

The Nigeria 2014 Enterprise Surveys Data Set

I. Introduction

1. This document provides additional information on the data collected in Nigeria between April 2014 and February 2015 under, an initiative of the World Bank. As part of its strategic goal of building a climate for investment, job creation, and sustainable growth, the World Bank has promoted improving business environments as a key strategy for development, which has led to a systematic effort in collecting enterprise data across countries. The Enterprise Surveys (ES) are an ongoing World Bank project in collecting both objective data based on firms' experiences and enterprises' perception of the environment in which they operate. **This project was expanded with increased geographic coverage during fieldwork. It began as a 9-state exercise and 10 more states were added for a total of 19 states.**

The Enterprise Surveys currently cover over 130,000 firms in 135 countries, of which 121 have been surveyed following a standard methodology. This allows for better comparisons across countries and across time. Data 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 Nigeria was selected using stratified random sampling, following the methodology explained in the *Sampling Manual*¹. Stratified random sampling² was preferred over simple random sampling for several reasons³:

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.

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.

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

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, region, and size was not available in the sampling frame for most contacts. 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: For panel firms, the universe was stratified into manufacturing industries and two service sectors (retail and other services). For fresh firms, the universe was stratified into seven manufacturing industries (food & beverage, garments, fabricated metal products, non-metallic mineral products, furniture, publishing, and other manufacturing) and six service sectors (retail, wholesale, transport, hotels & restaurants, repair of motor vehicles, and other services).

5. Regional stratification for the Nigeria ES was defined by 19 states:

- Abia
- Abuja
- Anambra
- Cross River
- Enugu
- Gombe
- Jigawa
- Kaduna
- Kano
- Katsina
- Kebbi
- Kwara
- Lagos
- Nasarawa
- Niger
- Ogun
- Oyo
- Sokoto
- Zamfara

III. Sampling implementation

6. 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.

7. The international firm of Ipsos was hired to conduct the survey and they partnered with local agency Ipsos Nigeria in Nigeria.

8. For the Nigeria ES, two sample frames were used: a sample frame was built using data compiled from the NBS, as well as local and municipal business registries. Due to the fact that the previous round of surveys utilized different stratification criteria in the 2007 & 2009 survey samples, the following convention was used. The presence of panel firms was limited to a maximum of 50% of the achieved interviews in each cell. That sample is referred to as the Panel.

Nigeria, Sample Frame

Panel

		Manufacturing	Retail	Other services
Abia	Small	56	73	54
	Medium	6	1	7
	Large	0	0	0
Abuja	Small	59	41	39
	Medium	12	4	4
	Large	3	1	1
Anambra	Small	48	77	38
	Medium	15	0	9
	Large	2	0	0
Cross River	Small	51	64	61
	Medium	29	1	11
	Large	2	0	1
Enugu	Small	69	72	64
	Medium	8	5	2
	Large	1	0	1
Kaduna	Small	79	69	39
	Medium	30	6	7
	Large	3	0	2
Kano	Small	112	76	39
	Medium	15	10	7
	Large	1	0	0
Lagos	Small	102	102	52
	Medium	63	14	51
	Large	17	0	2
Oyo	Small	14	7	0
	Medium	58	18	43
	Large	14	1	3
	Total	869	642	537

		Manufacturing	Retail	Other services
Gombe	Small	67	23	8
	Medium	6	6	9
	Large	0	0	1
Jigawa	Small	54	24	17
	Medium	19	2	4
	Large	0	0	1
Katsina	Small	34	13	4
	Medium	31	15	20
	Large	1	0	3
Kebbi	Small	65	20	26
	Medium	7	2	3
	Large	0	0	0
Kwara	Small	40	29	24
	Medium	13	2	10
	Large	10	0	1
Nasarawa	Small	60	16	28
	Medium	6	1	6
	Large	1	0	1
Niger	Small	73	18	12
	Medium	9	2	8
	Large	1	0	1
Ogun	Small	77	71	58
	Medium	38	3	4
	Large	6	0	0
Sokoto	Small	42	31	14
	Medium	14	1	3
	Large	1	0	0
Zamfara	Small	71	17	12
	Medium	8	6	3
	Large	3	0	1
	Total	757	302	282

Fresh

		1- Fabricated Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishing	7-Other Manufactu- ring	8-Other services	9- Repair&Sa- le of Motor vehic	10- Wholesale	11- Hotel&Rest- aurant	12-Retail	13- Transport
	Size													
Abia	Small	31	68	38	201	11	24	77	27	159	53	124	164	48
	Medium	0	17	3	10	2	2	36	1	5	6	23	4	7
	Large	0	1	3	1	2	0	3	0	0	0	1	1	1
Abuja	Small	9	18	41	19	32	20	14	44	95	52	185	118	67
	Medium	4	9	6	1	5	7	0	9	32	4	93	6	12
	Large	0	0	0	0	0	0	0	5	1	0	8	0	1
Anambra	Small	15	42	20	25	49	18	42	3	177	32	86	41	32
	Medium	4	27	6	1	6	3	20	1	8	4	13	0	8
	Large	0	4	0	0	0	1	5	1	0	1	0	1	0
Cross River	Small	7	48	18	34	3	13	11	15	146	28	125	51	8
	Medium	1	7	2	2	0	2	6	1	5	4	22	4	0
	Large	0	4	0	0	0	1	3	1	2	0	5	0	3
Enugu	Small	16	60	40	38	66	26	8	24	270	58	210	66	48
	Medium	4	14	2	6	4	4	6	10	30	6	40	2	6
	Large	0	6	0	0	0	0	2	2	2	0	4	2	0
Kaduna	Small	53	203	53	98	50	57	46	47	439	36	230	194	71
	Medium	12	32	9	4	18	7	21	12	39	8	39	20	8
	Large	2	5	3	0	2	1	9	8	4	0	2	1	6
Kano	Small	54	320	74	54	101	40	102	59	491	188	178	175	124
	Medium	14	57	18	1	25	9	87	9	31	28	32	17	24
	Large	1	15	3	0	0	1	48	3	0	3	3	0	7
Lagos	Small	97	119	194	272	110	117	228	191	417	768	783	621	501
	Medium	29	45	29	18	6	27	88	35	35	144	136	85	115
	Large	16	26	19	4	7	15	74	26	14	34	17	12	36
Oyo	Small	135	210	245	629	132	191	287	153	1434	444	507	624	80
	Medium	13	58	13	11	15	28	32	5	22	13	41	14	10
	Large	4	15	2	1	0	5	5	2	2	2	3	0	2
	Total	521	1430	841	1430	646	619	1260	694	3860	1916	2910	2223	1225

		1- Fabricated Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishing	7-Other Manufactu- ring	8-Other services	9- Repair&Sa- le of Motor vehic	10- Wholesale	11- Hotel&Rest- aurant	12-Retail	13- Transport
	Size													
Gombe	Small	42	54	42	42	12	15	6	3	109	19	23	26	19
	Medium	10	35	13	18	17	1	1	6	48	9	14	7	10
	Large	0	12	0	0	1	0	2	2	2	1	1	2	0
Jigawa	Small	7	32	11	4	6	0	1	1	44	5	16	13	2
	Medium	0	75	5	0	9	0	2	4	12	1	5	3	3
	Large	0	3	0	0	0	0	1	0	0	0	1	1	1
Katsina	Small	20	42	14	7	11	3	7	13	105	10	15	26	74
	Medium	25	155	33	5	37	4	11	11	85	18	20	20	83
	Large	2	6	1	0	0	0	4	2	3	3	1	2	6
Kebbi	Small	35	64	25	42	5	5	17	5	127	21	46	35	0
	Medium	10	31	8	4	5	1	5	4	20	6	13	10	0
	Large	2	4	1	0	0	0	0	0	1	0	0	1	0
Kwara	Small	10	16	11	12	24	8	11	7	123	12	79	25	6
	Medium	3	11	6	8	13	5	16	5	24	3	26	8	4
	Large	0	5	2	0	0	0	5	2	0	0	1	0	0
Nasarawa	Small	34	35	25	52	18	11	14	13	101	9	54	21	1
	Medium	12	58	8	21	16	1	1	3	54	4	33	3	9
	Large	0	1	0	0	0	1	0	3	0	0	2	0	1
Niger	Small	21	41	47	31	24	17	45	8	221	22	76	47	6
	Medium	6	42	16	18	28	8	31	3	83	12	48	28	10
	Large	0	2	0	4	5	1	3	0	3	1	1	0	0
Ogun	Small	37	35	64	143	14	16	68	16	228	37	58	70	0
	Medium	12	26	24	39	13	4	40	5	71	22	32	34	2
	Large	7	8	1	4	6	3	23	0	2	1	3	2	0
Sokoto	Small	24	28	20	24	14	2	7	19	80	19	55	52	8
	Medium	6	20	10	3	12	1	3	4	14	6	26	16	9
	Large	0	1	4	0	4	2	0	4	2	2	4	0	1
Zamfara	Small	271	99	46	168	18	3	33	8	186	405	62	339	42
	Medium	81	58	11	40	11	1	12	4	47	147	10	71	17
	Large	5	2	0	1	0	0	2	1	3	3	1	9	0
	Total	682	1001	448	690	323	113	371	156	1798	798	726	871	314

10. The sample design for the Nigeria Enterprise Survey was generated with the aim of obtaining interviews at 2640 establishments.

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. The local contractor had to screen the contacts by visiting them which resulted in slow fieldwork in many cases.

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. Breaking down by stratified industries, the following sample targets were achieved:

Achieved panel sample

		Manufacturing	Retail	Other services
Abia	Small	10	16	10
	Medium	3		3
	Large			
Abuja	Small	5	9	5
	Medium	3	1	1
	Large			
Anambra	Small	14	50	17
	Medium	14		8
	Large	2		
Cross River	Small	6	14	16
	Medium	10	1	5
	Large	1		
Enugu	Small	9	19	9
	Medium	2	2	
	Large			1
Kaduna	Small	12	16	6
	Medium	13	4	6
	Large	2		2
Kano	Small	15	21	5
	Medium	5	8	4
	Large	1		
Lagos	Small	6	9	1
	Medium	3	2	5
	Large	3		1
Oyo	Small	4	3	
	Medium	16	7	15
	Large	8	1	3
	Total	167	183	123

		Manufacturing	Retail	Other services
Gombe	Small	8	1	7
	Medium	4	8	4
	Large		1	
Jigawa	Small	5	5	5
	Medium	8	4	1
	Large		1	
Katsina	Small	1		2
	Medium	7	9	7
	Large	1	3	
Kebbi	Small	12	9	8
	Medium	6	2	1
	Large			
Kwara	Small	2	1	4
	Medium	6	5	2
	Large	7	1	
Nasarawa	Small	9	5	6
	Medium	1	5	
	Large	1	1	
Niger	Small	11	5	6
	Medium	5	5	1
	Large	1		
Ogun	Small	7	5	7
	Medium	13	2	1
	Large	1		
Sokoto	Small	3	1	5
	Medium	6	3	1
	Large	1		
Zamfara	Small	10	3	3
	Medium	5	3	5
	Large	3	1	
	Total	144	89	76

Achieved fresh sample

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
	Size													
Abia	Small	2	2	3	14	1	8	11	2	3	3	2	4	3
	Medium		4	2	3	2		3		1	1	2	1	1
	Large											1		
Abuja	Small	3	6	28	7	11	9	6	4	2	4	3	3	4
	Medium	1	3	2		1	2		2	7	1	8	2	2
	Large								3			2		1
Anambra	Small		3	1		1	2	6		1		2	2	1
	Medium		2	2		2	1	7			2	4		1
	Large		1					1						
Cross Riv	Small	1	19	4	12	1	4	5	3	3	3	2	5	
	Medium	1	3	2			2	1		3	1	5	1	
	Large		2					1						1
Enugu	Small	4	10	3	4	8	8	1	3	5	2	2	5	4
	Medium	1	3	1	2	2	1		1	3	2	1	1	1
	Large		1											
Kaduna	Small	3	1	2	3		9	6	2	2	3	2	1	5
	Medium	2	2	2	2	1	2		2	3	2	3	3	1
	Large	1	1			1	1	4	1	1		1		1
Kano	Small	6	19	3	3	2	8	4	9	4	6	8	2	2
	Medium	3	2	2	1	1	4	3	3	5	1		4	7
	Large		7				1	6	2		1			2
Lagos	Small	11	3	10	10	3	7	2	3	3	10	3	2	2
	Medium	9	14	7	4	3	12	3	3	14	4	3	11	13
	Large	2	7	3	1	7	10	15	9	4	9	2	5	4
Oyo	Small	6	2		2	3	1	2		2	3	2	2	3
	Medium	3	2	4	3	2	2		1	1	2		2	2
	Large	1	1				2	2		1		2		1
	Total	60	120	81	71	52	96	89	53	68	60	60	56	62

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
	Size													
Gombe	Small	2	2	2	2	3	8	6	2	2	2	2	2	2
	Medium	2	2	9	1	15	0	1	2	6	2	2	2	2
	Large	0	2	0	0	1	0	2	2	1	1	1	1	0
Jigawa	Small	6	2	10	4	4	0	1	1	5	4	3	12	2
	Medium	0	5	5	0	9	0	2	2	3	1	3	3	3
	Large	0	2	0	0	0	0	1	0	0	0	1	1	1
Katsina	Small	4	3	3	2	2	2	4	3	2	3	1	3	3
	Medium	5	2	2	2	8	4	3	2	3	3	2	2	2
	Large	1	6	1	0	0	0	3	2	1	1	1	1	4
Kebbi	Small	1	2	4	7	3	5	13	2	2	8	4	3	0
	Medium	4	2	6	2	4	1	5	2	3	1	2	2	0
	Large	1	3	1	0	0	0	0	0	0	0	0	1	0
Kwara	Small	2	2	2	2	3	4	4	3	2	4	3	4	3
	Medium	2	2	4	6	5	5	13	3	5	0	6	4	3
	Large	0	4	0	0	0	0	3	0	0	0	0	0	0
Nasarawa	Small	14	3	14	12	1	4	7	4	2	3	2	2	1
	Medium	4	5	4	2	6	0	0	1	4	0	2	2	2
	Large	0	0	0	0	0	0	0	0	0	0	1	0	0
Niger	Small	16	4	2	7	4	1	1	1	2	0	4	2	3
	Medium	2	2	2	3	4	3	2	0	1	2	2	2	2
	Large	0	1	0	3	2	1	1	0	2	0	0	0	0
Ogun	Small	5	2	2	2	2	3	2	2	2	2	2	1	0
	Medium	5	2	3	5	5	2	8	2	5	2	6	6	2
	Large	1	2	0	2	2	3	4	0	1	1	0	0	0
Sokoto	Small	12	2	4	3	2	2	2	2	2	2	2	2	2
	Medium	2	2	2	2	13	1	2	2	2	3	2	2	3
	Large	0	1	4	0	3	2	0	4	2	1	4	0	0
Zamfara	Small	14	3	5	0	3	1	0	3	3	3	4	2	2
	Medium	2	2	2	2	3	1	1	2	4	3	3	2	3
	Large	2	2	0	1	0	0	1	1	0	3	0	6	0
	Total	109	74	93	72	107	53	92	50	67	55	65	70	45

IV. Data Base Structure:

13. The structure of the data base reflects the fact that 2 different versions of the survey instrument were used for all registered establishments. Questionnaires have common questions and respectfully additional manufacturing and services specific questions. The eligible manufacturing industries have been surveyed using the *Manufacturing* questionnaire (includes a common set of core variables, plus manufacturing specific questions). Eligible services have been covered using the *Services* questionnaire. 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 (some exceptions apply due to comparability reasons). Variable names preceded by a prefix “SL” indicate questions specific to Nigeria, therefore, they may not be found in the implementation of the rollout in other countries. All other suffixed variables are global and are present in all country surveys over the world. All variables are numeric with the exception of those variables with an “x” at the end of their names. The suffix “x” denotes that the variable is alpha-numeric.

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

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

17. All of the following variables contain information from the sampling frame. They may not coincide with the reality of individual establishments as sample frames may contain inaccurate information. The variables containing the sample frame information are included in the data set for researchers who may want to further investigate statistical features of the survey and the effect of the survey design on their results.

- a2* is the variable describing sampling regions

- a6a*: coded using the same standard for micro, 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 codes for the chosen industries for stratification. These codes include most manufacturing industries (15 to 37), other manufacturing (2), retail (52), and (45, 50, 51, 55, 60, 63, 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. In the case of Nigeria, this screener was administered face-to-face. Then a face-to-face interview takes place with the Manager/Owner/Director of each establishment. However, the phone numbers were unavailable in the sample frame, 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.

19. Note that there are variables for 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. 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.

20. 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

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

23. 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.

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

25. 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

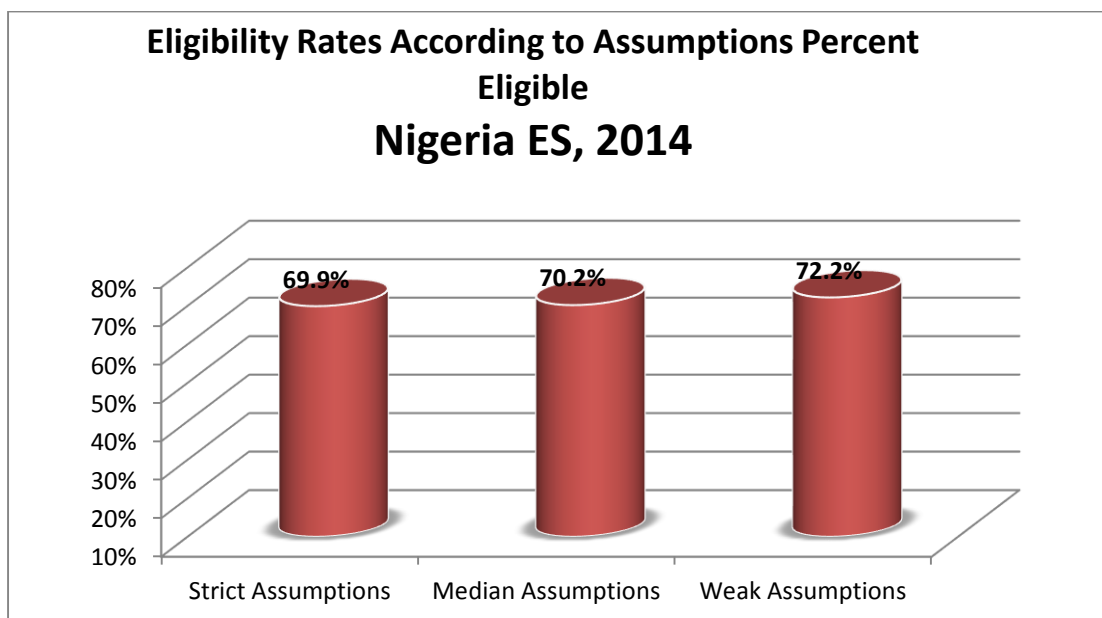
26. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response. The resulting weights are included in the variable *wmedian*.

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

27. 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

28. 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.



29. Universe estimates for the number of establishments in each industry-region-size cell in Nigeria 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.

30. 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

31. 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

32. 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 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.

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

33. 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.

34. 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 use of weighted OLS for a common population coefficient.)⁶

35. 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

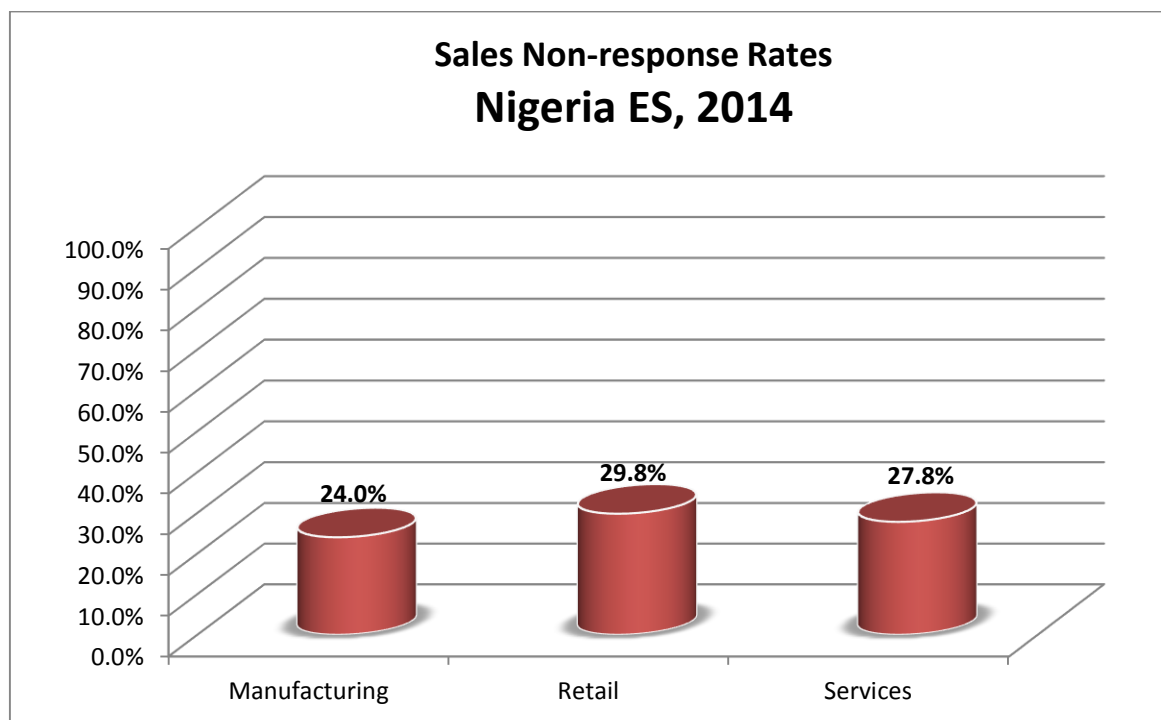
36. Survey non-response must be differentiated from item non-response. The former refers to refusals to participate in the survey altogether whereas the latter refers to the refusals to answer some specific questions. Enterprise Surveys suffer from both problems and different strategies were used to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

37. 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 for both enterprise surveys (ES) reflect both categories (DKs and NAs).

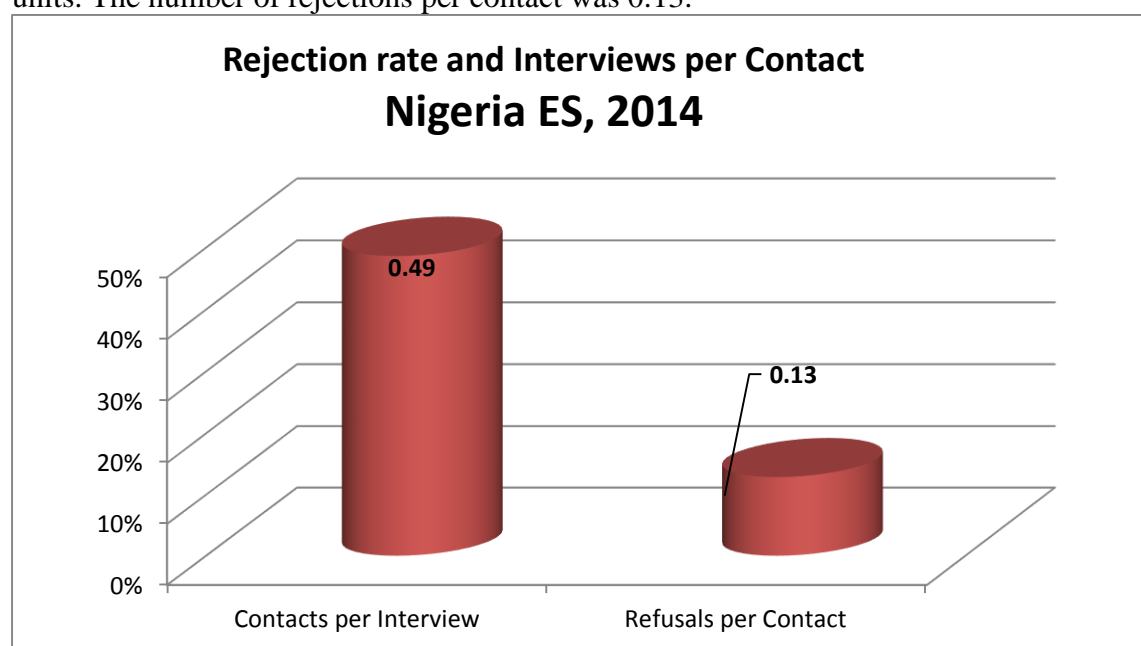
⁶ Note that weighted OLS in Stata using the command `regress` with the option of weights will estimate wrong standard errors. Using the Stata survey specific commands `svy` will provide appropriate standard errors.

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.



38. 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.

39. As the following graph shows, the number of interviews per contacted establishments was 0.49⁸. 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 0.13.



⁸ The estimate is based on the total no. of firms contacted including ineligible establishments.

40. 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 Nigeria. All enterprise surveys suffer from these shortcomings, but in very few cases they have been made explicit.

References:

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

Appendix A

Status Codes:

	Nigeria
Sample Target	2660
Complete interviews (Total)	2685
Incomplete interviews	200
Elegible in process	4
Refusals	764
Out of target	509
Impossible to contact	1175
Ineligible - coop.	81
Refusal to the Screener	15
Total	5433

Response rate	78%
Out of target + impossible to contact	31%
Impossible to contact	22%

Eligibles	1. Eligible establishment (Correct name and address)	3806
	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	114
	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	137
	4. Eligible establishment (Wrong address - the firm/establishment has changed address and the address could be found)	293
Ineligibles	5. The establishment has less than 5 permanent full time employees	3
	6. The firm discontinued businesses	419
	7. Not a business: private household	83
	8. Ineligible activity: education, agriculture, finances, governments...	4
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	1175
	13. Refuses to answer the screener	15
	14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)	1
	151. Out of target - outside the covered regions, firm moved abroad	76
	152. Out of target - firm moved abroad	5
	153. Out of target - Not registered with SAT	0
	Total	6131

Appendix C Weights ----Strict Panel Weights

		Manufacturing	Retail	Other services
Abia	Small	4.6	4.7	4.0
	Medium	1.5	1.9	
	Large			
Abuja	Small	7.3	5.1	3.0
	Medium	2.3	2.4	2.4
	Large			
Anambra	Small	3.0	2.1	1.5
	Medium	1.0	1.0	
	Large	1.0		
Cross River	Small	5.2	2.5	3.0
	Medium	1.6	1.3	1.0
	Large	1.4		
Enugu	Small	3.9	3.8	2.0
	Medium	1.8		1.2
	Large		1.0	
Kaduna	Small	5.3	5.6	3.7
	Medium	1.7	1.0	1.2
	Large	1.3	1.0	
Kano	Small	4.6	5.1	2.3
	Medium	1.7	1.0	1.0
	Large	1.0		
Lagos	Small	3.9	12.8	2.8
	Medium	4.4	2.3	1.6
	Large	1.4	1.0	
Oyo	Small	3.2		2.3
	Medium	3.0	2.5	2.3
	Large	1.8	1.1	1.1

		Manufacturing	Retail	Other services
Gombe	Small	7.1	6.9	2.8
	Medium	1.3	1.0	1.3
	Large		1.0	
Jigawa	Small	9.4	3.0	4.2
	Medium	2.0	1.0	1.7
	Large		1.0	
Katsina	Small	29.9	0.0	5.8
	Medium	3.8	1.9	1.9
	Large	1.0	1.0	
Kebbi	Small	4.1	2.2	1.9
	Medium	1.0	1.1	1.5
	Large			
Kwara	Small	16.7	20.2	6.1
	Medium	1.8	1.7	1.0
	Large	1.3	1.0	
Nasarawa	Small	4.8	4.1	1.9
	Medium	4.3	1.0	
	Large	1.0	1.0	
Niger	Small	5.8	2.1	2.7
	Medium	1.6	1.4	1.8
	Large	1.0		
Ogun	Small	6.7	7.2	6.3
	Medium	1.8	1.2	1.8
	Large	4.1		
Sokoto	Small	9.4	9.5	4.2
	Medium	1.5	1.0	1.0
	Large	1.0		
Zamfara	Small	6.6	3.8	5.3
	Medium	1.5	1.0	1.1
	Large	1.0	1.0	

Median Panel Weights

		Manufacturing	Retail	Other services
Abia	Small	4.6	4.7	4.0
	Medium	1.5	1.9	
	Large			
Abuja	Small	7.3	5.1	3.0
	Medium	2.3	2.4	2.4
	Large			
Anambra	Small	3.0	2.1	1.5
	Medium	1.0	1.0	
	Large	1.0		
Cross River	Small	5.2	2.5	3.0
	Medium	1.6	1.3	1.0
	Large	1.4		
Enugu	Small	3.9	3.8	2.0
	Medium	1.8		1.2
	Large		1.0	
Kaduna	Small	5.3	5.6	3.7
	Medium	1.7	1.0	1.2
	Large	1.3	1.0	
Kano	Small	4.6	5.1	2.3
	Medium	1.7	1.0	1.0
	Large	1.0		
Lagos	Small	3.9	12.8	2.8
	Medium	4.4	2.3	1.6
	Large	1.4	1.0	
Oyo	Small	3.2		2.3
	Medium	3.0	2.5	2.3
	Large	1.8	1.1	1.1

		Manufacturing	Retail	Other services
Gombe	Small	7.1	6.9	2.8
	Medium	1.3	1.0	1.3
	Large		1.0	
Jigawa	Small	9.4	3.0	4.2
	Medium	2.0	1.0	1.7
	Large		1.0	
Katsina	Small	30.0	0.0	5.8
	Medium	3.8	1.9	1.9
	Large	1.0	1.0	
Kebbi	Small	4.1	2.2	1.9
	Medium	1.0	1.1	1.5
	Large			
Kwara	Small	16.7	20.2	6.1
	Medium	1.8	1.7	1.0
	Large	1.3	1.0	
Nasarawa	Small	4.8	4.1	1.9
	Medium	4.3	1.0	
	Large	1.0	1.0	
Niger	Small	5.9	2.1	2.7
	Medium	1.6	1.4	1.7
	Large	1.0		
Ogun	Small	6.7	7.2	6.3
	Medium	1.8	1.2	1.8
	Large	4.1		
Sokoto	Small	9.4	9.5	4.2
	Medium	1.5	1.0	1.0
	Large	1.0		
Zamfara	Small	6.6	3.8	5.3
	Medium	1.5	1.0	1.1
	Large	1.0	1.0	

Weak Panel Weights

		Manufacturing	Retail	Other services
Abia	Small	5.5	5.4	4.6
	Medium	1.9	2.3	
	Large			
Abuja	Small	10.9	7.5	4.4
	Medium	3.7	3.8	3.8
	Large			
Anambra	Small	2.9	2.0	1.5
	Medium	1.0	1.1	
	Large	1.0		
Cross River	Small	6.5	3.0	3.6
	Medium	2.2	1.7	1.0
	Large	1.7		
Enugu	Small	6.5	6.3	3.4
	Medium	3.4		2.2
	Large		1.0	
Kaduna	Small	6.4	6.5	4.4
	Medium	2.2	1.2	1.5
	Large	1.6	1.1	
Kano	Small	5.5	5.9	2.7
	Medium	2.2	1.3	1.0
	Large	1.0		
Lagos	Small	13.6	43.1	9.5
	Medium	16.6	8.4	5.8
	Large	5.0	1.8	
Oyo	Small	3.3		2.3
	Medium	3.4	2.8	2.5
	Large	1.8	1.1	1.1

		Manufacturing	Retail	Other services
Gombe	Small	7.5	7.3	3.1
	Medium	1.3	1.0	1.4
	Large		1.0	
Jigawa	Small	9.4	3.0	4.4
	Medium	2.1	1.0	1.8
	Large		1.0	
Katsina	Small	30.4	0.0	6.0
	Medium	4.0	2.0	2.0
	Large	1.0	1.0	
Kebbi	Small	4.7	2.5	2.2
	Medium	1.0	1.3	1.8
	Large			
Kwara	Small	17.1	20.9	6.5
	Medium	1.9	1.7	1.0
	Large	1.4	1.0	
Nasarawa	Small	5.3	4.5	2.2
	Medium	4.8	1.0	
	Large	1.0	1.0	
Niger	Small	5.9	2.2	2.8
	Medium	1.6	1.5	1.9
	Large	1.0		
Ogun	Small	8.9	9.6	8.5
	Medium	2.4	1.6	2.5
	Large	5.4		
Sokoto	Small	9.8	10.0	4.5
	Medium	1.6	1.0	1.0
	Large	1.0		
Zamfara	Small	6.8	3.9	5.7
	Medium	1.5	1.0	1.2
	Large	1.1	1.1	

Strict Fresh Weights

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Abia	Small	9.1	14.1	7.6	7.2	6.1	1.9	3.6	6.9	35.6	9.7	48.4	25.3	8.9
	Medium		2.7	1.0	1.8	1.0		7.3		3.4	3.3	9.1	2.5	3.9
	Large											1.0		
Abuja	Small	1.4	2.0	1.0	1.6	1.7	1.6	1.3	6.1	34.5	7.7	52.2	26.2	10.1
	Medium	2.6	2.0	2.0		3.0	2.5		2.5	3.4	2.4	9.9	2.0	3.6
	Large								1.0			3.8		1.0
Anambra	Small		7.6	10.4		23.5	5.0	3.2		103.4		29.2	11.0	15.4
	Medium		7.4	1.6		1.5	1.7	1.5			1.0	2.2		3.9
	Large		2.4					2.9						
Cross Riv	Small	4.3	1.6	2.8	1.6	1.7	2.2	1.4	2.6	33.8	5.3	50.5	6.5	
	Medium	1.0	1.5	1.0			1.0	3.8		1.2	2.3	3.6	2.6	
	Large		1.4					2.1						1.9
Enugu	Small	2.6	4.1	8.7	3.7	4.9	2.3	5.3	4.4	39.4	17.3	89.2	8.8	7.2
	Medium	2.6	3.2	1.3	1.8	1.2	2.8		5.6	7.4	1.8	34.3	1.4	3.7
	Large		4.5											
Kaduna	Small	10.3	124.7	15.6	17.4		4.0	4.6	11.8	145.5	6.5	88.7	118.0	7.8
	Medium	3.5	9.9	2.7	1.1	9.9	2.2		3.0	8.7	2.2	10.1	3.1	4.4
	Large	1.3	3.4			1.2	1.0	1.5	4.5	3.0		1.7		3.7
Kano	Small	5.6	10.5	15.6	10.3	29.4	3.0	16.3	3.5	69.8	15.6	18.4	57.0	36.4
	Medium	2.9	18.9	5.8	1.0	7.4	1.5	18.7	1.6	4.4	16.4		2.8	2.0
	Large		1.6				1.0	5.7	1.0		1.9			2.3
Lagos	Small	4.0	22.4	10.5	13.3	18.4	9.8	62.6	29.4	84.8	38.2	185.3	173.9	126.2
	Medium	1.7	1.8	2.3	2.2	1.0	1.3	16.3	5.4	1.5	18.1	32.5	4.4	4.5
	Large	9.6	2.3	3.8	2.2	1.0	1.0	3.0	1.5	2.4	2.1	6.7	1.5	5.1
Oyo	Small	19.6	96.4		250.4	35.8	181.8	128.0		710.8	119.6	292.5	283.8	21.8
	Medium	3.8	26.9	2.9	2.9	6.2	13.5		3.8	22.0	5.3		6.4	4.1
	Large	3.9	15.4				2.7	2.5		2.2		1.9		1.8

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Gombe	Small	19.2	24.7	19.2	17.2	3.9	1.7	1.0	1.2	54.5	8.2	12.1	12.7	8.1
	Medium	4.7	16.3	1.3	15.0	1.1	0.0	1.0	2.5	8.1	4.0	7.5	3.5	4.4
	Large	0.0	5.8	0.0	0.0	1.0	0.0	1.0	1.0	2.1	1.0	1.1	2.1	0.0
Jigawa	Small	1.1	15.7	1.1	1.0	1.6	0.0	1.0	1.0	9.4	1.2	6.0	1.1	1.0
	Medium	0.0	15.0	1.0	0.0	1.1	0.0	1.0	1.8	4.4	1.0	1.9	1.1	1.0
	Large	0.0	1.5	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.2	1.1	1.0
Katsina	Small	4.6	12.9	4.3	2.9	5.4	1.4	1.6	3.6	52.9	2.9	15.9	8.5	21.3
	Medium	4.7	72.7	15.5	2.1	4.6	1.0	3.3	4.6	29.1	5.3	10.8	10.0	36.5
	Large	1.9	1.0	1.0	0.0	0.0	0.0	1.3	1.0	3.2	2.8	1.1	2.1	1.4
Kebbi	Small	31.8	29.0	5.7	4.9	1.6	1.0	1.1	2.0	62.9	2.3	12.0	11.3	0.0
	Medium	2.3	14.3	1.2	1.7	1.2	1.0	1.0	1.7	6.7	5.3	6.9	4.9	0.0
	Large	1.9	1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Kwara	Small	4.6	7.4	5.1	5.0	7.8	1.9	2.5	1.9	61.9	2.6	27.9	6.1	1.7
	Medium	1.4	5.2	1.4	1.1	2.6	1.0	1.1	1.4	4.9	0.0	4.7	2.0	1.2
	Large	0.0	1.2	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
Nasarawa	Small	1.3	6.5	1.0	2.2	10.6	1.6	1.1	1.6	30.6	1.6	17.2	6.2	1.0
	Medium	1.7	6.5	1.1	5.3	1.6	0.0	0.0	1.5	8.3	0.0	10.7	1.0	2.4
	Large	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Niger	Small	1.0	7.8	17.9	3.0	4.9	13.2	33.3	5.5	92.1	0.0	16.7	19.1	1.4
	Medium	2.3	16.3	6.2	4.2	5.8	2.1	11.7	0.0	70.5	4.4	21.4	11.6	3.6
	Large	0.0	1.6	0.0	1.0	2.1	1.0	2.3	0.0	1.3	0.0	0.0	0.0	0.0
Ogun	Small	4.9	11.7	21.3	42.7	5.0	3.6	22.0	4.8	83.0	11.7	22.2	49.8	0.0
	Medium	1.6	8.8	5.4	4.7	1.9	1.4	3.3	1.5	10.5	7.1	4.2	4.1	1.0
	Large	4.9	2.8	0.0	1.3	2.2	1.0	3.9	0.0	1.5	1.0	0.0	0.0	0.0
Sokoto	Small	1.8	12.3	4.4	6.3	6.6	1.0	3.0	7.5	38.6	8.0	27.9	24.5	3.3
	Medium	2.7	9.0	4.5	1.2	1.0	1.0	1.3	1.6	6.9	1.7	13.4	7.7	2.5
	Large	0.0	1.0	1.0	0.0	1.3	1.0	0.0	1.0	1.0	1.8	1.1	0.0	0.0
Zamfara	Small	16.0	27.2	7.6	0.0	5.3	2.5	0.0	2.0	55.9	105.7	14.7	149.1	16.2
	Medium	34.0	24.3	4.6	15.1	3.3	1.0	9.8	1.5	10.8	39.1	3.2	31.8	4.5
	Large	2.2	1.0	0.0	1.0	0.0	0.0	1.7	1.0	0.0	1.0	0.0	1.4	0.0

Median Fresh Weights

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Abia	Small	9.5	14.2	7.5	7.2	6.1	1.9	3.6	6.9	35.7	9.7	48.1	25.1	8.8
	Medium		2.7	1.0	1.8	1.0		7.3		3.4	3.3	9.0	2.5	3.9
	Large											1.0		
Abuja	Small	1.5	2.0	1.0	1.6	1.7	1.5	1.3	6.1	34.6	7.7	51.8	26.1	10.0
	Medium	2.7	2.1	1.9		3.0	2.4		2.5	3.4	2.4	9.8	2.0	3.6
	Large								1.0			3.7		1.0
Anambra	Small		7.8	10.5		24.0	5.1	3.2		105.6		29.6	11.1	15.6
	Medium		7.6	1.6		1.5	1.7	1.5			1.0	2.3		3.9
	Large		2.5					3.0						
Cross Riv	Small	4.4	1.6	2.8	1.6	1.7	2.2	1.4	2.6	33.9	5.3	50.2	6.5	
	Medium	1.0	1.5	1.0			1.0	3.8		1.2	2.3	3.6	2.6	
	Large		1.4					2.1						1.9
Enugu	Small	2.7	4.1	8.6	3.7	5.0	2.3	5.2	4.4	39.5	17.3	88.6	8.8	7.2
	Medium	2.7	3.2	1.3	1.8	1.2	2.8		5.6	7.4	1.8	34.0	1.3	3.6
	Large		4.6											
Kaduna	Small	10.7	125.7	15.5	17.3		4.0	4.5	11.9	145.9	6.5	88.1	117.2	7.7
	Medium	3.7	10.0	2.7	1.1	9.9	2.2		3.1	8.7	2.2	10.0	3.0	4.4
	Large	1.3	3.5			1.2	1.0	1.5	4.5	3.0		1.7		3.6
Kano	Small	6.1	11.1	16.2	10.6	30.9	3.1	16.9	3.7	73.0	16.3	19.1	59.1	37.7
	Medium	3.2	19.9	5.9	1.0	7.7	1.6	19.4	1.7	4.6	17.1		2.9	2.1
	Large		1.7				1.0	5.9	1.0		2.0			2.4
Lagos	Small	4.2	22.6	10.5	13.2	18.5	9.7	62.2	29.6	85.1	38.3	184.1	172.7	125.4
	Medium	1.8	1.8	2.3	2.2	1.0	1.3	16.1	5.5	1.5	18.1	32.2	4.3	4.5
	Large	9.9	2.4	3.8	2.2	1.0	1.0	3.0	1.5	2.4	2.1	6.7	1.5	5.0
Oyo	Small	20.4	97.2		248.7	36.0	180.6	127.1		712.9	120.0	290.5	282.0	21.7
	Medium	4.0	27.1	2.9	2.9	6.2	13.3		3.8	22.0	5.3		6.4	4.1
	Large	4.0	15.5				2.6	2.5		2.2		1.9		1.8

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Gombe	Small	19.7	25.1	19.4	17.4	3.9	1.8	1.0	1.2	55.1	8.4	12.2	12.8	8.2
	Medium	4.8	16.5	1.4	15.1	1.1	0.0	1.0	2.5	8.2	4.0	7.5	3.5	4.4
	Large	0.0	5.9	0.0	0.0	1.0	0.0	1.0	1.0	2.1	1.0	1.1	2.1	0.0
Jigawa	Small	1.2	15.7	1.1	1.0	1.6	0.0	1.0	1.0	9.4	1.2	6.0	1.1	1.0
	Medium	0.0	15.0	1.0	0.0	1.1	0.0	1.0	1.8	4.4	1.0	1.9	1.1	1.0
	Large	0.0	1.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.2	1.1	1.0
Katsina	Small	4.7	13.0	4.3	2.9	5.4	1.4	1.6	3.6	52.9	2.9	15.8	8.5	21.2
	Medium	4.8	73.0	15.4	2.1	4.6	1.0	3.3	4.6	29.0	5.4	10.7	10.0	36.3
	Large	2.0	1.0	1.0	0.0	0.0	0.0	1.2	1.0	3.2	2.8	1.1	2.1	1.4
Kebbi	Small	32.2	29.1	5.6	4.9	1.6	1.0	1.1	2.0	62.9	2.3	11.9	11.3	0.0
	Medium	2.3	14.3	1.2	1.6	1.2	1.0	1.0	1.7	6.7	5.3	6.9	4.9	0.0
	Large	1.9	1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Kwara	Small	4.7	7.4	5.0	4.9	7.8	1.9	2.4	1.9	62.0	2.6	27.8	6.2	1.7
	Medium	1.4	5.2	1.4	1.1	2.6	1.0	1.1	1.4	4.9	0.0	4.6	2.0	1.2
	Large	0.0	1.2	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
Nasarawa	Small	1.4	6.5	1.0	2.1	10.6	1.5	1.1	1.6	30.6	1.6	17.1	6.2	1.0
	Medium	1.7	6.6	1.1	5.3	1.6	0.0	0.0	1.5	8.3	0.0	10.6	1.0	2.4
	Large	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Niger	Small	1.0	7.9	17.9	3.0	4.9	13.2	33.2	5.5	92.2	0.0	16.6	19.2	1.4
	Medium	2.4	16.4	6.2	4.2	5.8	2.1	11.6	0.0	70.4	4.4	21.3	11.6	3.6
	Large	0.0	1.6	0.0	1.0	2.1	1.0	2.3	0.0	1.3	0.0	0.0	0.0	0.0
Ogun	Small	5.0	11.7	21.2	42.6	5.0	3.6	21.9	4.8	83.0	11.8	22.1	49.8	0.0
	Medium	1.6	8.8	5.4	4.7	1.9	1.4	3.3	1.5	10.5	7.1	4.1	4.1	1.0
	Large	5.0	2.8	0.0	1.3	2.2	1.0	3.9	0.0	1.5	1.0	0.0	0.0	0.0
Sokoto	Small	1.8	12.4	4.4	6.3	6.6	1.0	3.0	7.5	38.6	8.0	27.8	24.5	3.3
	Medium	2.7	9.0	4.5	1.2	1.0	1.0	1.3	1.6	6.9	1.7	13.3	7.7	2.5
	Large	0.0	1.0	1.0	0.0	1.3	1.0	0.0	1.0	1.0	1.8	1.1	0.0	0.0
Zamfara	Small	16.2	27.3	7.6	0.0	5.3	2.5	0.0	2.0	55.9	106.3	14.6	149.3	16.2
	Medium	34.5	24.4	4.6	15.0	3.3	1.0	9.7	1.5	10.8	39.2	3.2	31.8	4.4
	Large	2.2	1.0	0.0	1.0	0.0	0.0	1.7	1.0	0.0	1.0	0.0	1.4	0.0

Weak Fresh Weights

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Abia	Small	13.6	20.5	10.9	11.7	9.5	2.8	5.3	12.2	50.1	15.4	56.2	36.3	14.6
	Medium		3.9	1.3	3.0	1.0		10.9		4.8	5.4	10.7	3.6	6.5
	Large											1.0		
Abuja	Small	2.2	3.0	1.4	2.6	2.8	2.3	2.0	11.0	49.8	12.6	62.0	38.7	17.0
	Medium	4.0	3.1	2.9		4.9	3.7		4.6	4.9	4.0	12.0	3.0	6.2
	Large								1.7			4.1		1.0
Anambra	Small		11.7	16.0		39.1	7.8	5.0		155.3		36.2	16.9	27.1
	Medium		11.6	2.5		2.5	2.7	2.4			1.7	2.8		6.9
	Large		3.4					4.2						
Cross Riv	Small	5.8	2.2	3.7	2.3	2.5	2.9	1.9	4.3	43.7	7.7	53.9	8.6	
	Medium	1.0	2.1	1.0			1.0	5.2		1.5	3.4	3.9	3.5	
	Large		1.7					2.6						2.6
Enugu	Small	3.6	5.5	11.7	5.6	7.2	3.1	7.2	7.3	51.8	25.6	96.7	11.9	11.1
	Medium	3.6	4.4	1.8	2.7	1.8	3.9		9.4	9.8	2.7	37.7	1.8	5.7
	Large		5.5											
Kaduna	Small	15.6	185.3	23.1	28.8		6.0	6.9	21.4	209.7	10.6	105.4	173.7	13.1
	Medium	5.4	15.0	4.0	1.8	16.1	3.4		5.6	12.7	3.6	12.2	4.6	7.6
	Large	1.8	4.6			1.8	1.0	2.0	7.3	3.8		1.8		5.6
Kano	Small	7.9	14.5	21.4	15.8	43.8	4.2	22.8	5.9	93.4	23.5	20.3	78.0	56.9
	Medium	4.2	26.5	8.0	1.0	11.1	2.2	26.6	2.8	6.0	25.2		3.9	3.2
	Large		2.0				1.0	7.2	1.4		2.6			3.2
Lagos	Small	6.8	37.1	17.3	24.5	32.7	16.2	105.0	59.3	136.0	69.2	245.0	284.8	236.7
	Medium	3.0	3.1	3.8	4.2	1.8	2.2	27.7	11.1	2.5	33.3	43.6	7.3	8.6
	Large	14.6	3.5	5.7	3.6	1.0	1.5	4.6	2.7	3.4	3.4	8.0	2.2	8.6
Oyo	Small	21.8	105.2		304.0	42.0	198.2	141.6		751.9	143.0	255.0	306.7	27.0
	Medium	4.3	29.8	3.2	3.6	7.3	14.9		5.1	23.6	6.4		7.1	5.2
	Large	3.9	15.1				2.6	2.5		2.1		1.5		2.0

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garment s	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&R estaurant	12-Retail	13- Transport
	Size													
Gombe	Small	19.8	25.7	19.5	18.9	3.9	1.9	1.0	1.4	53.5	8.8	10.9	12.6	9.3
	Medium	4.8	17.0	1.4	16.5	1.1	0.0	1.0	2.9	8.0	4.3	6.7	3.5	5.0
	Large	0.0	5.8	0.0	0.0	1.0	0.0	1.0	1.0	2.0	1.0	1.0	2.0	0.0
Jigawa	Small	1.1	15.8	1.1	1.0	1.5	0.0	1.0	1.0	9.0	1.2	5.2	1.1	1.0
	Medium	0.0	15.1	1.0	0.0	1.0	0.0	1.0	2.0	4.1	1.0	1.7	1.0	1.0
	Large	0.0	1.5	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	1.0
Katsina	Small	4.6	13.1	4.3	3.1	5.2	1.5	1.6	4.0	50.8	3.1	14.0	8.3	23.7
	Medium	4.7	74.0	15.3	2.3	4.5	1.0	3.5	5.2	27.8	5.6	9.5	9.7	40.5
	Large	1.9	1.0	1.0	0.0	0.0	0.0	1.3	1.0	2.9	2.8	1.0	1.9	1.5
Kebbi	Small	33.1	30.6	5.8	5.4	1.6	1.0	1.2	2.4	62.6	2.5	11.0	11.4	0.0
	Medium	2.4	15.1	1.3	1.8	1.2	1.0	1.0	1.9	6.7	5.7	6.3	5.0	0.0
	Large	1.9	1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Kwara	Small	4.7	7.6	5.1	5.4	7.6	2.0	2.6	2.2	59.9	2.8	24.8	6.0	1.9
	Medium	1.4	5.3	1.4	1.2	2.5	1.0	1.2	1.6	4.8	0.0	4.1	2.0	1.3
	Large	0.0	1.2	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
Nasarawa	Small	1.7	8.2	1.2	2.9	12.7	2.0	1.4	2.3	36.4	2.0	18.8	7.5	1.0
	Medium	2.1	8.2	1.4	7.1	1.9	0.0	0.0	2.1	9.9	0.0	11.7	1.1	3.3
	Large	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
Niger	Small	1.1	8.9	19.9	3.6	5.3	15.4	39.0	6.9	99.0	0.0	16.4	20.8	1.8
	Medium	2.6	18.6	6.9	5.0	6.3	2.5	13.7	0.0	75.6	5.2	21.1	12.6	4.5
	Large	0.0	1.8	0.0	1.1	2.2	1.0	2.6	0.0	1.4	0.0	0.0	0.0	0.0
Ogun	Small	6.2	15.0	26.6	57.9	6.0	4.7	28.9	6.8	100.4	15.5	24.7	60.9	0.0
	Medium	2.1	11.3	6.8	6.4	2.3	1.8	4.3	2.2	12.7	9.3	4.6	5.0	1.0
	Large	6.0	3.5	0.0	1.6	2.6	1.0	5.0	0.0	1.8	1.0	0.0	0.0	0.0
Sokoto	Small	1.8	12.4	4.3	6.7	6.3	1.0	3.1	8.4	36.6	8.3	24.3	23.5	3.6
	Medium	2.7	9.0	4.4	1.3	1.0	1.0	1.3	1.8	6.5	1.8	11.7	7.4	2.8
	Large	0.0	1.0	1.0	0.0	1.2	1.0	0.0	1.0	1.0	1.8	1.0	0.0	0.0
Zamfara	Small	18.8	32.4	8.8	0.0	5.9	3.1	0.0	2.6	62.6	129.4	15.1	169.2	21.1
	Medium	39.9	28.9	5.3	18.9	3.7	1.0	11.9	2.0	12.1	47.8	3.3	36.0	5.8
	Large	2.5	1.0	0.0	1.0	0.0	0.0	2.0	1.0	0.0	1.0	0.0	1.5	0.0

Appendix D

Strict Universe Estimates Nigeria

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
	Size													
Abia	Small	18	42	23	108	6	15	46	14	107	29	97	101	27
	Medium	0	11	2	5	2	2	22	1	3	3	18	2	4
	Large	0	1	3	1	2	0	3	0	0	0	1	1	1
Abuja	Small	6	12	28	11	19	14	9	24	69	31	157	79	40
	Medium	3	6	4	1	3	5	0	5	24	2	80	4	7
	Large	0	0	0	0	0	0	0	3	1	0	8	0	1
Anambra	Small	15	23	10	25	23	10	22	3	103	32	58	22	15
	Medium	4	15	3	1	3	2	11	1	8	2	9	0	4
	Large	0	2	0	0	0	1	3	1	0	1	0	1	0
Cross Rive	Small	4	31	11	19	2	9	7	8	101	16	101	33	8
	Medium	1	5	2	2	0	2	4	1	4	2	18	3	0
	Large	0	3	0	0	0	1	2	1	2	0	5	0	2
Enugu	Small	10	41	26	22	40	18	5	13	197	35	178	44	29
	Medium	3	10	1	4	2	3	6	6	22	4	34	1	4
	Large	0	5	0	0	0	0	2	2	2	0	4	2	0
Kaduna	Small	31	125	31	52	50	36	27	24	291	19	177	118	39
	Medium	7	20	5	2	10	4	21	6	26	4	30	12	4
	Large	1	3	3	0	1	1	6	4	3	0	2	1	4
Kano	Small	34	211	47	31	59	27	65	32	349	109	147	114	73
	Medium	9	38	12	1	15	6	56	5	22	16	32	11	14
	Large	1	11	3	0	0	1	34	2	0	2	3	0	5
Lagos	Small	52	67	105	133	55	69	125	88	254	382	556	348	252
	Medium	16	26	16	9	3	16	49	16	22	72	98	48	59
	Large	10	16	12	2	7	10	45	13	10	19	13	8	20
Oyo	Small	117	193	245	501	107	182	256	153	1422	359	585	568	65
	Medium	11	54	12	9	12	27	32	4	22	11	41	13	8
	Large	4	15	2	1	0	5	5	2	2	2	4	0	2
	Total	356	984	606	941	422	467	864	432	3066	1153	2456	1533	687
	Size	1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
Gombe	Small	38	49	38	34	12	14	6	2	109	16	24	25	16
	Medium	9	33	12	15	17	1	1	5	49	8	15	7	9
	Large	0	12	0	0	1	0	2	2	2	1	1	2	0
Jigawa	Small	7	31	11	4	6	0	1	1	47	5	18	14	2
	Medium	0	75	5	0	10	0	2	4	13	1	6	3	3
	Large	0	3	0	0	0	0	1	0	0	0	1	1	1
Katsina	Small	18	39	13	6	11	3	6	11	106	9	16	26	64
	Medium	23	145	31	4	37	4	10	9	87	16	22	20	73
	Large	2	6	1	0	0	0	4	2	3	3	1	2	5
Kebbi	Small	32	58	23	34	5	5	15	4	126	18	48	34	0
	Medium	9	29	7	3	5	1	5	3	20	5	14	10	0
	Large	2	4	1	0	0	0	0	0	1	0	0	1	0
Kwara	Small	9	15	10	10	23	8	10	6	124	10	84	25	5
	Medium	3	10	6	7	13	5	15	4	25	3	28	8	4
	Large	0	5	2	0	0	0	5	2	0	0	1	0	0
Nasarawa	Small	19	19	14	26	11	6	8	6	61	5	34	12	1
	Medium	7	33	5	11	10	1	1	2	33	4	21	2	5
	Large	0	1	0	0	0	1	0	3	0	0	1	0	1
Niger	Small	16	31	36	21	19	13	33	5	184	22	67	38	4
	Medium	5	33	12	13	23	6	23	3	70	9	43	23	7
	Large	0	2	0	3	4	1	2	0	3	1	1	0	0
Ogun	Small	25	23	43	85	10	11	44	10	166	23	44	50	0
	Medium	8	18	16	24	9	3	26	3	53	14	25	25	2
	Large	5	6	1	3	4	3	16	0	2	1	3	2	0
Sokoto	Small	21	25	18	19	13	2	6	15	77	16	56	49	7
	Medium	5	18	9	2	13	1	3	3	14	5	27	15	8
	Large	0	1	4	0	4	2	0	4	2	2	4	0	1
Zamfara	Small	224	82	38	168	16	3	33	6	168	317	59	298	32
	Medium	68	49	9	30	10	1	10	3	43	117	10	64	13
	Large	4	2	0	1	0	0	2	1	3	3	1	8	0
	Total	560	854	365	523	286	94	289	120	1590	635	674	764	264

Median Universe Estimates Nigeria

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
	Size													
Abia	Small	19	43	23	108	6	15	46	14	107	29	96	100	26
	Medium	0	11	2	5	2	2	22	1	3	3	18	2	4
	Large	0	1	3	1	2	0	3	0	0	0	1	1	1
Abuja	Small	6	12	28	11	19	14	9	24	69	31	156	78	40
	Medium	3	6	4	1	3	5	0	5	24	2	79	4	7
	Large	0	0	0	0	0	0	0	3	1	0	7	0	1
Anambra	Small	15	23	11	25	24	10	22	3	106	32	59	22	16
	Medium	4	15	3	1	3	2	11	1	8	2	9	0	4
	Large	0	2	0	0	0	1	3	1	0	1	0	1	0
Cross Rive	Small	4	31	11	19	2	9	7	8	102	16	100	32	8
	Medium	1	5	2	2	0	2	4	1	4	2	18	3	0
	Large	0	3	0	0	0	1	2	1	2	0	5	0	2
Enugu	Small	11	41	26	22	40	18	5	13	198	35	177	44	29
	Medium	3	10	1	4	2	3	6	6	22	4	34	1	4
	Large	0	5	0	0	0	0	2	2	2	0	4	2	0
Kaduna	Small	32	126	31	52	50	36	27	24	292	20	176	117	39
	Medium	7	20	5	2	10	4	21	6	26	4	30	12	4
	Large	1	3	3	0	1	1	6	4	3	0	2	1	4
Kano	Small	37	221	49	32	62	28	68	33	365	114	152	118	75
	Medium	10	40	12	1	15	6	58	5	23	17	32	12	15
	Large	1	12	3	0	0	1	35	2	0	2	3	0	5
Lagos	Small	54	68	105	132	55	68	124	89	255	383	552	345	251
	Medium	16	26	16	9	3	16	48	16	22	72	97	48	58
	Large	10	17	11	2	7	10	45	13	10	19	13	7	20
Oyo	Small	122	194	245	497	108	181	254	153	1426	360	581	564	65
	Medium	12	54	11	9	12	27	32	4	22	11	41	13	8
	Large	4	15	2	1	0	5	5	2	2	2	4	0	2
	Total	372	1004	607	936	427	465	866	435	3092	1161	2447	1529	687

		1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufact uring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
	Size													
Gombe	Small	39	50	39	35	12	14	6	2	110	17	24	26	16
	Medium	10	33	12	15	17	1	1	5	49	8	15	7	9
	Large	0	12	0	0	1	0	2	2	2	1	1	2	0
Jigawa	Small	7	31	11	4	6	0	1	1	47	5	18	14	2
	Medium	0	75	5	0	10	0	2	4	13	1	6	3	3
	Large	0	3	0	0	0	0	1	0	0	0	1	1	1
Katsina	Small	19	39	13	6	11	3	6	11	106	9	16	26	64
	Medium	24	146	31	4	37	4	10	9	87	16	21	20	73
	Large	2	6	1	0	0	0	4	2	3	3	1	2	5
Kebbi	Small	32	58	23	34	5	5	15	4	126	18	48	34	0
	Medium	9	29	7	3	5	1	5	3	20	5	14	10	0
	Large	2	4	1	0	0	0	0	0	1	0	0	1	0
Kwara	Small	9	15	10	10	24	7	10	6	124	11	83	25	5
	Medium	3	10	6	7	13	5	14	4	25	3	28	8	3
	Large	0	5	2	0	0	0	5	2	0	0	1	0	0
Nasarawa	Small	19	19	14	26	11	6	7	6	61	5	34	12	1
	Medium	7	33	4	11	10	1	1	2	33	4	21	2	5
	Large	0	1	0	0	0	1	0	3	0	0	1	0	1
Niger	Small	16	31	36	21	19	13	33	5	184	22	66	38	4
	Medium	5	33	12	12	23	6	23	3	70	9	43	23	7
	Large	0	2	0	3	4	1	2	0	3	1	1	0	0
Ogun	Small	25	23	42	85	10	11	44	10	166	24	44	50	0
	Medium	8	18	16	24	9	3	26	3	53	14	25	25	2
	Large	5	6	1	3	4	3	16	0	2	1	3	2	0
Sokoto	Small	21	25	18	19	13	2	6	15	77	16	56	49	7
	Medium	5	18	9	2	13	1	3	3	14	5	27	15	8
	Large	0	1	4	0	4	2	0	4	2	2	4	0	1
Zamfara	Small	227	82	38	168	16	3	33	6	168	319	59	299	32
	Medium	69	49	9	30	10	1	10	3	43	118	10	64	13
	Large	4	2	0	1	0	0	2	1	3	3	1	8	0
	Total	568	859	364	522	286	94	288	120	1592	638	672	765	263

Weak Universe Estimates Nigeria

		1- Fabricated Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishing	7-Other Manufactu ring	8-Other services	9- Repair&Sal e of Motor vehic	10- Wholesale	11- Hotel&Res taurant	12-Retail	13- Transport
	Size													
Abia	Small	27	61	33	175	9	22	68	24	150	46	112	145	44
	Medium	0	16	3	9	2	2	33	1	5	5	21	4	7
	Large	0	1	3	1	2	0	3	0	0	0	1	1	1
Abuja	Small	9	18	39	18	31	21	14	44	100	50	186	116	68
	Medium	4	9	6	1	5	7	0	9	34	4	96	6	12
	Large	0	0	0	0	0	0	0	5	1	0	8	0	1
Anambra	Small	15	35	16	25	39	16	35	3	155	32	72	34	27
	Medium	4	23	5	1	5	3	17	1	8	3	11	0	7
	Large	0	3	0	0	0	1	4	1	0	1	0	1	0
Cross River	Small	6	41	15	28	2	12	9	13	131	23	108	43	8
	Medium	1	6	2	2	0	2	5	1	5	3	19	3	0
	Large	0	3	0	0	0	1	3	1	2	0	5	0	3
Enugu	Small	14	55	35	34	58	25	7	22	259	51	193	59	44
	Medium	4	13	2	5	4	4	6	9	30	5	38	2	6
	Large	0	6	0	0	0	0	2	2	2	0	4	2	0
Kaduna	Small	47	185	46	86	50	54	41	43	419	32	211	174	65
	Medium	11	30	8	4	16	7	21	11	38	7	37	18	8
	Large	2	5	3	0	2	1	8	7	4	0	2	1	6
Kano	Small	48	291	64	47	88	38	91	53	467	165	162	156	114
	Medium	13	53	16	1	22	9	80	8	30	25	32	16	23
	Large	1	14	3	0	0	1	43	3	0	3	3	0	6
Lagos	Small	88	111	173	245	98	113	210	178	408	692	735	570	473
	Medium	27	43	27	17	5	27	83	33	35	133	131	80	111
	Large	15	24	17	4	7	15	69	24	14	31	16	11	34
Oyo	Small	131	210	245	608	126	198	283	153	1504	429	510	613	81
	Medium	13	60	13	11	15	30	32	5	24	13	41	14	10
	Large	4	15	2	1	0	5	5	2	2	2	3	0	2
	Total	481	1333	775	1324	586	612	1173	659	3827	1757	2759	2069	1161
	Size	1- Fabricate d Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishin g	7-Other Manufactu ring	8-Other services	9- Repair&S ale of Motor vehic	10- Wholesal e	11- Hotel&Re staurant	12-Retail	13- Transport
Gombe	Small	40	51	39	38	12	15	6	3	107	18	22	25	19
	Medium	10	34	12	17	17	1	1	6	48	9	13	7	10
	Large	0	12	0	0	1	0	2	2	2	1	1	2	0
Jigawa	Small	7	32	11	4	6	0	1	1	45	5	16	13	2
	Medium	0	75	5	0	9	0	2	4	12	1	5	3	3
	Large	0	3	0	0	0	0	1	0	0	0	1	1	1
Katsina	Small	19	39	13	6	10	3	7	12	102	9	14	25	71
	Medium	24	148	31	5	36	4	10	10	84	17	19	19	81
	Large	2	6	1	0	0	0	4	2	3	3	1	2	6
Kebbi	Small	33	61	23	38	5	5	16	5	125	20	44	34	0
	Medium	10	30	8	4	5	1	5	4	20	6	13	10	0
	Large	2	4	1	0	0	0	0	0	1	0	0	1	0
Kwara	Small	9	15	10	11	23	8	10	7	120	11	74	24	6
	Medium	3	11	6	7	13	5	15	5	24	3	25	8	4
	Large	0	5	2	0	0	0	5	2	0	0	1	0	0
Nasarawa	Small	23	24	17	34	13	8	10	9	73	6	38	15	1
	Medium	8	41	6	14	11	1	1	2	40	4	23	2	7
	Large	0	1	0	0	0	1	0	3	0	0	1	0	1
Niger	Small	18	36	40	26	21	15	39	7	198	22	66	42	5
	Medium	5	37	14	15	25	7	27	3	76	10	42	25	9
	Large	0	2	0	3	4	1	3	0	3	1	1	0	0
Ogun	Small	31	30	53	116	12	14	58	14	201	31	49	61	0
	Medium	10	23	20	32	11	4	35	4	64	19	28	30	2
	Large	6	7	1	3	5	3	20	0	2	1	3	2	0
Sokoto	Small	21	25	17	20	13	2	6	17	73	17	49	47	7
	Medium	5	18	9	3	13	1	3	4	13	5	23	15	8
	Large	0	1	4	0	4	2	0	4	2	2	4	0	1
Zamfara	Small	263	97	44	168	18	3	33	8	188	388	61	338	42
	Medium	80	58	11	38	11	1	12	4	48	143	10	72	17
	Large	5	2	0	1	0	0	2	1	3	3	1	9	0
	Total	633	928	396	602	297	105	333	141	1674	754	647	832	303

Appendix E

Original Sample Design, Nigeria:

Panel

		Manufacturing	Retail	Other services
Abia	Small	6	12	7
	Medium	3	1	6
	Large	0	0	0
Abuja	Small	4	6	4
	Medium	3	4	4
	Large	3	1	1
Anambra	Small	3	14	4
	Medium	5	0	7
	Large	2	0	0
Cross River	Small	3	9	7
	Medium	6	1	6
	Large	2	0	1
Enugu	Small	6	10	8
	Medium	2	5	2
	Large	1	0	1
Kaduna	Small	6	8	2
	Medium	5	5	4
	Large	3	0	2
Kano	Small	13	11	2
	Medium	3	6	4
	Large	1	0	0
Lagos	Small	8	12	1
	Medium	8	4	9
	Large	6	0	2
Oyo	Small	2	1	0
	Medium	7	4	7
	Large	5	1	3
	Total	116	115	94

		Manufacturing	Retail	Other services
Gombe	Small	7	4	1
	Medium	4	6	7
	Large	0	0	1
Jigawa	Small	6	6	3
	Medium	8	2	4
	Large	0	0	1
Katsina	Small	1	1	1
	Medium	7	8	8
	Large	1	0	3
Kebbi	Small	9	5	5
	Medium	6	2	3
	Large	0	0	0
Kwara	Small	2	4	1
	Medium	4	2	7
	Large	9	0	1
Nasarawa	Small	8	4	4
	Medium	5	1	6
	Large	1	0	1
Niger	Small	9	3	1
	Medium	5	2	8
	Large	1	0	1
Ogun	Small	7	7	5
	Medium	10	1	2
	Large	3	0	0
Sokoto	Small	3	5	1
	Medium	6	1	3
	Large	1	0	0
Zamfara	Small	8	3	1
	Medium	5	6	3
	Large	3	0	1
	Total	139	73	83

Fresh

		1- Fabricated Metal Products	2-Food & Beverage	3- Furniture	4- Garments	5-Non- metallic mineral	6- Publishing	7-Other Manufactu ring	8-Other services	9- Repair&Sal e of Motor vehic	10- Wholesale	11- Hotel&Res taurant	12-Retail	13- Transport
	Size													
Abia	Small	2	2	5	15	4	7	22	3	3	3	2	4	3
	Medium	0	3	2	3	2	1	6	0	1	1	2	1	2
	Large	0	0	0	0	0	0	0	0	0	0	1	0	0
Abuja	Small	3	12	25	4	10	4	4	6	2	4	2	2	2
	Medium	1	2	1	1	1	2	0	2	3	0	8	2	2
	Large	0	0	0	0	0	0	0	1	0	0	1	0	1
Anambra	Small	4	13	12	0	16	4	8	1	4	3	2	3	2
	Medium	0	4	2	0	2	1	4	0	2	2	2	0	2
	Large	0	1	0	0	0	0	0	1	0	0	0	0	0
Cross River	Small	2	27	4	10	1	4	5	4	5	4	2	6	2
	Medium	1	2	0	0	0	2	3	0	1	0	5	1	0
	Large	0	1	0	0	0	0	1	0	0	0	2	0	0
Enugu	Small	3	18	3	7	12	9	1	4	2	2	2	5	3
	Medium	1	3	1	1	0	1	0	2	4	2	5	1	1
	Large	0	1	0	0	0	0	0	0	0	0	1	0	0
Kaduna	Small	2	2	5	3	2	22	4	9	2	2	2	2	6
	Medium	3	2	2	1	3	2	2	2	5	2	3	3	2
	Large	1	2	0	0	1	1	0	1	1	0	1	0	2
Kano	Small	2	14	2	2	2	2	2	5	2	5	4	2	2
	Medium	3	2	6	0	2	2	6	2	2	2	2	2	8
	Large	0	3	0	0	0	1	11	0	0	0	0	0	1
Lagos	Small	11	3	10	3	3	8	3	3	3	10	3	3	3
	Medium	8	13	7	7	3	11	3	3	12	3	3	12	14
	Large	2	5	4	0	7	7	15	8	5	8	2	3	4
Oyo	Small	4	17	4	2	2	7	2	6	2	2	2	2	2
	Medium	4	2	2	3	2	2	7	0	4	4	5	2	4
	Large	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	57	154	97	62	75	100	109	63	65	59	64	56	68

Appendix F

Local Agency team involved in the study:

Local Agency	Ipsos Nigeria
Name of Project Manager	Taiwo Sanni
Name and position of other key persons of the project: Local Survey Implementation Team and corresponding supervisor and enumerator codes:	Fieldwork Coordinator: Sylvesters Osoroh Data Manager: Paul Dotun Data Executive: Omotayo Ajibade 70 enumerators, 9 supervisors

Sample Frame:

Characteristics of sample frame used	Variables: name of establishment, address, sector, region, size, telephone number (for a minority of records)
Year:	2013
Comments on the quality of sample frame:	Nigeria 9 states' sample frame was generally of a higher quality than those used in other countries. This allowed for more detail to be applied to the sample stratification (especially among Fresh contacts). The one drawback with the frame was the comparative lack of contact information (only c.500/c.3000 fresh contacts had a phone number, for example).
Year and organism who conducted the last economic census	
Other sources for companies statistics	World Bank-supplied frame (c.65,000 contacts) NBS & other sources

Sample:

Comments/ problems on sectors and regions selected in the sample	State selection among the original 9 states was broadly ok, as missed much of the violence that is currently affecting parts of the north of the country. Sectors targets were also broadly ok - but the local contractor did have some difficulty filling cells in the food & beverage sector in particular.
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Comments on the response rate	There was some variation in response rates between the Panel (52%) and Fresh (72%) samples. This was primarily due to a larger number of Panel firms changing location and not being traceable (despite the efforts of the local contractor).
Comments on the sample design:	Sample design was ok, there was some initial over-sampling among PANEL firms, but this was rectified with top-up interviews and change of local project manager.
Other comments:	None

Fieldwork and country situation:

Date of Fieldwork	April 2014- February 2015
Locations	9 states: Abia, Abuja, Anambra, Cross River, Enugu, Kaduna, Kano, Lagos, Oyo
Interview number	1,312
Problems found during fieldwork	There was initial over-sampling among PANEL firms in fieldwork's early stages. This led to top-up FRESH interviews having to be conducted at the end of the fieldwork period.
Other observations:	CAPI used for data collection