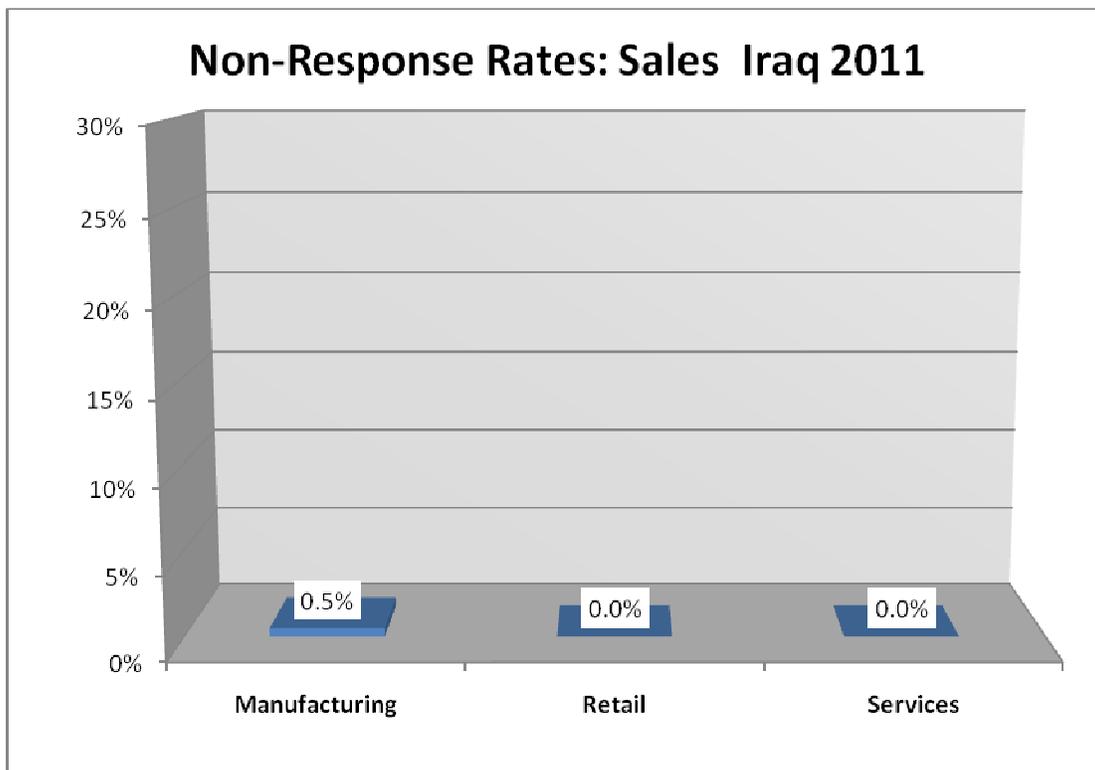
39. Survey non-response must be differentiated from item non-response. The former refers to refusals to participate in the survey altogether whereas the latter refers to the refusals to answer some specific questions. As with all surveys, Enterprise Surveys suffer from both problems and different strategies 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 (-7).
- 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).

⁶ 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.

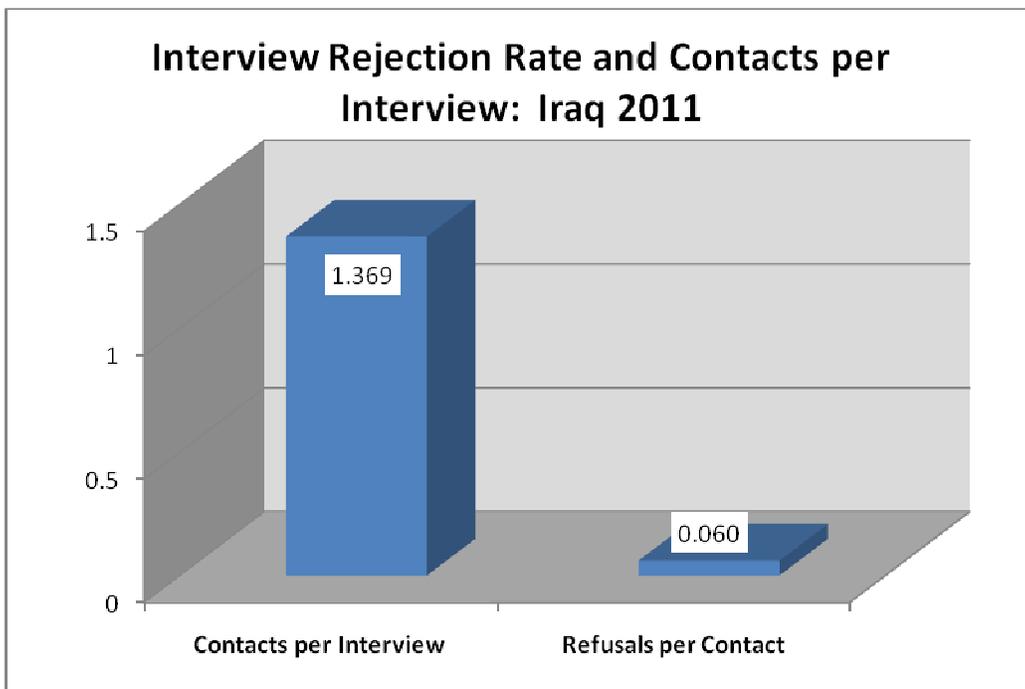
⁷ The use weights in most model-assisted estimations using survey data is strongly recommended by the statisticians specialized on survey methodology of the JPSM of the University of Michigan and the University of Maryland.



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 firm contacts per realized interview was 1.37⁸. 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 .06.

⁸ The estimate is based on the total number of firms contacted including ineligible establishments.



43. Details on the rejection rate, eligibility rate, and item non-response are available at the level strata. 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 Iraq. 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. Sampling: 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)	715
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	8
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	10
	4. Eligible establishment (Wrong address - the firm/establishment has changed address and the address could be found)	23
Ineligibles	5. The establishment has less than 5 permanent full time employees	95
	6. The firm discontinued businesses	30
	7. Not a business: private household	30
	8. Ineligible activity: education, agriculture, finances, governments...	5
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
	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	92
	13. Refuses to answer the screener	27
	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
	152. Out of target - Not registered with SAT	0
	Total	1035

Response Outcomes:

Sample Target	1000
Complete interviews (Total)	756
Incomplete interviews	1
Elegible in process	1
Refusals	40
Out of target	160
Impossible to contact	92
Ineligible - coop.	0
Refusal to the Screener	27
Total	1077

Appendix B: IRAQ SURVEY UNIVERSE ESTIMATES

		Sector						
Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES	Grand Total
Arbil	1-Small	29	179	17	113	5011	5568	10917
	2-Medium	9	17	4	13	2698	57	2798
	3-Large	2	2	1	2	3	57	67
	Region Total	40	198	22	128	7712	5682	13782
Babylon	1-Small	41	19	2	18	665	197	942
	2-Medium	17	5	2	0	219	3	246
	3-Large	1	5	0	0	0	0	6
	Region Total	59	29	4	18	884	200	1194
Baghdad	1-Small	169	22	32	79	4848	574	5724
	2-Medium	16	8	3	17	2624	27	2695
	3-Large	6	0	7	7	0	6	26
	Region Total	191	30	42	103	7472	607	8445
Basra	1-Small	23	12	2	7	886	265	1195
	2-Medium	19	3	1	2	243	6	274
	3-Large	2	2	0	0	0	2	6
	Region Total	44	17	3	9	1129	273	1475
Dhi Qar	1-Small	6	4	0	4	161	126	301
	2-Medium	13	15	0	2	19	16	65
	3-Large	1	0	0	0	0	0	1
	Region Total	20	19	0	6	180	142	367
Karbala	1-Small	17	14	0	7	475	119	632
	2-Medium	16	12	0	5	119	17	169
	3-Large	2	4	0	2	0	0	8
	Region Total	35	30	0	14	594	136	809
Kirkuk	1-Small	13	33	7	17	57	388	515
	2-Medium	14	3	1	2	3	6	29
	3-Large	2	0	0	0	0	0	2
	Region Total	29	36	8	19	60	394	546
Najaf	1-Small	8	12	1	5	685	338	1049
	2-Medium	3	3	0	0	113	12	131
	3-Large	1	2	0	0	0	0	3
	Region Total	12	17	1	5	798	350	1183
Nineveh	1-Small	48	68	11	45	81	114	367
	2-Medium	11	8	6	3	31	3	62
	3-Large	2	0	0	1	0	1	4
	Region Total	61	76	17	49	112	118	433
Sulaymaniyah	1-Small	146	112	34	36	650	4473	5451
	2-Medium	14	16	9	7	350	46	442
	3-Large	0	4	0	0	7	45	56
	Region Total	160	132	43	43	1007	4564	5949
Grand Total		651	584	140	394	19948	12466	34183

Appendix C: IRAQ SURVEY CELL WEIGHTS- STRICT

Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES
Arbil	1-Small	3.5	16.6	1.6	17.6	267.2	253.7
	2-Medium	2.1	12.3	2.6	7.9	336.3	7.1
	3-Large						36.5
Babylon	1-Small	3.7	1.0		1.1	87.9	12.0
	2-Medium	2.1	1.1	1.6		56.4	1.2
	3-Large						
Baghdad	1-Small	3.3	2.1	1.0	1.5	472.7	20.9
	2-Medium	1.0	1.1	1.8	1.4	498.5	1.7
	3-Large	2.0		1.1			
Basra	1-Small	1.7			2.1	89.2	11.4
	2-Medium	1.0			1.1	28.6	3.5
	3-Large	1.4					
Dhi Qar	1-Small				1.3	108.2	16.9
	2-Medium	1.1	1.4				1.0
	3-Large						
Karbala	1-Small	6.8	2.9		4.8		42.0
	2-Medium	1.0	1.6		1.1		1.1
	3-Large	1.6	1.1				
Kirkuk	1-Small	1.3	1.8	1.2	1.0	15.5	19.7
	2-Medium	3.1	1.4			1.2	1.2
	3-Large	1.8					
Najaf	1-Small	1.5	1.1		3.9	275.9	24.7
	2-Medium	2.7	1.4			29.6	1.0
	3-Large		1.9				
Nineveh	1-Small	3.8	2.8	2.9	2.6	20.9	6.8
	2-Medium	1.2	1.2	1.2	1.1	5.8	1.1
	3-Large						
Sulaymaniyah	1-Small	18.4	14.5	2.7	3.1	36.4	184.1
	2-Medium	6.0	1.8	1.0	1.0	29.7	2.2
	3-Large		3.6			2.8	

IRAQ SURVEY CELL WEIGHTS- MEDIAN:

Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES
Arbil	1-Small	3.6	16.7	1.6	17.7	273.7	260.2
	2-Medium	2.3	12.7	2.7	8.1	353.8	7.5
	3-Large						36.6
Babylon	1-Small	3.9	1.0		1.1	90.9	12.4
	2-Medium	2.3	1.2	1.7		59.9	1.2
	3-Large						
Baghdad	1-Small	3.5	2.2	1.1	1.5	491.9	21.8
	2-Medium	1.1	1.1	1.9	1.4	532.6	1.8
	3-Large	2.1		1.1			
Basra	1-Small	1.9			2.2	95.8	12.3
	2-Medium	1.2			1.2	31.5	3.9
	3-Large	1.5					
Dhi Qar	1-Small				1.3	107.6	16.8
	2-Medium	1.1	1.4				1.1
	3-Large						
Karbala	1-Small	6.9	2.8		4.7		41.9
	2-Medium	1.1	1.6		1.1		1.1
	3-Large	1.6	1.0				
Kirkuk	1-Small	1.4	1.9	1.2	1.1	16.3	20.7
	2-Medium	3.4	1.5			1.3	1.3
	3-Large	1.9					
Najaf	1-Small	1.5	1.1		3.8	274.5	24.6
	2-Medium	2.8	1.4			30.2	1.1
	3-Large		1.8				
Nineveh	1-Small	3.9	2.8	3.0	2.6	21.2	6.9
	2-Medium	1.2	1.2	1.2	1.1	6.1	1.2
	3-Large						
Sulaymaniyah	1-Small	18.6	14.2	2.7	3.0	36.2	183.4
	2-Medium	6.3	1.8	1.0	1.0	30.3	2.2
	3-Large		3.5			2.7	

IRAQ SURVEY CELL WEIGHTS- WEAK:

Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFAC TURING	5- ISIC 51,52	6-OTHER SERVICES
Arbil	1-Small	3.9	17.4	1.9	21.0	305.9	293.7
	2-Medium	2.4	13.1	3.0	9.5	389.4	8.3
	3-Large						40.6
Babylon	1-Small	3.9	1.0		1.2	97.0	13.4
	2-Medium	2.3	1.1	1.8		63.0	1.3
	3-Large						
Baghdad	1-Small	4.1	2.5	1.3	2.0	609.1	27.3
	2-Medium	1.3	1.3	2.3	1.8	649.6	2.2
	3-Large	2.4		1.3			
Basra	1-Small	2.0			2.5	104.4	13.5
	2-Medium	1.2			1.4	33.8	4.2
	3-Large	1.5					
Dhi Qar	1-Small				1.4	109.4	17.3
	2-Medium	1.1	1.3				1.1
	3-Large						
Karbala	1-Small	7.8	3.1		6.0		50.6
	2-Medium	1.2	1.8		1.4		1.3
	3-Large	1.8	1.2				
Kirkuk	1-Small	1.4	1.9	1.3	1.2	17.2	22.1
	2-Medium	3.4	1.4			1.3	1.3
	3-Large	1.9					
Najaf	1-Small	1.6	1.2		4.7	314.5	28.4
	2-Medium	3.0	1.4			34.1	1.2
	3-Large		1.9				
Nineveh	1-Small	3.9	2.7	3.2	2.9	22.3	7.3
	2-Medium	1.2	1.2	1.3	1.2	6.3	1.2
	3-Large						
Sulaymaniyah	1-Small	20.3	15.2	3.2	3.6	41.6	212.4
	2-Medium	6.7	1.9	1.2	1.3	34.3	2.6
	3-Large		3.7			3.0	

Appendix D: ORIGINAL SAMPLE DESIGN

Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES	Grand Total
Arbil	1-Small	4	4	7	3	8	8	34
	2-Medium	6	6	4	7	8	8	39
	3-Large	2	2	1	2	9	9	25
	Region Total	12	12	12	12	25	25	98
Babylon	1-Small	9	16	2	13	5	14	59
	2-Medium	16	2	0	0	10	0	28
	3-Large	1	5	0	0	0	0	6
	Region Total	26	23	2	13	15	14	93
Baghdad	1-Small	36	22	30	50	15	7	160
	2-Medium	15	2	2	3	30	6	58
	3-Large	6	0	3	7	0	6	22
	Region Total	57	24	35	60	45	19	240
Basra	1-Small	9	7	2	3	5	12	38
	2-Medium	15	2	1	1	10	1	30
	3-Large	0	2	0	0	0	1	3
	Region Total	24	11	3	4	15	14	71
Dhi Qar	1-Small	4	3	0	2	2	14	25
	2-Medium	6	9	0	0	4	0	19
	3-Large	0	0	0	0	0	0	0
	Region Total	10	12	0	2	6	14	44
Karbala	1-Small	10	9	0	2	2	12	35
	2-Medium	7	8	0	0	6	0	21
	3-Large	1	3	0	0	0	0	4
	Region Total	18	20	0	2	8	12	60
Kirkuk	1-Small	6	16	6	12	6	12	58
	2-Medium	14	3	1	2	0	6	26
	3-Large	0	0	0	0	0	0	0
	Region Total	20	19	7	14	6	18	84
Najaf	1-Small	5	8	1	5	4	14	37
	2-Medium	3	2	0	0	8	1	14
	3-Large	1	1	0	0	0	0	2
	Region Total	9	11	1	5	12	15	53
Nineveh	1-Small	7	30	8	30	5	11	91
	2-Medium	10	0	0	0	8	2	20
	3-Large	2	0	0	1	0	1	4
	Region Total	19	30	8	31	13	14	115
Sulaymaniyah	1-Small	11	6	14	17	10	10	68
	2-Medium	7	8	4	1	10	10	40
	3-Large	0	4	0	0	15	15	34
	Region Total	18	18	18	18	35	35	142
Grand Total		213	180	86	161	180	180	1000

COMPLETED INTERVIEWS:

Region	Size	1- ISIC 15	2-ISIC 26	3-ISIC 24,25	4-OTHER MANUFACTURING	5- ISIC 51,52	6-OTHER SERVICES	Grand Total
Arbil	1-Small	6	8	7	4	12	14	51
	2-Medium	3	1	1	1	5	5	16
	3-Large						1	1
	Region Total	9	9	8	5	17	20	68
Babylon	1-Small	10	17		13	6	13	59
	2-Medium	7	4	1		3	2	17
	3-Large							0
	Region Total	17	21	1	13	9	15	76
Baghdad	1-Small	34	7	19	30	6	16	112
	2-Medium	10	5	1	7	3	9	35
	3-Large	2		4				6
	Region Total	46	12	24	37	9	25	153
Basra	1-Small	9			2	6	14	31
	2-Medium	12			1	5	1	19
	3-Large	1						1
	Region Total	22	0	0	3	11	15	51
Dhi Qar	1-Small				2	1	5	8
	2-Medium	9	8				10	27
	3-Large							0
	Region Total	9	8	0	2	1	15	35
Karbala	1-Small	2	4		1		2	9
	2-Medium	12	6		3		11	32
	3-Large	1	3					4
	Region Total	15	13	0	4	0	13	45
Kirkuk	1-Small	9	17	5	13	3	16	63
	2-Medium	4	2			2	4	12
	3-Large	1						1
	Region Total	14	19	5	13	5	20	76
Najaf	1-Small	5	10		1	2	11	29
	2-Medium	1	2			3	9	15
	3-Large		1					1
	Region Total	6	13	0	1	5	20	45
Nineveh	1-Small	11	22	3	13	3	13	65
	2-Medium	8	6	4	2	4	2	26
	3-Large							0
	Region Total	19	28	7	15	7	15	91
Sulaymaniyah	1-Small	7	7	10	9	14	19	66
	2-Medium	2	8	7	5	9	16	47
	3-Large		1			2		3
	Region Total	9	16	17	14	25	35	116
Grand Total		166	139	62	107	89	193	756