

The Ecuador 2010 Enterprise Surveys Data Set

I. Introduction

1. This document provides additional information on the data collected in Ecuador between June 2010 and October 2010 as part of the Latin America and Caribbean (LAC) Enterprise Survey 2010, an initiative of the World Bank.

The Enterprise Surveys, through interviews with firms in the manufacturing and services sectors, capture business perceptions on the biggest obstacles to enterprise growth, the relative importance of various constraints to increasing employment and productivity, and the effects of a country's business environment on its international competitiveness. They are used to create statistically significant business environment indicators that are comparable across countries. The Enterprise Surveys are also used to build a panel of enterprise data that will make it possible to track changes in the business environment over time and allow, for example, impact assessments of reforms.

The report outlines and describes the sampling design of the data, the data set structure as well as additional information that may be useful when using the data, such as information on non-response cases and the appropriate use of the weights.

II. Sampling Structure

2. The sample for Ecuador 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/locations.

d. To exploit the benefits of stratified sampling where population estimates, in most cases, will be more precise than using a simple random sampling method (i.e., lower standard errors, other things being equal.)

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

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 location. The original sample design with specific information of the industries and locations chosen is described in Appendix E.

4. Industry stratification was designed in the way that follows: the universe was stratified into 1 manufacturing industry, 1 service industry -retail -, and 1 residual sector as defined in the sampling manual. The manufacturing industry, service industry, and residual sectors had a target each of 120 interviews.

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

6. Regional stratification was defined in three locations (city and the surrounding business area): Pichincha, Guayas, and Azuay.

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 location) 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 LAC 2010 enterprise surveys roll out. In Ecuador the local subcontractor was Cedatos Gallup International.

9. For Ecuador, two sample frames were used. The first was supplied by the World Bank and consists of enterprises interviewed in Ecuador 2006. The World Bank required that attempts should be made to re-interview establishments responding to the Ecuador 2006 survey where they were within the selected geographical locations and met eligibility criteria. That sample is referred to as the Panel. The second sample frame from the Official data base obtained from the Superintendence of Companies. A copy of that frames was sent to the TNS statistical team in London to select the establishments for interview. 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).

Counts from sample frames are shown below.

Panel sample counts

Panel Sample Count (Panel Sample Frame)

Location	Firm Size	Manuf.	Retail	Services	Grand Total
Pichincha	Small	91	22	27	140
	Medium	77	26	25	128
	Large	57	10	13	80
Total		225	58	65	348
Guayas	Small	51	31	13	95
	Medium	55	14	14	83
	Large	33	1	3	37
Total		139	46	30	215
Azuay	Small	9	20	23	52
	Medium	11	14	10	35
	Large	5	2	1	8
Total		25	36	34	95
Grand Total		389	140	129	658

Sample Frames

Source: Superintendence of Companies.

Location	Size	Manufacturing	52	Other Services	Grand Total
Azuay	5-19	59	23	284	366
	20-99	45	8	88	141
	100+	22	3	15	40
Azuay Total		126	34	387	547
Guayas	5-19	432	241	2316	2989
	20-99	232	59	648	939
	100+	113	15	196	324
Guayas Total		777	315	3160	4252
Pichincha	5-19	456	311	2256	3023
	20-99	306	72	720	1098
	100+	103	20	202	325
Pichincha Total		865	403	3178	4446
Grand Total		1768	752	6725	9245

10. The enumerated establishments were then used as the frame for the selection of a sample with the aim of obtaining interviews at 360 establishments with five or more employees

11. The quality of the frame was assessed at the onset of the project through visits to a random subset of firms and local contractor knowledge. The sample frame was not immune from the typical problems found in establishment surveys: positive rates of non-eligibility, repetition, non-existent units, etc. 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 6.20% (59 out of 951 establishments)⁴. Breaking down by stratified industries, the following sample targets were achieved by questionnaire type (using a0 and a6a):

IV. Data Base Structure:

13. The structure of the data base reflects the fact that 3 different versions of the questionnaire were used. The basic questionnaire, the Core Module, includes all common

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

questions asked to all establishments from all sectors (manufacturing, services and IT). The second expanded variation, the Manufacturing Questionnaire, is built upon the Core Module and adds some specific questions relevant to the sector. The third expanded variation, the Services Questionnaire, is also built upon the Core Module and adds to the core specific questions relevant to either retail or IT. Each variation of the questionnaire is identified by the index variable, *a0*.

14. All variables are named using, first, the letter of each section and, second, the number of the variable within the section, i.e. *a1* denotes section A, question 1. Variable names preceded by a prefix “LAC” indicate questions specific to LAC, 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 location), *a6a* (sampling establishment’s size), and *a4a* (sampling sector) contain the establishment’s classification into the strata chosen for each country using information from the sample frame. The strata were defined according to the guidelines described above.

16. There are three levels of stratification: industry, size and location. Different combinations of these variables generate the strata cells for each industry/location/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 locations

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

- a4a*: coded using ISIC 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. 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 additional variables for location (*a3x*) and size (*l1*, *l6* and *l8*) that reflect more accurately the reality of each establishment. Advanced users are advised to use these variables for analytical purposes.

20. Variable *a3x* indicates the actual location of the establishment. There may be divergences between the location in the sampling frame and the actual location, as establishments may be listed in one place but the actual physical location is in another place.

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

22. Variables *a17x* gives interviewer comments, including problems that occurred during an interview and extraordinary circumstances which could influence results. Please note that sometimes this variable is removed due to privacy issues.

V. Universe Estimates

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

24. Appendix B shows the overall estimates of the numbers of establishments in Ecuador based on the sample frame.

25. For some establishments where contact was not successfully completed during the screening process (because the firm has moved and it is not possible to locate the new location, for example), it is not possible to directly determine eligibility. Thus, different assumptions about the eligibility of establishments result in different adjustments to the universe cells and thus different sampling weights.

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

27. Strict assumption: eligible establishments are only those for which it was possible to directly determine eligibility. The resulting weights, which include adjustments applied to panel firms (see below), are included in the variable *w_strict_panadj*.

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

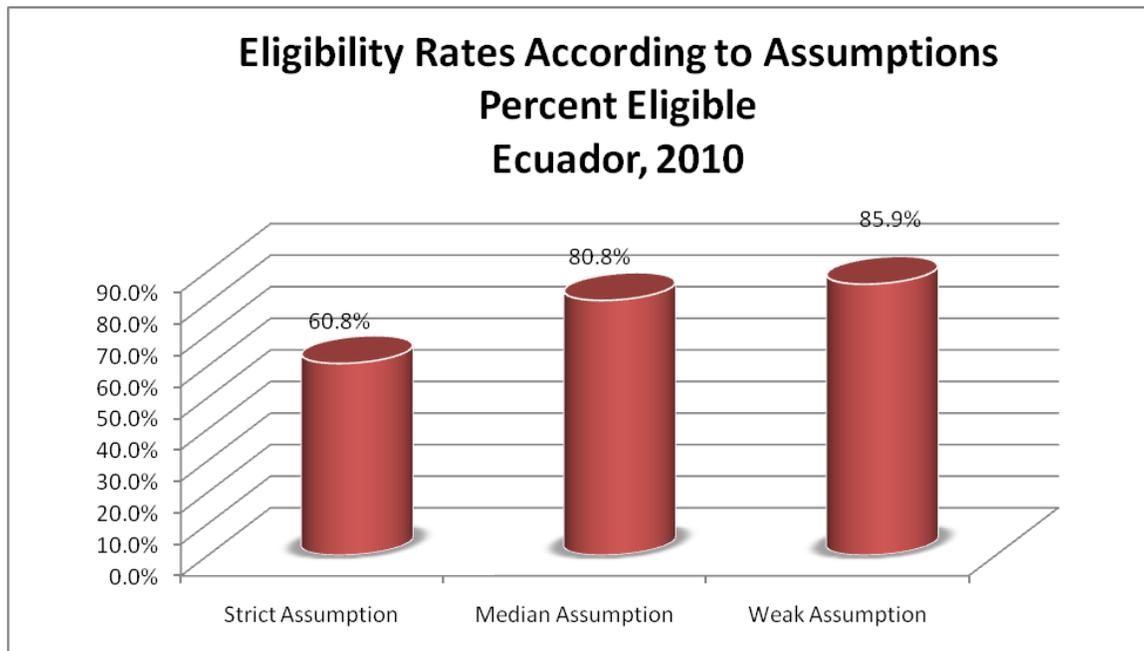
28. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response. The resulting weights are included in the variable *w_median_panadj*.

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

29. Weak assumption: in addition to the establishments included in points a and b, all establishments for which it was not possible to contact or that refused the screening questionnaire are assumed eligible. This definition includes as eligible establishments with dead or out of service phone lines, establishments that never answered the phone, and establishments with incorrect addresses for which it was impossible to find a new address. Under the weak assumption only observed non-eligible units are excluded from universe projections. The resulting weights are included in the variable *w_weak_panadj*.

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

30. The indicators computed for the Enterprise Survey website use the median weights. The following graph shows the different eligibility rates calculated for firms in the sample frame under each set of assumptions.



31. Universe estimates for the number of establishments in each industry-location-size cell in Ecuador were produced for the strict, weak and median eligibility definitions. Appendix D shows the universe estimates of the numbers of registered establishments that fit the criteria of the Enterprise Surveys.

32. Once an accurate estimate of the universe cell projection was made, weights for the probability of selection were computed using the number of completed interviews for each cell.

VI. Weights

33. Since the sampling design was stratified and employed differential sampling, individual observations should be properly weighted when making inferences about the population. Under stratified random sampling, unweighted estimates are biased unless sample sizes are proportional to the size of each stratum. With stratification the probability of selection of each unit is, in general, not the same. Consequently, individual observations must be weighted by the inverse of their probability of selection (probability weights or pw in Stata.)⁵

34. Special care was given to the correct computation of the weights. It was imperative to accurately adjust the totals within each location/industry/size stratum to account for the presence of ineligible units (the firm discontinued 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 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.

The selection of panel firms required additional adjustments to account for varying probabilities of selection between fresh and panel sample universes. For additional information on this methodology, please refer to Enterprise Survey documentation of weighting methodology.

35. Appendix C shows the cell weights for registered establishments in Ecuador.

VII. Appropriate use of the weights

36. Under stratified random sampling weights should be used when making inferences about the population. Any estimate or indicator that aims at describing some

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

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

feature of the population should take into account that individual observations may not represent equal shares of the population.

37. However, there is some discussion as to the use of weights in regressions (see Deaton, 1997, pp.67; Lohr, 1999, chapter 11, Cochran, 1953, pp.150). There is not strong large sample econometric argument in favor of using weighted estimation for a common population coefficient if the underlying model varies per stratum (stratum-specific coefficient): both simple OLS and weighted OLS are inconsistent under regular conditions. However, weighted OLS has the advantage of providing an estimate that is independent of the sample design. This latter point may be quite relevant for the Enterprise Surveys as in most cases the objective is not only to obtain model-unbiased estimates but also design-unbiased estimates (see also Cochran, 1977, pp 200 who favors the used of weighted OLS for a common population coefficient.)⁷

38. From a more general approach, if the regressions are descriptive of the population then weights should be used. The estimated model can be thought of as the relationship that would be expected if the whole population were observed.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.

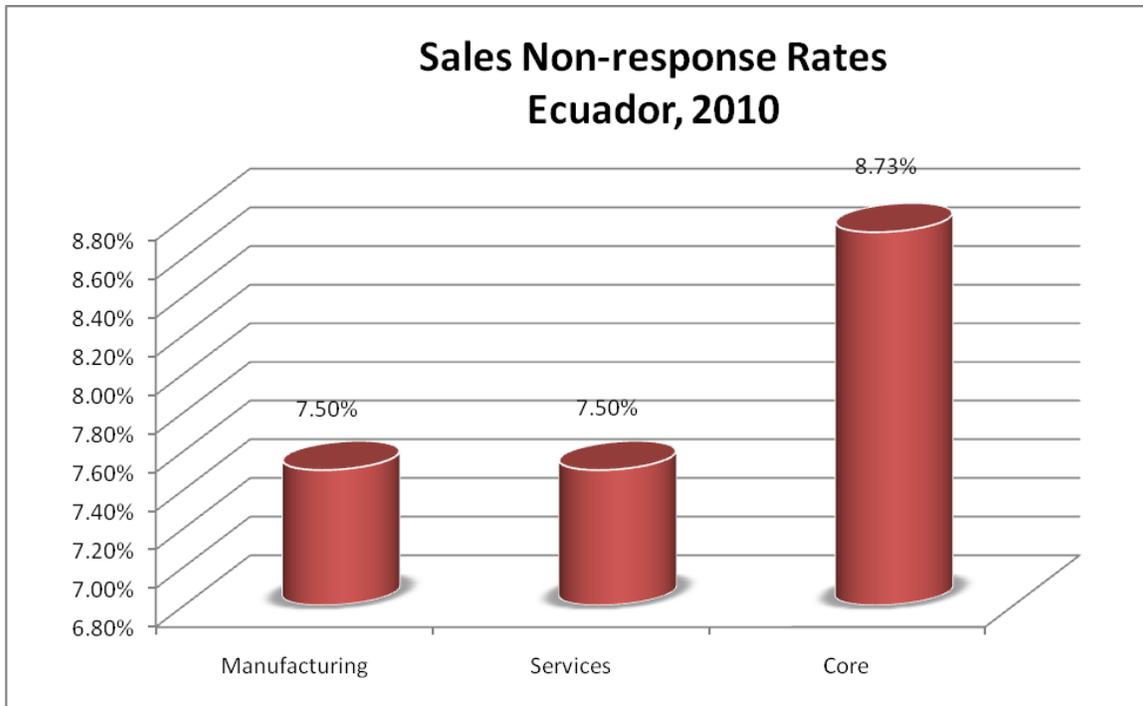
VIII. Non-response

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

40. Item non-response was addressed by two strategies:
a- For sensitive questions that may generate negative reactions from the respondent, such as corruption or tax evasion, enumerators were instructed to collect the refusal to respond as a different option from don't know (-7).
b- Establishments with incomplete information were re-contacted in order to complete this information, whenever necessary. However, there were clear cases of low response. The following graph shows non-response rates for the sales variable, *d2*, by sector. Please, note that the coding utilized in this dataset does not allow us to differentiate between "Don't know" and "refuse to answer", thus the non-response in the chart below reflects both categories (DKs and NAs).

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.

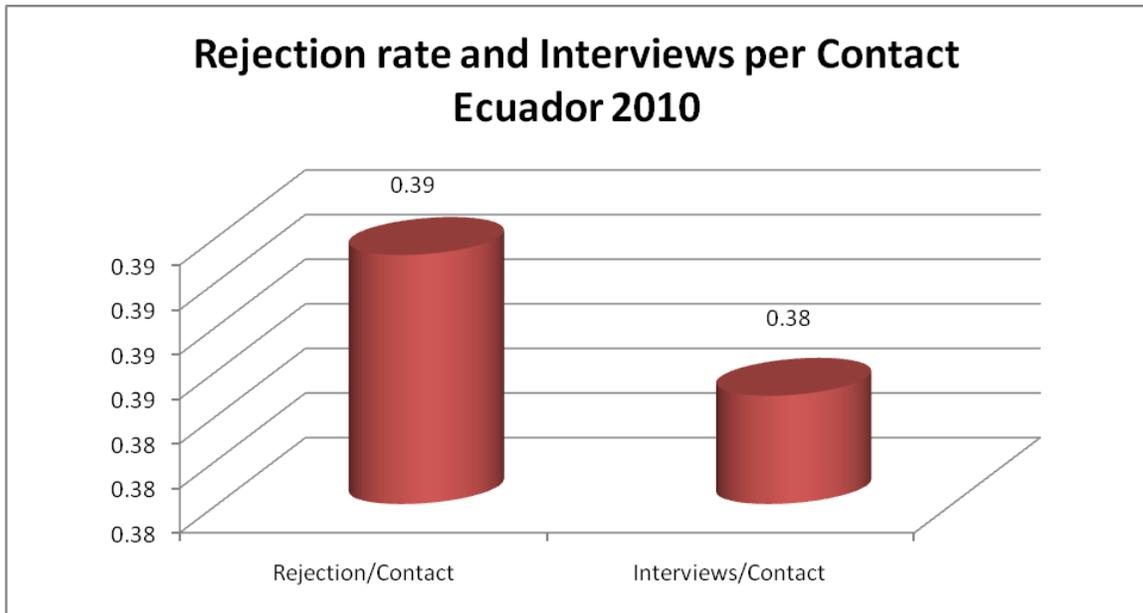
⁸ The use weights in most model-assisted estimations using survey data is strongly recommended by the statisticians specialized on survey methodology of the JPSM of the University of Michigan and the University of Maryland.



41. Survey non-response was addressed by maximizing efforts to contact establishments that were initially selected for interview. Attempts were made to contact the establishment for interview at different times/days of the week before a replacement establishment (with similar strata characteristics) was suggested for interview. Survey non-response did occur but substitutions were made in order to potentially achieve strata-specific goals. Further research is needed on survey non-response in the Enterprise Surveys regarding potential introduction of bias.

42. As the following graph shows, the number of realized interviews per contacted establishment was 0.38⁹. 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 0.39.

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



43. Details on the rejection rate, eligibility rate, and item non-response are available at the level strata. This report summarizes these numbers to alert researchers of these issues when using the data and when making inferences. Item non-response, selection bias, and faulty sampling frames are not unique to Ecuador. 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 Fresh:

	ELIGIBLES	
Eligible	1. Eligible establishment (Correct name and address)	311
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	0
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	0
Eligible	4. Eligible establishment (Moved and traced)	10
		0
Ineligible	5. The establishment has less than 5 permanent full time employees	1
Ineligible	6 The firm discontinued businesses	17
Ineligible	7. Not a business: Private household	0
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	4
Ineligible	151 Out of target - outside the covered locations	7
Ineligible	152. Out of target - moved abroad	0
Unobtainable	91. No reply after having called in different days of the week and in different business hours	3
Unobtainable	92. Line out of order	27
Unobtainable	93. No tone	0
Unobtainable	10. Answering machine	0
Unobtainable	11. Fax line- data line	0
Unobtainable	12. Wrong address/ moved away and could not get the new references	2
	13. Refuses to answer the screener	128
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	75
	Total	585

Response Outcomes Fresh:

Complete interviews	190
Incomplete interviews	0
Elegible in process	3
Refusals	128
Out of target	29
Impossible to contact	32
Refusal to the Screener	128

510

Status Codes Panel:

	ELIGIBLES	
Eligible	1. Eligible establishment (Correct name and address)	247
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	0
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	0
Eligible	4. Eligible establishment (Moved and traced)	10
Eligible	16. Panel firm - now less than five employees	0
Ineligible	5. The establishment has less than 5 permanent full time employees	0
Ineligible	616 The firm discontinued businesses - (Establishment went bankrupt)	11
Ineligible	618 The firm discontinued businesses - (Original establishment disappeared and is now a different firm)	1
Ineligible	619 The firm discontinued businesses - (Establishment was bought out by another firm)	1
Ineligible	620 The firm discontinued businesses - (It was impossible to determine for what reason)	2
Ineligible	621 The firm discontinued businesses - (Other: SPECIFY in COMMENTS)	0
Ineligible	7. Not a business: Private household	0
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	1
Ineligible	151 Out of target - outside the covered locations	14
Ineligible	152. Out of target - moved abroad	0
Unobtainable	91. No reply after having called in different days of the week and in different business hours	2
Unobtainable	92. Line out of order	15
Unobtainable	93. No tone	0
Unobtainable	10. Answering machine	0
Unobtainable	11. Fax line- data line	0
Unobtainable	12. Wrong address/ moved away and could not get the new references	0
	13. Refuses to answer the screener	62
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	0
	Total	366

Response Outcomes Panel:

Panel	
Complete interviews	176
Incomplete interviews	0
Elegible in process	27
Refusals	54
Out of target	30
Impossible to contact	17
Refusal to the Screener	62

366

Appendix B

Universe Estimates, Ecuador:

Source: Anuario 2008 Superintendencia de Compañías del Ecuador.

LOCATION	SIZE	Manufacturing	Retail (52)	Other Services	TOTAL
Pichincha	5-19	496	2293	315	3104
	20-99	364	747	83	1194
	+100	138	220	26	384
	Subtotal	998	3260	424	4682
Guayas	5-19	454	2340	246	3040
	20-99	264	668	65	997
	+100	127	201	16	344
	Subtotal	845	3209	327	4381
Azuay	5-19	71	306	25	402
	20-99	55	103	12	170
	+100	30	19	3	52
	Subtotal	156	428	40	624
Total general		1999	6897	791	9687

Appendix C

Strict Cell Weights Ecuador:

Fresh

Strict Cell Weights*

Location	Firm Size	Manuf.	Retail	Services
PICHINCHA	5-19	34.27	25.37	119.13
	20-99	20.28	6.35	47.69
	100+	8.23	1.39	12.31
GUAYAS	5-19	34.27	25.37	119.13
	20-99	20.28	2.07	47.69
	100+	7.19	1.63	6.04
AZUAY	5-19	34.27	25.37	119.13
	20-99	20.28	1.81	47.69
	100+	3.01	1.00	1.49

Panel

Average Strict Cell Weights, Panel firms

Location	Firm Size	Manuf.	Retail	Services
Pichincha	Small	1.21	1.08	2.58
	Medium	1.38	1.27	1.00
	Large	1.34	1.64	1.30
Guayas	Small	1.17	1.36	1.00
	Medium	1.34	1.16	1.38
	Large	1.45	1.00	1.00
Azuay	Small	1.10	1.02	1.81
	Medium	1.61	1.07	1.03
	Large	1.34	2.00	

Weak Cell Weights Ecuador:

Fresh

Weak Cell Weights*

Location	Firm Size	Manuf.	Retail	Services
PICHINCHA	5-19	52.99	37.25	222.43
	20-99	27.10	7.60	76.95
	100+	11.16	1.80	20.16
GUAYAS	5-19	52.99	37.25	222.43
	20-99	27.10	3.53	76.95
	100+	13.87	2.98	14.00
AZUAY	5-19	52.99	37.25	222.43
	20-99	27.10	1.83	76.95
	100+	3.45	1.00	2.06

*Collapsed cells used in certain cases

Panel

Average Weak Cell Weights, Panel firms

Location	Firm Size	Manuf.	Retail	Services
Pichincha	Small	1.79	4.25	4.06
	Medium	2.58	1.32	1.92
	Large	1.81	1.60	3.14
Guayas	Small	1.58	2.22	2.31
	Medium	3.16	1.39	1.31
	Large	2.65	1.00	1.00
Azuay	Small	1.37	1.83	2.48
	Medium	1.42	1.06	1.12
	Large	1.52	2.00	

Median Cell Weights Ecuador:

Fresh

Median Cell Weights*

Location	Firm Size	Manuf.	Retail	Services
PICHINCHA	5-19	48.29	32.86	198.03
	20-99	26.18	7.42	72.60
	100+	11.16	1.75	19.87
GUAYAS	5-19	48.29	32.86	198.03
	20-99	26.18	3.00	72.60
	100+	12.21	2.54	12.10
AZUAY	5-19	48.29	32.86	198.03
	20-99	26.18	1.82	72.60
	100+	3.45	1.00	2.06

*Collapsed cells used in certain cases

Panel

Average Median Cell Weights, Panel firms

Location	Firm Size	Manuf.	Retail	Services
Pichincha	Small	1.55	3.02	2.73
	Medium	2.26	1.28	1.51
	Large	1.61	1.61	2.79
Guayas	Small	1.28	1.87	2.09
	Medium	2.78	1.28	1.28
	Large	2.07	1.00	1.00
Azuay	Small	1.37	1.82	2.31
	Medium	1.40	1.08	1.16
	Large	1.55	2.00	

Appendix D

Strict Universe Estimates

Strict Universe Estimates (Fresh + Panel)

Location	Firm Size	Manuf.	Retail	Services	Grand Total
Pichincha	Small	226.15	210.70	1274.20	1711.05
	Medium	244.05	69.77	308.48	622.30
	Large	133.35	23.51	214.71	371.58
Total		603.54	303.98	1797.40	2704.93
Guayas	Small	199.80	126.17	863.73	1189.70
	Medium	138.69	43.55	302.82	485.05
	Large	64.80	7.51	87.15	159.46
Total		403.28	177.23	1253.70	1834.22
Azuay	Small	41.29	25.56	198.35	265.19
	Medium	48.04	17.94	62.20	128.18
	Large	24.68	5.00	13.46	43.15
Total		114.01	48.49	274.02	436.52
Grand Total		1120.83	529.71	3325.12	4975.66

Weak Universe Estimates

Weak Universe Estimates (Fresh + Panel)

Location	Firm Size	Manuf.	Retail	Services	Grand Total
Pichincha	Small	330.34	305.80	2224.62	2860.76
	Medium	313.64	81.57	472.22	867.43
	Large	188.00	27.78	346.82	562.61
Total		831.98	415.15	3043.66	4290.79
Guayas	Small	406.92	244.18	2163.64	2814.74
	Medium	255.00	68.93	639.08	963.01
	Large	123.56	12.94	199.98	336.48
Total		785.48	326.04	3002.71	4114.23
Azuay	Small	50.83	34.89	290.75	376.47
	Medium	50.58	17.90	78.81	147.29
	Large	27.83	5.00	17.87	50.70
Total		129.24	57.79	387.43	574.46
Grand Total		1746.70	798.98	6433.80	8979.48

Median Universe Estimates

Median Universe Estimates (Fresh + Panel)

Location	Firm Size	Manuf.	Retail	Services	Grand Total
Pichincha	Small	312.47	277.13	2067.87	2657.48
	Medium	311.75	79.56	462.82	854.13
	Large	181.09	27.32	340.03	548.43
Total		805.30	384.02	2870.72	4060.04
Guayas	Small	337.79	197.13	1756.61	2291.54
	Medium	224.49	59.56	551.16	835.20
	Large	106.19	11.17	172.95	290.32
Total		668.48	267.86	2480.72	3417.06
Azuay	Small	49.51	33.57	275.34	358.42
	Medium	50.23	18.11	79.03	147.37
	Large	27.93	5.00	17.87	50.80
Total		127.68	56.67	372.25	556.59
Grand Total		1601.45	708.55	5723.69	8033.70

Appendix E

Original Sample Design, Ecuador:

Emp. Size	Location	Manufacturing	Retail	Other Services	
5-19	PICHINCHA	10	10	14	34
20-99		12	17	9	38
100+		16	15	17	48
	Regional Total	38	42	40	120
5-19	GUAYAS	12	12	11	35
20-99		12	22	12	46
100+		16	4	19	39
	Regional Total	40	38	42	120
5-19	AZUAY	16	19	16	51
20-99		14	15	14	43
100+		12	6	8	26
	Regional Total	42	40	38	120
	TOTAL	120	120	120	360

Completed Interviews, Ecuador:

Emp. Size	Location	Manufacturing	Retail	Other Services	
5-19	PICHINCHA	10	14	14	38
20-99		15	17	13	45
100+		16	15	16	47
	Regional Total	41	46	43	130
5-19	GUAYAS	11	15	9	35
20-99		18	22	17	57
100+		15	4	14	33
	Regional Total	44	41	40	125
5-19	AZUAY	15	13	23	51
20-99		12	15	14	41
100+		8	5	6	19
	Regional Total	35	33	43	111
	TOTAL	120	120	126	366

Appendix F

Local Agency team involved in the study:

Local Agency	CEDATOS GALLUP INTERNATIONAL
Enumerators involved:	35 among call center personnel, enumerators and supervisors.
Other staff involved:	Encoders and typist.

Sample Frame:

Characteristic of sample frame used:	Official data base obtained from the Superintendence of Companies
Source:	Superintendence of Companies
Year:	2008 – Updated march 2010
Comments on the quality of sample frame:	No comments
Year and organism who conducted the last economic census	2008 – Database is continuously updated by the Superintendence
Other sources for companies statistics	No

Sectors included in the Sample:

Original Sectors	Manufacturing, Retail and Other Services
Added Sectors	None

Sample:

Comments/ problems on sectors and locations selected in the sample:	No comments
Comments on the response rate:	CEDATOS had to contact the respondent several times in order to obtain complete responses. Response rate was very low due to field work problems (detailed below). The sample provided by WB was quickly exhausted, especially in those sectors where there were limited numbers of eligible cases. Despite a number of calls and several visits from the enumerators, the overall response rate was low.
Other comments:	Several companies have gone in to bankruptcy or ceased operations. In several cases, companies switched economic activities and even reduced significantly the numbers of employees.

Fieldwork:

Date of Fieldwork	July 2010 through December 2010
Problems found during fieldwork:	Due to holiday season in Sierra and the Coast Region many business managers were out of town, for this reason CEDATOS had to reschedule appointments several times.

Questionnaires:

Problems for the understanding of questions (write question number)	There were no significant issues regarding questionnaires in any of its versions. Most problems were conveniently solved during interviews or afterwards, during quality control phases.
Comments on questionnaires length:	Many respondents complained about the questionnaire being too long. In many cases, the respondents pointed out the difference between the stated length and the actual time spent on the questionnaire.
Suggestions or other comments on the questionnaire:	Some respondents refused to answer the survey due to confidentiality issues or internal policies. They were especially reluctant to answer about commercial, economic or financial topics. This situation made scheduling appointments difficult.

Database

Comments on the data map	There were some small issues related to the data map, but they were easily solved.
Comments on the data processing	Some data entry controls implemented by CEDATOS on the previous wave of this study were not applicable on this wave. It is important to agree on data entry controls which can be implemented at our side, which could make the data entry process easier to accomplish, with fewer errors.

Country situation

General aspects of economic, political or social situation of the country that could affect the results of the survey:	There are important safety and security issues at a country level, which undoubtedly affected the conduction of this year's Enterprise Survey. In many cases respondents refused to participate, until they could confirm that CEDATOS personnel was truly conducting the survey. Also, tax related issues (including enforcement procedures) explain the lack of trust when giving financial information.
Relevant country events occurred during fieldwork:	The September 30th Police Revolt led to national uncertainty. Consequently, many respondents cancelled appointments.