

The Ethiopia 2011 Enterprise Surveys Data Set

I. Introduction

1. This document provides additional information on the data collected in Ethiopia between July 2011 and July 2012 as part of the Africa Enterprise Survey 2011, an initiative of the World Bank. The document also provides information on the Ethiopia micro survey carried out, in parallel to the Enterprise Survey, between July 2011 and May 2012.

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.

The Enterprise Surveys currently cover over 130,000 firms in 125 countries, of which 113 have been surveyed following the 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 Ethiopia 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,

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

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.

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

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

4. Industry stratification was designed in the way that follows: the universe was stratified into one manufacturing industry and one service as defined in the sampling manual. For the Ethiopia Enterprise Survey (ES), the manufacturing industry had a target of 340 interviews and service industry had a target of 240 interviews. The sample design for the Ethiopia micro survey targeted 240 establishments, 120 in manufacturing and 120 in services. Given to difficulties during the fieldwork implementation, the sample design for the Ethiopia micro survey was revised in March 2012. The revised sample had a target of 120 establishments, 60 in manufacturing and 60 in services.

5. For the Ethiopia Enterprise Survey (ES), size stratification was defined following the standardized definition for the rollout: small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). The micro sample consists of firms with 1 to 4 employees. For stratification purposes, the number of employees was defined on the basis of reported permanent full-time workers. This seems to be an appropriate definition of the labor force since seasonal/casual/part-time employment is not a common practice, except in the sectors of construction and agriculture.

6. Regional stratification for the Ethiopia ES as well as the Ethiopia micro surveys was defined in five regions (City and the surrounding business area): Addis Ababa, Oromya, Snp, Amhara, and Tigray. The revised sample design for the Ethiopia micro survey included establishments only in Addis Ababa.

III. Sampling implementation

7. Given the stratified design, sample frames containing a complete and updated list of establishments as well as information on all stratification variables (number of employees, industry, and region) are required to draw the sample. Great efforts were made to obtain the best source for these listings. However, the quality of the sample frames was not optimal and, therefore, some adjustments were needed to correct for the

presence of ineligible units. These adjustments are reflected in the weights computation (*see below*).

8. TNS Opinion was hired to implement the Africa 2011 enterprise surveys roll out, including the Ethiopia 2011 ES and Micro Survey. In Ethiopia the local subcontractor was originally TNS RMS Ethiopia Operations. Since March 2012, both the Ethiopia 2011 ES and Micro Survey were implemented by WAAS International.

9. For the Ethiopia ES, three sample frames were used. The first sample frame was produced by Ethiopia Ministry of Trade and Industry. A copy of that frame was sent to the TNS statistical team in London to select the establishments for interview. However, the quality of the sample frames was not optimal and additional sample frames were acquired during the implementation of the survey in order to reach the target number of interviews. The second sample frame used was the Dun & Bradstreet (D&B) database and the third sample frame was the Ethiopia Yellow Pages 2011. Each database contained the following information

- Coverage;
- Up to datedness;
- Availability of detailed stratification variables;
- Location identifiers- address, phone number, email;
- Electronic format availability;
- Contact name(s).

Regarding the stratification variables, the number of reported permanent full-time workers was not available in the Ministry of Trade and Industry sample frame or in the Ethiopia Yellow Pages. For the sample frame of the Ministry of Trade and Industry, the number of employees was estimated from the turnover. For the Yellow Pages, the number of employees was not known and could not be estimated during the sample design phase.

The Ethiopia Ministry of Trade and Industry, D&B, and Yellow Pages sample frames were used also for the Ethiopia micro survey. The same criteria for the estimation of the number of workers were applied.

Counts from sample frames are shown below.

Sample Frames

Source: Ministry of Trade and Industry

Enterprise Survey

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	5 to 19	191	7,299	7,490
	20 to 99	263	5,291	5,554
	100+	212	1,446	1,658
Addis Abeba Total		666	14,036	14,702
Amahara	5 to 19	1	505	506
	20 to 99	3	110	113
	100+	7	28	35
Amahara Total		11	643	654
Oromiya	5 to 19	1	869	870
	20 to 99	28	284	312
	100+	51	91	142
Oromiya Total		80	1,244	1,324
Snp	5 to 19		151	151
	20 to 99	3	71	74
	100+	3	24	27
Snp Total		6	246	252
Tigray	5 to 19	1	349	350
	20 to 99		167	167
	100+	3	31	34
Tigray Total		10	793	803
Grand Total		773	16,962	17,735

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	1 to 4	621	20,491	21,112
Amahara	1 to 4	13	2,357	2,370
Oromiya	1 to 4	29	3,711	3,740
Snp	1 to 4	8	400	408
Tigray	1 to 4	4	1,172	1,176
Grand Total		675	28,131	28,806

Source: D&B

Enterprise Survey

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	5 to 19	71	66	137
	20 to 99	123	106	229
	100+	127	77	204
Addis Abeba Total		321	249	570
Amahara	5 to 19	50	2	52
	20 to 99	7	1	8
	100+	9	2	11
Amahara Total		66	5	71
Oromiya	5 to 19	78	3	81
	20 to 99	13	3	16
	100+	16	2	18
Oromiya Total		107	8	115
Snp	5 to 19	2		2
	20 to 99	3		3
	100+			
Snp Total		5		5
Tigray	5 to 19	34		34
	20 to 99	13		13
	100+	5	2	7
Tigray Total		52	2	54
Grand Total		551	264	815

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	1 to 4	14	9	23
Amahara	1 to 4	2		2
Oromiya	1 to 4	18		18
Snp	1 to 4			
Tigray	1 to 4			
Grand Total		34	9	43

Source: Yellow Page Ethiopia 2011

Enterprise Survey and Micro

Region name	Manufacturing	Services	Grand Total
Addis Abeba	2,072	8,120	10,192
Amahara	117	620	737
Oromiya	107	673	780
Snnp	27	297	324
Tigray	51	366	417
Grand Total	2374	10,076	12,450

10. The enumerated establishments with 5 employees or more were then used as the sample frame for the Ethiopia Enterprise Survey with the aim of obtaining interviews at 600 establishments. The enumerated establishments with less than five employees (micro establishments) were used as sample frame for the Ethiopia micro survey with the aim of obtaining interviews at 240 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. In addition, the sample frame contains no telephone/fax numbers so the local contractor had to screen the contacts by visiting them. Due to response rate and ineligibility issues, additional sample had to be extracted by the World Bank in order to obtain enough eligible contacts and meet the sample targets.

12. Given the impact that non-eligible units included in the sample universe may have on the results, adjustments may be needed when computing the appropriate weights for individual observations. The percentage of confirmed non-eligible units as a proportion of the total number of sampled establishments contacted for the survey was 21% (392 out of 1873 establishments) and 12% (37 out of 310 establishments)⁴ for the ES firms for the Ministry of Trade and D&B sample frames respectively. For micro firms, 27% (267 out of 997 establishments) and 5% (1 out of 21 establishments) for the Ministry of Trade and D&B sample frames, respectively. The non-eligibility rate for the yellow pages sample frame was 16% (98 out of 607 establishments) for ES and 0% for micro firms.

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 (including micro), i.e. manufacturing and the services questionnaire. Both questionnaires have common questions and respectfully additional manufacturing and services specific questions. Each variation of the questionnaire is identified by the index variable, *a0*.

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

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 “*AF*” indicate questions specific to Africa, 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. In the implementation of the Africa roll out 2011 an experiment was carried in some of the countries to better estimate the effects of the use of show cards in data collection. In some of the sections (i.e. innovation) the enumerators were trained to alternatively implement the section using either show cards or asking only the questions without showing any cards, please see the variable “*cards*”.

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. In the case of the Ethiopia ES, we had to complement the Ministry of Trade and Industry sample frame and the D&B sample frame with firms listed in the Ethiopia Yellow Pages during implementation. Consequently, we had to abandon this level of disaggregation and go for a more aggregated level of industry classification. Thus, in the final data, *a4a* is only comprised of manufacturing and services.

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. For Ethiopia ES, *a4a* is only comprised of manufacturing and services.

18. The surveys were implemented following a 2 stage procedure. Typically first a screener questionnaire is applied over the phone to determine eligibility and to make appointments. Then a face-to-face interview takes place with the Manager/Owner/Director of each establishment. 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 (*11*, *16* and *18*) that reflect more accurately the reality of each establishment. Advanced users are advised to use these variables for analytical purposes. Variables *11*, *16* and *18* 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 Ethiopia were produced for the strict, weak and median eligibility definitions. The estimates were the multiple of the relative eligible proportions.

22. Appendix B shows the overall estimates of the numbers of establishments in Ethiopia based on the sample frame.

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

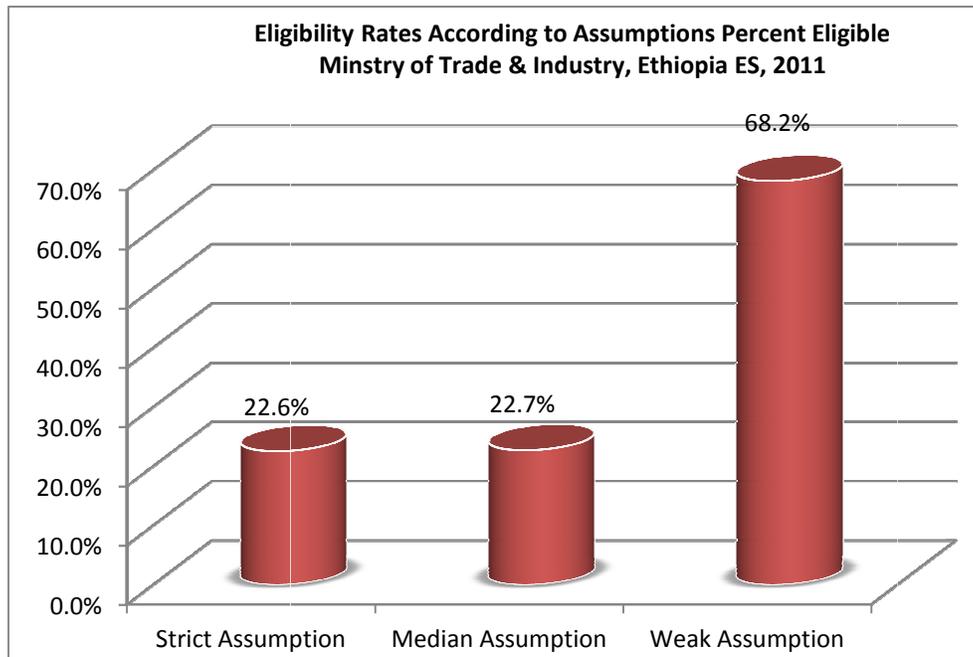
answering machine or fax was the only response. The resulting weights are included in the variable *wmedian*.

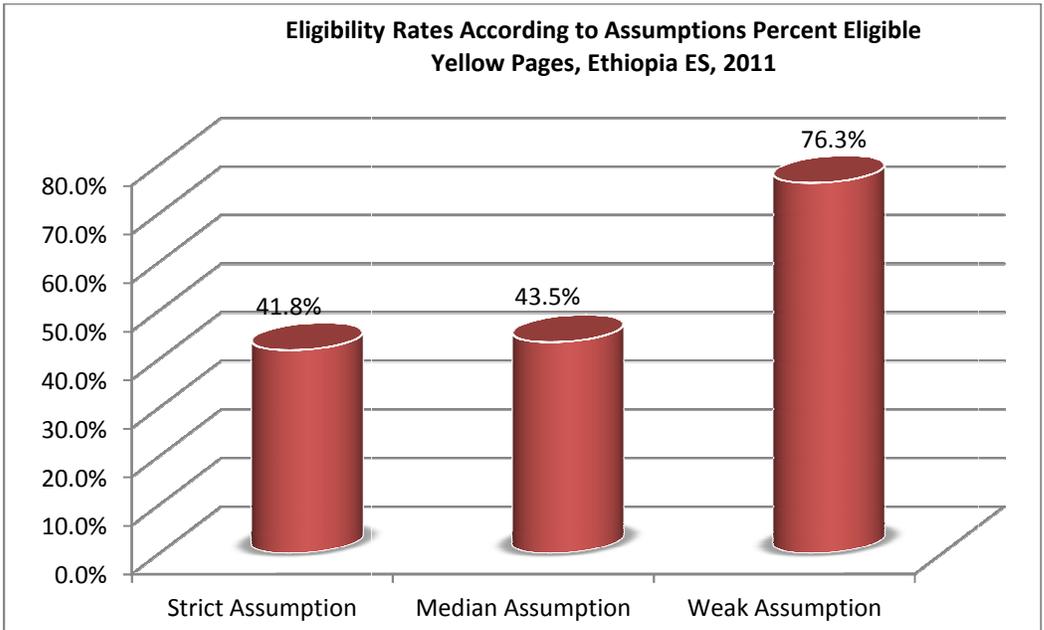
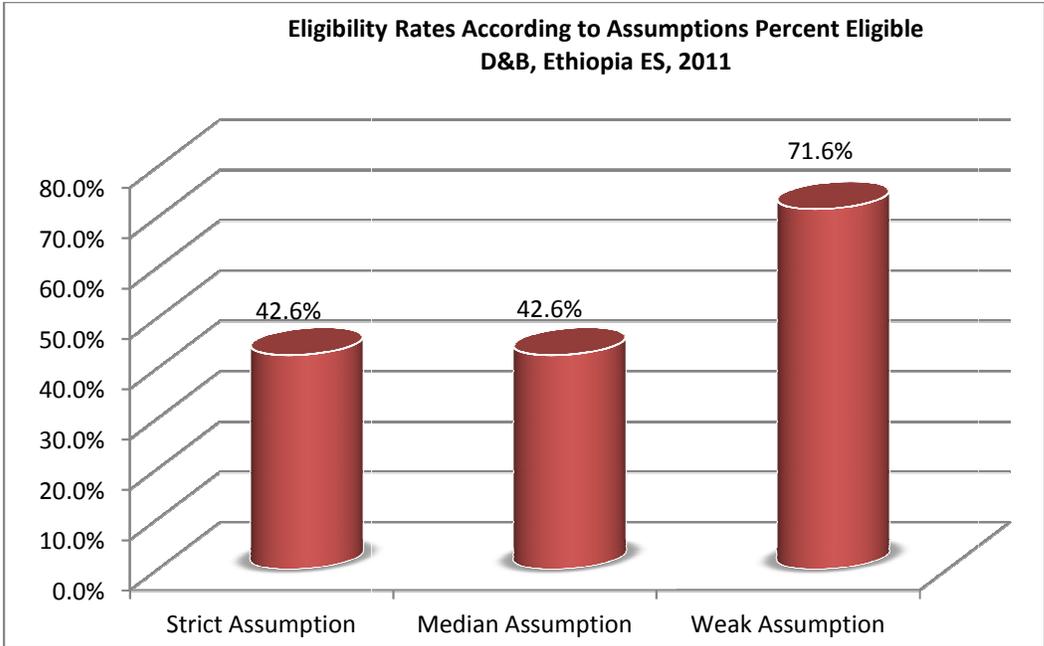
$$\text{Median eligibility} = (\text{Sum of the firms with codes } 1,2,3,4,16,10,11, \text{ \& } 13) / \text{Total}$$

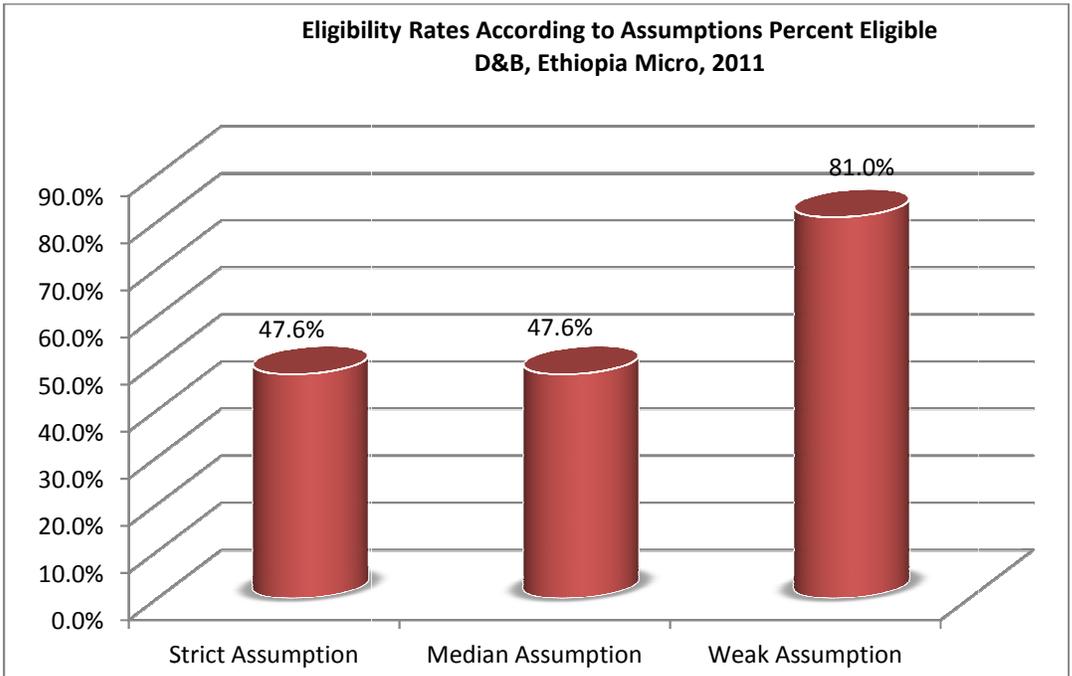
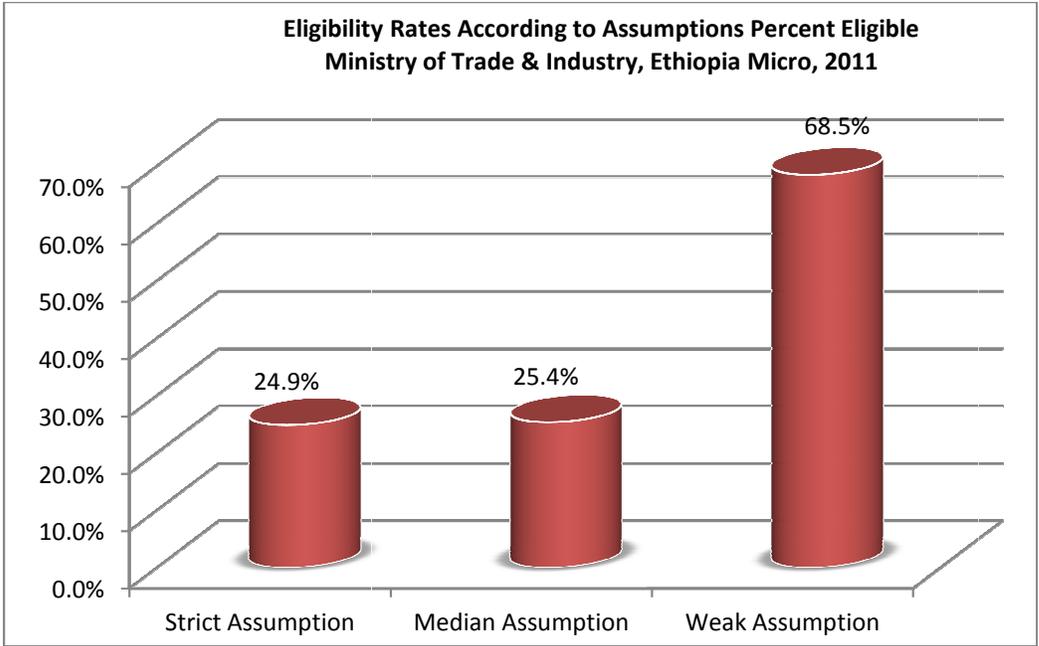
27. Weak assumption: in addition to the establishments included in points a and b, all establishments for which it was not possible to contact or that refused the screening questionnaire are assumed eligible. This definition includes as eligible establishments with dead or out of service phone lines, 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*.

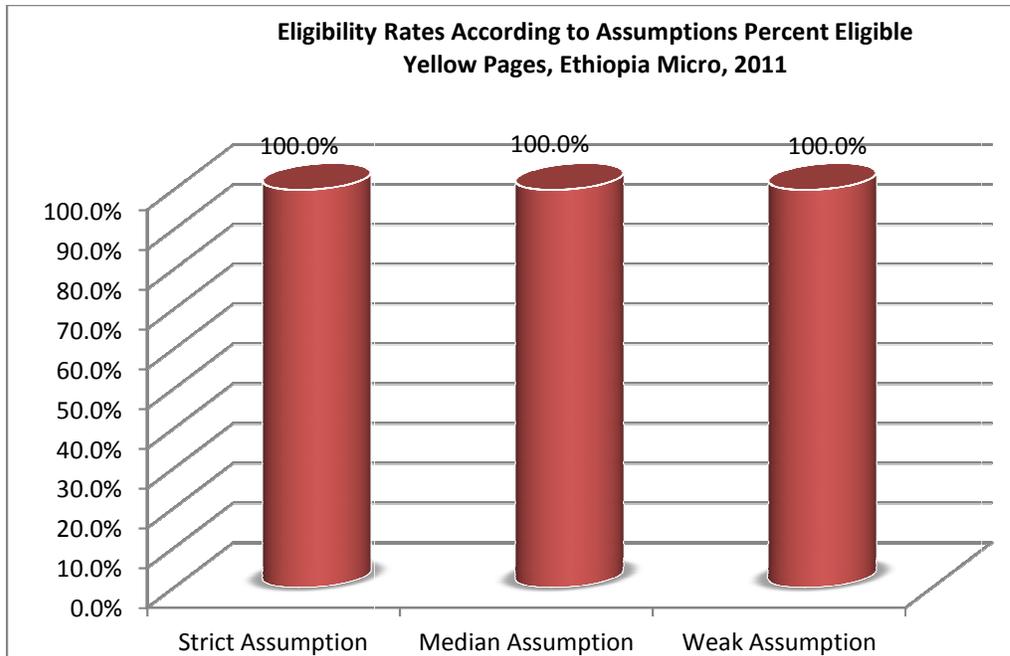
$$\text{Weak eligibility} = (\text{Sum of the firms with codes } 1,2,3,4,16,91,92,93,10,11,12, \text{ \& } 13) / \text{Total}$$

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 each sample frame under each set of assumptions. The eligibility rates for micro firms are also provided below.









29. Universe estimates for the number of establishments in each industry-region-size cell in Ethiopia 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.)⁵

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

⁵ This is equivalent to the weighted average of the estimates for each stratum, with weights equal to the population shares of each stratum.

business hours, no tone in the phone line, answering machine, fax line⁶, 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.

33. Appendix C shows the cell weights for registered establishments in Ethiopia.

VII. Appropriate use of the weights

34. 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.

35. 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.)⁷

36. 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.⁸ If the models are developed as structural relationships or behavioral models that may vary for different parts of the population, then, there is no reason to use weights.

VIII. Non-response

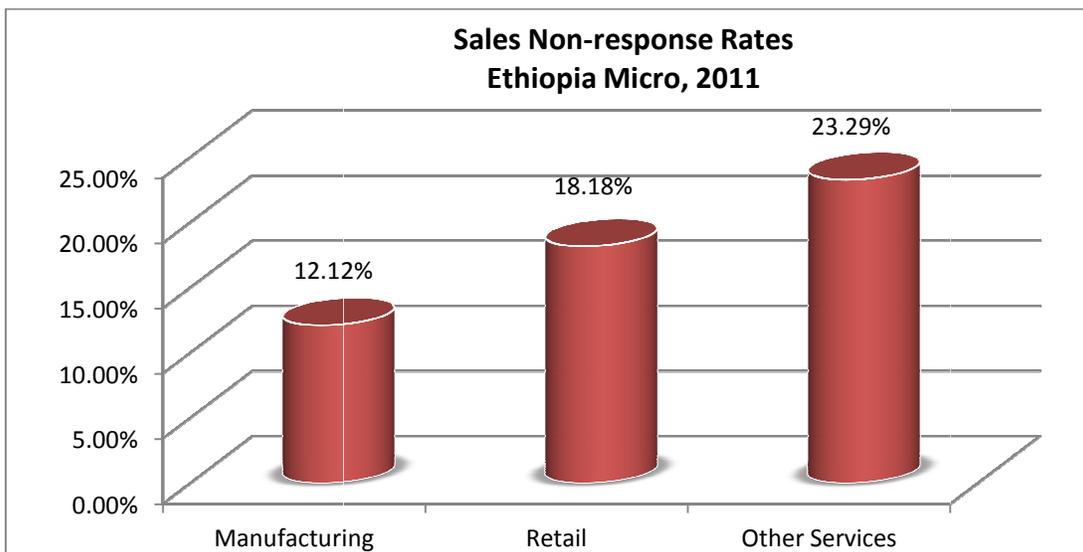
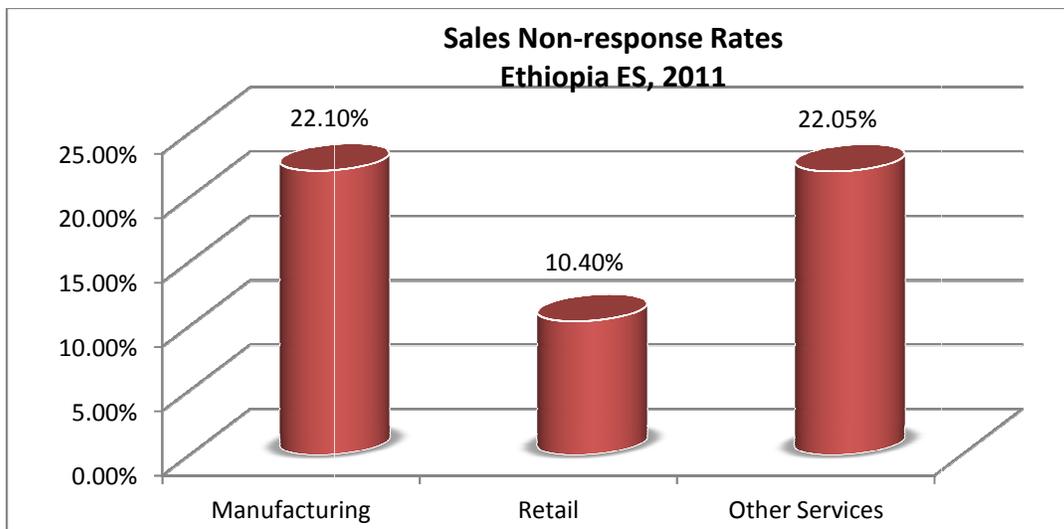
37. Survey non-response must be differentiated from item non-response. The former refers to refusals to participate in the survey altogether whereas the latter refers to the refusals to answer some specific questions. Enterprise Surveys suffer from both problems and different strategies were used to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

⁶ For the surveys that implemented a screener over the phone.

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

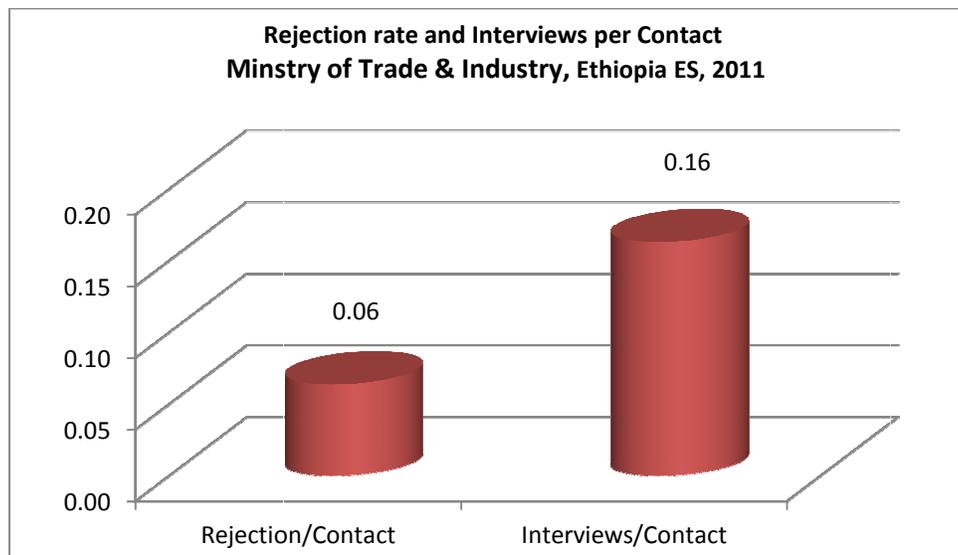
⁸ The use weights in most model-assisted estimations using survey data is strongly recommended by the statisticians specialized on survey methodology of the JPSM of the University of Michigan and the University of Maryland.

38. 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 charts below for both enterprise surveys (ES) and micro firms reflect both categories (DKs and NAs).

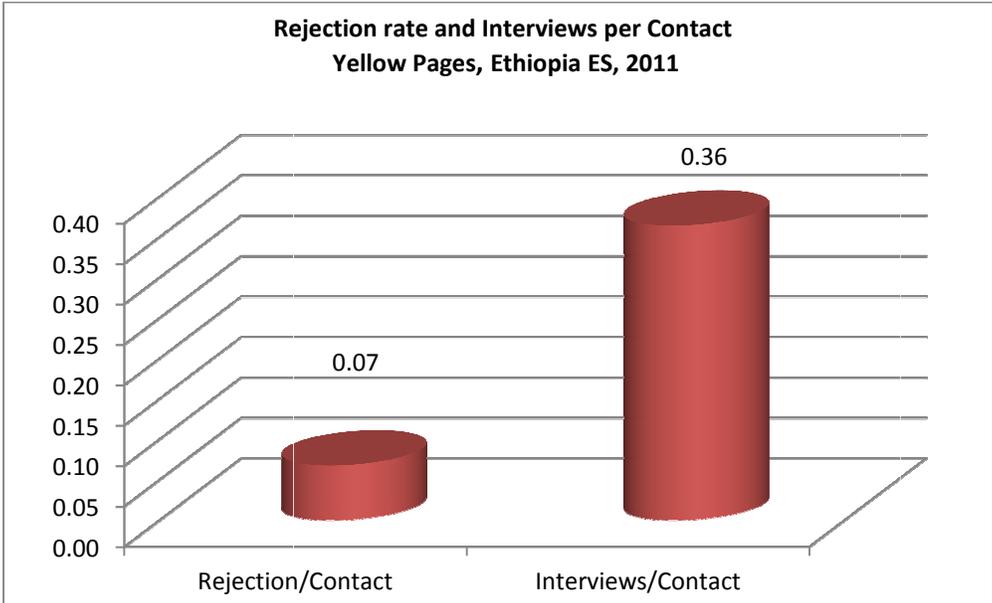
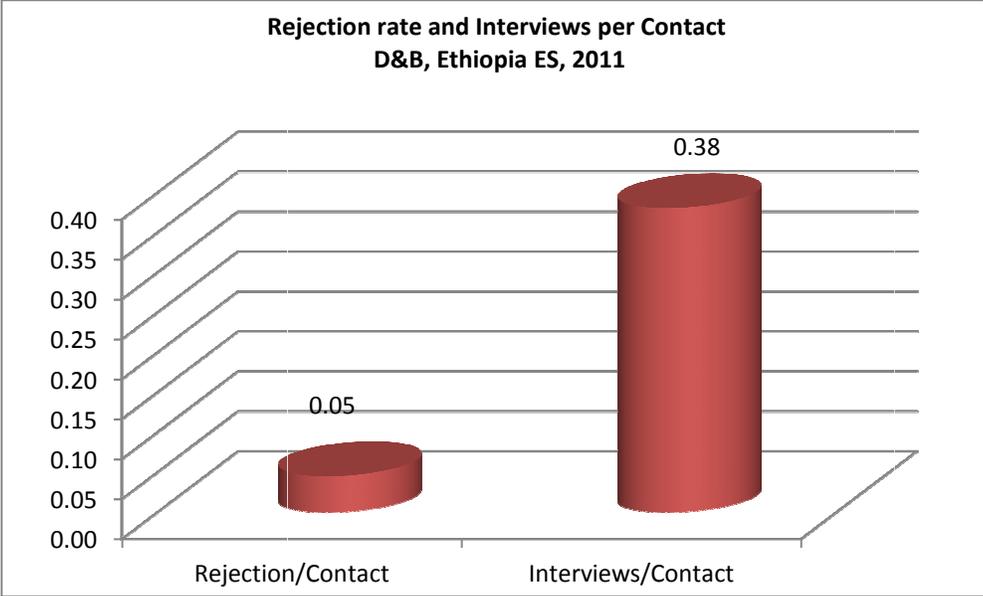


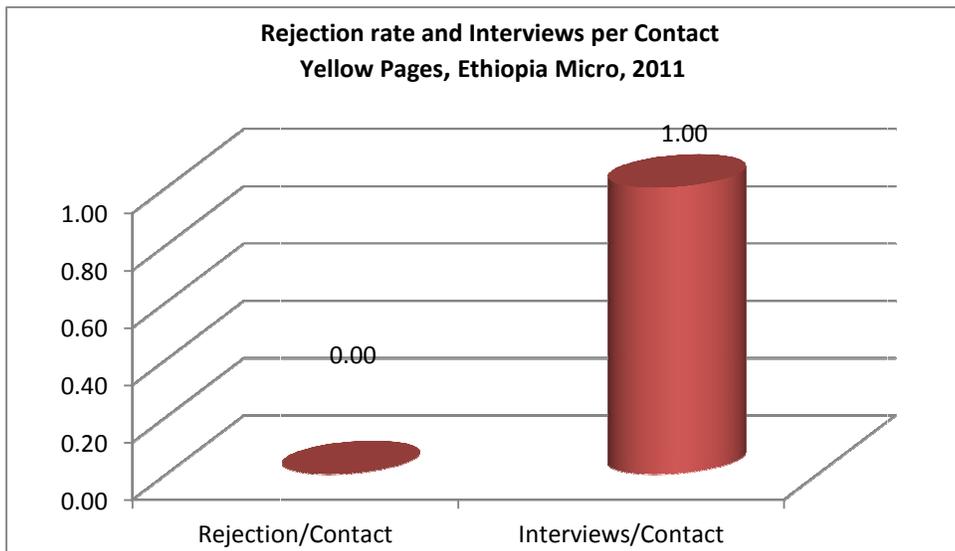
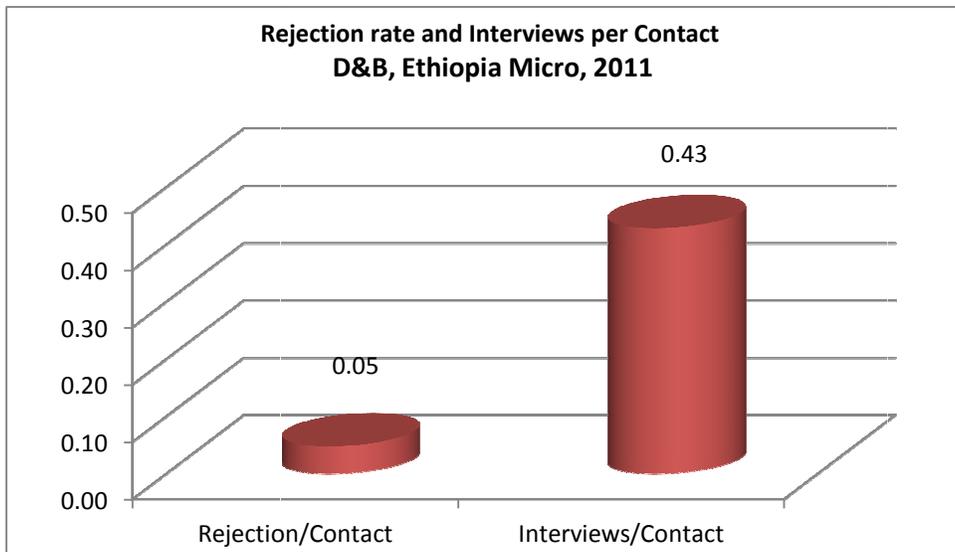
39. Survey non-response was addressed by maximizing efforts to contact establishments that were initially selected for interview. Attempts were made to contact the establishment for interview at different times/days of the week before a replacement establishment (with similar strata characteristics) 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.

40. As the following graphs show, the number of contacted establishments per realized interview was 0.16, 0.38, and 0.36 for formal ES firms using the sample frames from the Ministry of industry and trade, D & B, and Yellow Pages respectively. The number of contacted establishments per realized interview for micro firms was 0.10, 0.43, and 1.00 using the sample frames from the Ministry of industry and trade, D & B, and Yellow Pages respectively⁹. 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 0.06, 0.05, and 0.007 for formal ES firms using the sample frames from the Ministry of industry and trade, D & B, and Yellow Pages respectively. The number of rejections per contact for micro firms was 0.14, 0.05, and 0.00 using the sample frames from the Ministry of industry and trade, D & B, and Yellow Pages respectively.



⁹ The estimate is based on the total no. of firms contacted including ineligible establishments.





41. 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 Ethiopia. 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 Enterprise Survey Formal ES:

Ministry of Trade and Industry

ELIGIBLES		
Eligible	1. Eligible establishment (<i>Correct name and address</i>)	423
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	0
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	0
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	0
	16. Panel firm - now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	1
	6. The firm discontinued businesses	40
	7. Not a business: private household	14
	8. Ineligible activity: education, agriculture, finances, governments...	12
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	207
	92. Line out of order	154
	93. No tone	301
	10. Answering machine	1
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	189
	13. Refuses to answer the screener	2
14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)		204
151. Out of target - outside the covered regions, firm moved abroad		163
152. Out of target - firm moved abroad		3
153. Impossible to find		159
Total		1873

Response Outcomes Enterprise Survey:

Complete interviews (<i>Total</i>)	305
Incomplete interviews	1
Eligible in process	0
Refusals	117
Out of target	67
Impossible to contact	852
Ineligible - coop.	325
Refusal to the Screener	2
Total	1669

Status Codes Enterprise Survey Formal ES:

D&B

ELIGIBLES		
Eligible	1. Eligible establishment (<i>Correct name and address</i>)	132
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	0
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	0
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	0
	16. Panel firm - now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	0
	7. Not a business: private household	0
	8. Ineligible activity: education, agriculture, finances, governments...	14
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	27
	92. Line out of order	12
	93. No tone	42
	10. Answering machine	0
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	9
	13. Refuses to answer the screener	0
	14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)	51
151. Out of target - outside the covered regions, firm moved abroad	8	
152. Out of target - firm moved abroad	0	
153. Impossible to find	15	
Total		310

Response Outcomes Enterprise Survey:

Complete interviews (<i>Total</i>)	118
Incomplete interviews	0
Eligible in process	0
Refusals	14
Out of target	14
Impossible to contact	90
Ineligible - coop.	23
Refusal to the Screener	0
Total	259

Status Codes Enterprise Survey Formal ES:

Yellow Pages

ELIGIBLES		
Eligible	1. Eligible establishment (<i>Correct name and address</i>)	249
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	0
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	2
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	3
	16. Panel firm - now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	2
	6. The firm discontinued businesses	4
	7. Not a business: private household	5
	8. Ineligible activity: education, agriculture, finances, governments...	14
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	77
	92. Line out of order	9
	93. No tone	101
	10. Answering machine	0
	11. Fax line - data line	2
	12. Wrong address/ moved away and could not get the new references	12
	13. Refuses to answer the screener	8
	14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)	46
	151. Out of target - outside the covered regions, firm moved abroad	44
	152. Out of target - firm moved abroad	18
	153. Impossible to find	11
	Total	607

Response Outcomes Enterprise Survey:

Complete interviews (<i>Total</i>)	221
Incomplete interviews	0
Eligible in process	0
Refusals	33
Out of target	25
Impossible to contact	201
Ineligible - coop.	73
Refusal to the Screener	8
Total	561

Status Codes Micro:

Ministry of Trade and Industry

ELIGIBLES

Eligible	1. Eligible establishment (<i>Correct name and address</i>)	104
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	1
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	4
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	139
	16. Panel firm - now less than five employees	115
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	82
	7. Not a business: private household	20
	8. Ineligible activity: education, agriculture, finances, governments...	13
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	51
	92. Line out of order	96
	93. No tone	71
	10. Answering machine	1
	11. Fax line - data line	2
	12. Wrong address/ moved away and could not get the new references	212
	13. Refuses to answer the screener	2
	14. In process (<i>the establishment is being called/ is being contacted - previous to ask the screener</i>)	47
	151. Out of target - outside the covered regions	16
	152. Out of target - firm moved abroad	4
	153. Impossible to find	132
	Total	997

Response Outcomes Micro:

Complete interviews (Total)	104
Incomplete interviews	1
Eligible in process	4
Refusals	139
Out of target	115
Impossible to contact	433
Ineligible - coop.	152
Refusal to the Screener	2
Total	950

Status Codes Micro:

D&B

ELIGIBLES

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

Response Outcomes Micro:

Complete interviews (Total)	9
Incomplete interviews	0
Eligible in process	0
Refusals	1
Out of target	0
Impossible to contact	7
Ineligible - coop.	1
Refusal to the Screener	0
Total	18

Status Codes Micro:

Yellow Pages

ELIGIBLES

Eligible	1. Eligible establishment (<i>Correct name and address</i>)	36
	2. Eligible establishment (<i>Different name but same address - the new firm/establishment bought the original firm/establishment</i>)	1
	3. Eligible establishment (<i>Different name but same address - the firm/establishment changed its name</i>)	0
	4. Eligible establishment (<i>Wrong address - the firm/establishment has changed address and the address could be found</i>)	0
	16. Panel firm - now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
	6. The firm discontinued businesses	0
	7. Not a business: private household	0
	8. Ineligible activity: education, agriculture, finances, governments...	0
Unobtainable	91. No reply (<i>after having called in different days of the week and in different business hours</i>)	0
	92. Line out of order	0
	93. No tone	0
	10. Answering machine	0
	11. Fax line - data line	0
	12. Wrong address/ moved away and could not get the new references	0
	13. Refuses to answer the screener	0
	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	0
	152. Out of target - firm moved abroad	0
	153. Impossible to find	0
	Total	37

Response Outcomes Fresh Micro:

Complete interviews (Total)	37
Incomplete interviews	0
Eligible in process	0
Refusals	0
Out of target	0
Impossible to contact	0
Ineligible - coop.	0
Refusal to the Screener	0
Total	37

Appendix B

Universe Estimates, Ethiopia:

Enterprise Survey

Source: Ethiopia Ministry of Trade and Industry

Region name	Sampling Employee size	Manufacturing	Service	Grand Total
Addis Abeba	SMALL	191	7299	7490
	Medium	263	5291	5554
	Large	212	1446	1658
Addis Abeba Total		666	14036	14702
Amahara	SMALL	1	505	506
	Medium	3	110	113
	Large	7	28	35
Amahara Total		11	643	654
Oromiya	SMALL	1	869	870
	Medium	28	284	312
	Large	51	91	142
Oromiya Total		80	1244	1324
Snnp	SMALL		151	151
	Medium	3	71	74
	Large	3	24	27
Snnp Total		6	246	252
Tigray	SMALL	1	349	350
	Medium		167	167
	Large	3	31	34
Tigray Total		4	547	551
Grand Total		767	16716	17483

Micro

Source: Ethiopia Ministry of Trade and Industry

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	1 to 4	621	20,491	21,112
Grand Total		621	20,491	21,112

Appendix C

Strict Cell Weights Ethiopia:

Formal ES

Region name	Employees	Manufacturing	Services
Addis Abeba	5 to 19	1.00	13.26
	20 to 99	1.00	13.71
	100+	1.08	14.40
Amahara	5 to 19	1.00	12.04
	20 to 99	1.00	3.06
	100+	1.00	9.90
Oromiya	5 to 19	1.00	10.35
	20 to 99	1.00	11.16
	100+	1.61	11.92
Snp	5 to 19	1.00	1.74
	20 to 99		1.69
	100+	1.00	1.00
Tigray	5 to 19	1.00	4.62
	20 to 99	1.00	15.07
	100+	1.00	1.00

Micro

Region name	Employees	Manufacturing	Services
Addis Abeba	1 to 4	2.70	58.03

Median Cell Weights Ethiopia:

Formal ES

Region name	Employees	Manufacturing	Services
Addis Abeba	5 to 19	1.00	13.26
	20 to 99	1.00	13.86
	100+	1.09	14.44
Amahara	5 to 19	1.00	12.04
	20 to 99	1.00	3.06
	100+	1.00	9.90
Oromiya	5 to 19	1.00	10.35
	20 to 99	1.00	11.16
	100+	1.61	11.92
Snp	5 to 19	1.00	1.80
	20 to 99		1.78
	100+	1.00	1.00
Tigray	5 to 19	1.00	4.62
	20 to 99	1.00	15.07
	100+	1.00	1.00

Micro

Region name	Employees	Manufacturing	Services
Addis Abeba	1 to 4	2.77	59.09

Weak Cell Weights Ethiopia:

Formal ES

Region name	Employees	Manufacturing	Services
Addis Ababa	5 to 19	1.51	49.88
	20 to 99	3.07	56.39
	100+	2.58	42.75
Amahara	5 to 19	1.00	15.14
	20 to 99	1.00	4.16
	100+	1.00	9.90
Oromiya	5 to 19	1.00	19.44
	20 to 99	1.00	22.65
	100+	1.90	17.61
Snp	5 to 19	1.00	5.90
	20 to 99		6.30
	100+	1.14	2.21
Tigray	5 to 19	1.00	10.10
	20 to 99	1.00	35.63
	100+	1.37	1.00

Micro

Region name	Employees	Manufacturing	Services
Addis Abeba	1 to 4	7.34	195.35

dix D**Strict Universe Estimates**

Formal ES

Region name	Employees	Manufacturing	Services	Grand Total
Addis Ababa	5 to 19	98	1458	1556
	20 to 99	75	1097	1172
	100+	81	432	513
Addis Ababa Total		254	2987	3241
Amahara	5 to 19	11	120	131
	20 to 99	5	28	33
	100+	6	10	16
Amahara Total		22	158	180
Oromiya	5 to 19	15	228	243
	20 to 99	18	78	96
	100+	26	36	62
Oromiya Total		59	342	400
Snp	5 to 19	1	14	15
	20 to 99		7	7
	100+	1	4	5
Snp Total		2	25	27
Tigray	5 to 19	12	60	72
	20 to 99	6	30	36
	100+	1	1	2
Tigray Total		19	91	110
Grand Total		356	3603	3958

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Ababa	1 to 4	184	4758	4942
Total		184	4758	4942

Weak Universe Estimates

Formal ES

Region name	Employees	Manufacturing	Services	Grand Total
Addis Ababa	5 to 19	148	5487	5635
	20 to 99	230	4511	4741
	100+	193	1282	1476
Addis Ababa Total		571	11280	11852
Amahara	5 to 19	11	151	162
	20 to 99	5	37	42
	100+	6	10	16
Amahara Total		22	199	221
Oromiya	5 to 19	15	428	443
	20 to 99	18	159	177
	100+	30	53	83
Oromiya Total		63	639	703
Snp	5 to 19	1	47	48
	20 to 99		25	25
	100+	1	9	10
Snp Total		2	81	83
Tigray	5 to 19	12	131	143
	20 to 99	6	71	77
	100+	1	1	2
Tigray Total		19	204	223
Grand Total		677	12403	13082

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Ababa	1 to 4	499	16019	16518
Total		499	16019	16518

Median Universe Estimates

Formal ES

Region name	Employees	Manufacturing	Services	Grand Total
Addis Ababa	5 to 19	98	1458	1556
	20 to 99	75	1109	1184
	100+	82	433	515
Addis Ababa Total		255	3000	3255
Amahara	5 to 19	11	120	131
	20 to 99	5	28	33
	100+	6	10	16
Amahara Total		22	158	180
Oromiya	5 to 19	15	228	243
	20 to 99	18	78	96
	100+	26	36	62
Oromiya Total		59	342	400
Snp	5 to 19	1	14	15
	20 to 99		7	7
	100+	1	4	5
Snp Total		2	25	27
Tigray	5 to 19	12	60	72
	20 to 99	6	30	36
	100+	1	1	2
Tigray Total		19	91	110
Grand Total		357	3616	3972

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	1 to 4	188	4845	5034
Addis Abeba Total		188	4845	5034

Appendix E
Original Sample Design, Ethiopia:

Enterprise Survey

Region name	Sampling Employee size	Manufacturing	Service	Grand Total
Addis Abeba	SMALL	73	39	112
Addis Abeba	Medium	99	42	141
Addis Abeba	Large	94	54	148
Addis Abeba Total		266	135	401
Amahara	SMALL	14	8	22
Amahara	Medium	3	8	11
Amahara	Large	4	6	10
Amahara Total		21	22	43
Oromiya	SMALL	22	8	30
Oromiya	Medium	13	10	23
Oromiya	Large	19	10	29
Oromiya Total		54	28	82
Snp	SMALL	0	15	15
Snp	Medium	3	10	13
Snp	Large	1	5	6
Snp Total		4	30	34
Tigray	SMALL	10	10	20
Tigray	Medium	3	10	13
Tigray	Large	2	5	7
Tigray Total		15	25	40
Grand Total		360	240	600

Micro Survey

Region name	Sampling Employee size	Manufacturing	Service	Grand Total
Addis Ababa	Micro	110	87	197
Amahara	Micro	2	10	12
Oromiya	Micro	6	16	22
Snp	Micro	1	2	3
Tigray	Micro	1	5	6
Grand Total		120	120	240

Micro Survey – Revised March 2011

Region name	Sampling Employee size	Manufacturing	Service	Grand Total
Addis Ababa	Micro	60	60	120
Amahara	Micro	0	0	0
Oromiya	Micro	0	0	0
Snp	Micro	0	0	0
Tigray	Micro	0	0	0
Grand Total		60	60	120

Completed Interviews, Ethiopia:

Enterprise Survey

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	5 to 19	98	110	208
	20 to 99	75	80	155
	100+	75	30	105
Addis Abeba Total		248	220	468
Amahara	5 to 19	11	10	21
	20 to 99	5	9	14
	100+	6	1	7
Amahara Total		22	20	42
Oromiya	5 to 19	15	22	37
	20 to 99	18	7	25
	100+	16	3	19
Oromiya Total		49	32	81
Snp	5 to 19	1	8	9
	20 to 99		4	4
	100+	1	4	5
Snp Total		2	16	18
Tigray	5 to 19	12	13	25
	20 to 99	6	2	8
	100+	1	1	2
Tigray Total		19	16	35
Grand Total		340	304	644

Micro

Region name	Employees	Manufacturing	Services	Grand Total
Addis Abeba	1 to 4	68	82	150
Addis Abeba Total		68	82	150

Appendix F

Local Agency team involved in the study:

Local Agencies	<p>Name: TNS RMS Ethiopia Operations Country: Ethiopia Activities since: 2000</p> <p>Name: WAAS International Country: Ethiopia Activities since: 1993</p>
Enumerators involved:	<p><u>TNS RMS Ethiopia Operations</u> Enumerators: 25 Recruiters: 3</p> <p><u>WAAS International</u> Enumerators: 13 Recruiters: 2</p>
Other staff involved:	<p><u>TNS RMS Ethiopia Operations</u> Fieldwork Coordinators: 3 Data Processing: 1</p> <p><u>WAAS International</u> Fieldwork Coordinators: 1 Data Entry: 2 Data Processing: 1</p>

Sample Frame:

Characteristic of sample frame used:	List of registered companies operating in Ethiopia
Source:	Ethiopia Ministry of Trade and Industry Dun & Bradstreet Ethiopia Yellow Pages
Year:	2010 - 2012

Sectors included in the Sample:

Original Sectors	The manufacturing sector comprises all manufacturing establishments as mentioned in group D The service sector includes Group F (construction), Groups G, Group H (hotels and restaurants), Group I (transport, storage, and communications) and subsector 72 from Group K
Added (top up) Sectors	None

Fieldwork and country situation:

Date of Fieldwork	Late July 2011 to January 2012 and from April 2012 to end July 2012
Country	Ethiopia
Problems found during fieldwork:	<ul style="list-style-type: none"> • The major problem during the field work was finding eligible establishments. In several cases firms were screened by going to the establishment physical location.. ▪ Some respondents were unwilling to share some information which they termed as “sensitive” particularly on their financial position
Country specific situation	<ul style="list-style-type: none"> • The Ethiopian calendar is the principal calendar used in Ethiopia. During the fieldwork, all dates in the questionnaire were coded according to the Ethiopian calendar. For comparability purposes, the final dataset has days, months, and years reported following the international calendar.