

# The Uruguay 2010 Enterprise Surveys Data Set

## I. Introduction

1. This document provides additional information on the data collected in Uruguay 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 Uruguay was selected using stratified random sampling, following the methodology explained in the *Sampling Manual*<sup>1</sup>. Stratified random sampling<sup>2</sup> was preferred over simple random sampling for several reasons<sup>3</sup>:

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.)

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<sup>1</sup> The complete text can be found at [http://www.enterprisesurveys.org/documents/Implementation\\_note.pdf](http://www.enterprisesurveys.org/documents/Implementation_note.pdf)

<sup>2</sup> 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).

<sup>3</sup> 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 regions chosen is described in Appendix E.

4. Industry stratification was designed in the way that follows: the universe was stratified into 3 manufacturing industries, 1 service industry -retail -, and 1 residual sector as defined in the sampling manual. All sectors had a target 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 two regions (city and the surrounding business area): Montevideo and Canelones.

### **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 LAC 2010 enterprise surveys roll out. In Uruguay the local subcontractor was the Equipos Mori.

9. For Uruguay, two sample frames were used. The first was supplied by the World Bank and consists of enterprises interviewed in Uruguay 2006. The World Bank required that attempts should be made to re-interview establishments responding to the Uruguay 2006 survey where they were within the selected geographical regions and met eligibility criteria. That sample is referred to as the Panel. The second sample frame was obtained from Registro Permanente de Actividades Económicas. (Permanent Register of Economic Activities) through the Uruguay National Statistics Institute (INE) 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.

Furthermore, to avoid oversampling of small firms in the panel sample (around 77% of 2006 sample) a decision was made to only attempt re-interviewing around half of the small firms sample.

## Panel sample counts

Location	Firm Size	15	17-18	Manuf.	Retail	Services	Grand Total
Montevideo	Small	33	51	71	40	18	213
	Medium	31	33	66	24	23	177
	Large	16	10	21	16	19	82
Total		80	94	158	80	60	472
Canelones	Small	24	7	9	30	18	88
	Medium	14	2	7	14	12	49
	Large	4	0	3	2	3	12
Total		42	9	19	46	33	149
Grand Total		122	103	177	126	93	621

## Sample Frames

Source: Uruguay National Statistics Institute (INE)

Region name	Sampling Employee size	15	17-18	Other Manufacturing	52	Other Services	Grand Total
<b>CANELONES</b>	5 to 19	115	24	134	302	395	970
	20 to 99	23	5	30	25	49	132
	100+	3	1	4	1	5	14
<b>CANELONES Total</b>		<b>141</b>	<b>30</b>	<b>168</b>	<b>328</b>	<b>449</b>	<b>1116</b>
<b>MONTEVIDEO</b>	5 to 19	490	237	1028	1315	3612	6682
	20 to 99	131	67	277	209	798	1482
	100+	38	20	50	15	82	205
<b>MONTEVIDEO Total</b>		<b>659</b>	<b>324</b>	<b>1355</b>	<b>1539</b>	<b>4492</b>	<b>8369</b>
<b>Grand Total</b>		<b>800</b>	<b>354</b>	<b>1523</b>	<b>1867</b>	<b>4941</b>	<b>9485</b>

10. The enumerated establishments were then used as the frame for the selection of a sample with the aim of obtaining interviews at 607 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 8.83% (119 out of 1347 establishments)<sup>4</sup>. 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 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 region), *a6a* (sampling establishment’s size), and *a4a* (sampling sector) contain the establishment’s classification into the strata chosen for each country using information

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<sup>4</sup> Based on out of target contacts and impossible to contact establishments

from the sample frame. The strata were defined according to the guidelines described above.

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

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

-*a2* is the variable describing sampling regions

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

-*a4a*: coded using ISIC 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 (*11*, *16* and *18*) 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 *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.

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 Uruguay 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 Uruguay 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

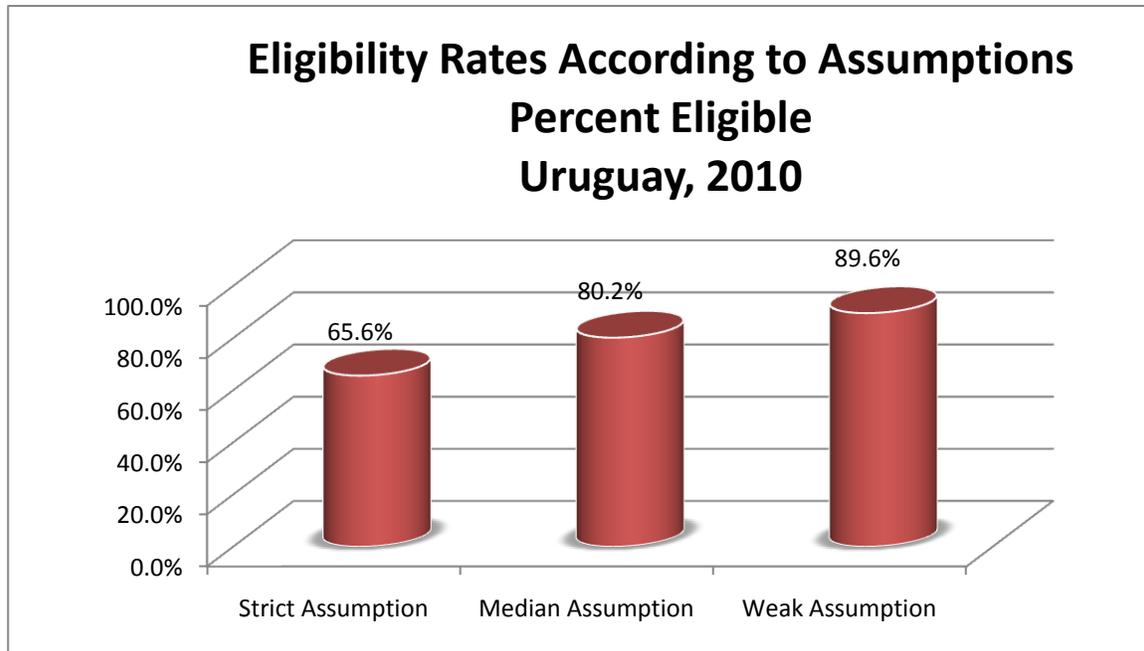
28. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response. The resulting weights are included in the variable *w\_median\_panadj*.

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

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

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

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



31. Universe estimates for the number of establishments in each industry-region-size cell in Uruguay 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.)<sup>5</sup>

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

34. Special care was given to the correct computation of the weights. It was imperative to accurately adjust the totals within each region/industry/size stratum to account for the presence of ineligible units (the firm discontinued businesses or was unattainable, education or government establishments, establishments with less than 5 employees, no reply after having called in different days of the week and in different business hours, no tone in the phone line, answering machine, fax line<sup>6</sup>, 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 Uruguay.

## **VII. Appropriate use of the weights**

36. Under stratified random sampling weights should be used when making inferences about the population. Any estimate or indicator that aims at describing some feature of the population should take into account that individual observations may not represent equal shares of the population.

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

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

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<sup>6</sup> For the surveys that implemented a screener over the phone.

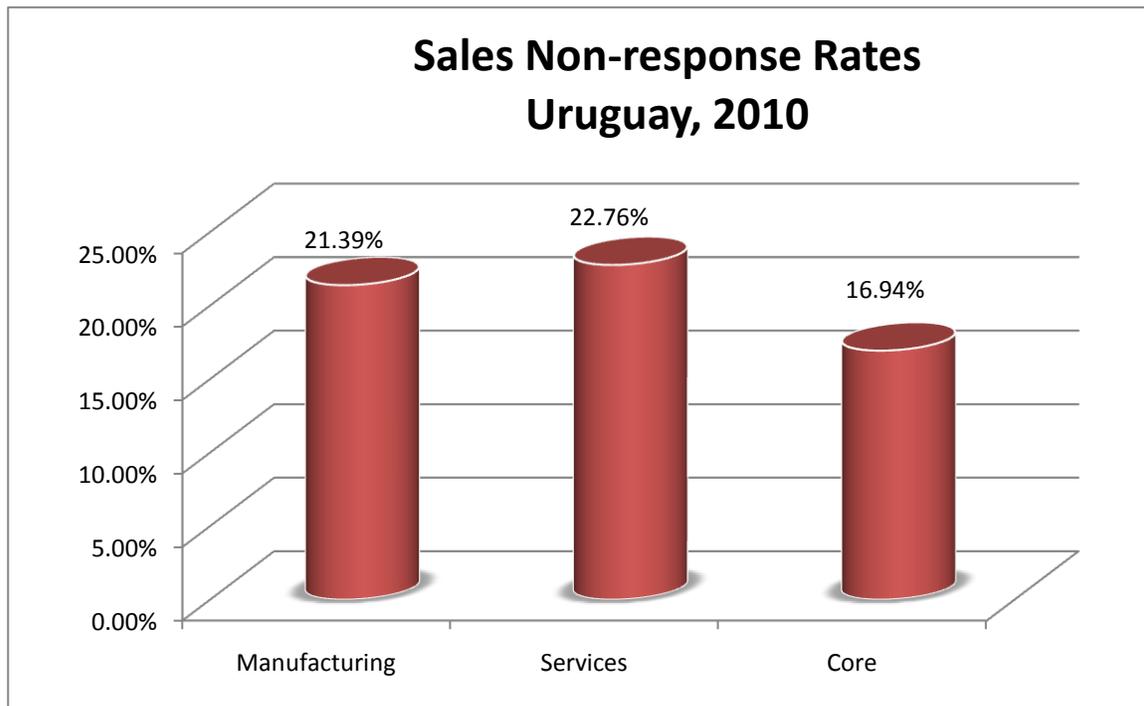
<sup>7</sup> Note that weighted OLS in Stata using the command regress with the option of weights will estimate wrong standard errors. Using the Stata survey specific commands svy will provide appropriate standard errors.

that would be expected if the whole population were observed.<sup>8</sup> 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.

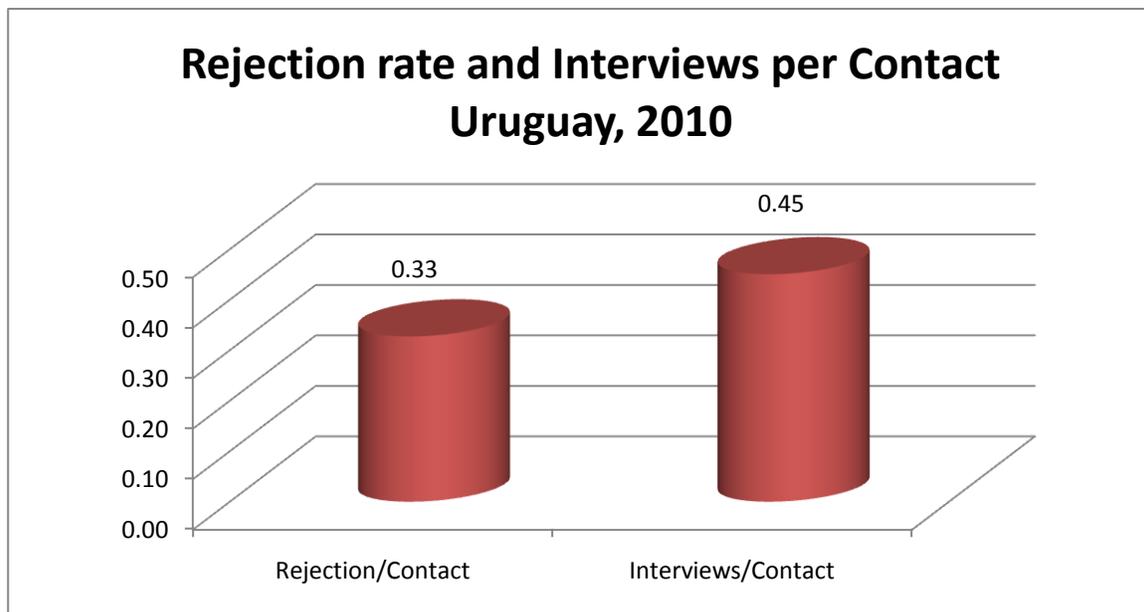
40. Item non-response was addressed by two strategies:  
a- For sensitive questions that may generate negative reactions from the respondent, such as corruption or tax evasion, enumerators were instructed to collect the refusal to respond as a different option from don't know (-7).  
b- Establishments 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).



<sup>8</sup> 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 0.45<sup>9</sup>. 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 0.33.



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 Uruguay. 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.

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

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:

	<b>ELIGIBLES</b>	
Eligible	1. Eligible establishment (Correct name and address)	469
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	2
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	5
Eligible	4. Eligible establishment (Moved and traced)	35
		0
Ineligible	5. The establishment has less than 5 permanent full time employees	27
Ineligible	6 The firm discontinued businesses	27
Ineligible	7. Not a business: Private household	4
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	18
Ineligible	151 Out of target - outside the covered regions	13
Ineligible	152. Out of target - moved abroad	3
Unobtainable	91. No reply after having called in different days of the week and in different business hours	49
Unobtainable	92. Line out of order	40
Unobtainable	93. No tone	0
Unobtainable	10. Answering machine	5
Unobtainable	11. Fax line- data line	3
Unobtainable	12. Wrong address/ moved away and could not get the new references	10
	13. Refuses to answer the screener	130
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	21
	<b>Total</b>	<b>861</b>

### Response Outcomes Fresh:

Complete interviews	320
Incomplete interviews	1
Elegible in process	7
Refusals	183
Out of target	92
Impossible to contact	107
Refusal to the Screener	130
<b>Total</b>	<b>840</b>

### Status Codes Panel:

	<b>ELIGIBLES</b>	
Eligible	1. Eligible establishment (Correct name and address)	350
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	7
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	2
Eligible	4. Eligible establishment (Moved and traced)	14
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)	15
Ineligible	618 The firm discontinued businesses - (Original establishment disappeared and is now a different firm)	2
Ineligible	619 The firm discontinued businesses - (Establishment was bought out by another firm)	2
Ineligible	620 The firm discontinued businesses - (It was impossible to determine for what reason)	1
Ineligible	621 The firm discontinued businesses - (Other: SPECIFY in COMMENTS)	3
Ineligible	7. Not a business: Private household	4
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	0
Ineligible	151 Out of target - outside the covered regions	0
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	25
Unobtainable	92. Line out of order	1
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	58
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	0
	<b>Total</b>	<b>486</b>

### Response Outcomes Panel:

<b>Panel</b>	
Complete interviews	287
Incomplete interviews	0
Elegible in process	16
Refusals	70
Out of target	32
Impossible to contact	28
Refusal to the Screener	58
<b>Total</b>	<b>491</b>

## Appendix B

### Universe Estimates, Uruguay:

Source: INE Registro Permanente de Actividades Económicas 2008

REGION2	Employees	15	18	Other Manufacturing	52	Other Services	Total general
Montevideo	Small	514	186	1169	1351	3640	6860
	Medium	153	61	359	223	821	1617
	Large	52	11	82	32	98	275
Total Montevideo		719	258	1610	1606	4559	8752
Canelones	Small	133	21	146	320	404	1024
	Medium	31	4	36	36	60	167
	Large	6		7	2	8	23
Total Canelones		170	25	189	358	472	1214
Total general		889	283	1799	1964	5031	9966

## Appendix C

### Strict Cell Weights Uruguay:

#### Fresh

##### Strict Cell Weights

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	3.39	1.00	8.20	8.16	28.13
	Medium	1.00	1.00	1.00	2.84	4.18
	Large	1.00	1.00	2.74	1.00	1.00
Canelones	Small	2.35	1.00	8.81		11.37
	Medium	1.14	1.00	1.00	3.41	2.56
	Large	1.00	1.00	1.00	1.00	1.00

#### Panel

##### Average Strict Cell Weight, Panel firms

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	1.13	1.36	1.51	1.10	1.20
	Medium	1.13	1.24	1.49	1.46	1.17
	Large	1.00	1.46	1.29	1.00	1.15
Canelones	Small	1.00	1.42	1.44	1.26	1.08
	Medium	1.29	0.00	1.34	1.29	1.00
	Large	1.00	0.00	1.00	0.00	1.00

## Weak Cell Weights Uruguay:

### Fresh

#### Weak Cell Weights

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	19.42	4.37	40.19	41.39	141.29
	Medium	4.52	1.67	4.26	12.94	18.87
	Large	1.92	2.12	9.69	1.19	2.14
Canelones	Small	16.88	3.18	54.13		71.54
	Medium	7.35	2.88	4.88	19.47	14.48
	Large	1.96	1.00	1.00	2.65	1.51

#### Average Weak Cell Weights, Panel firms

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	1.69	1.77	2.20	1.35	1.79
	Medium	1.24	2.17	2.35	1.70	1.72
	Large	1.04	1.45	1.39	1.00	1.21
Canelones	Small	1.19	1.61	2.30	1.96	2.36
	Medium	1.87	0.00	1.62	1.96	1.67
	Large	1.45	0.00	1.00	0.00	1.00

## Median Cell Weights Uruguay:

### Fresh

#### Median Cell Weights

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	9.16	2.37	21.65	21.56	75.39
	Medium	2.42	1.02	2.60	7.65	11.42
	Large	1.10	1.40	6.34	1.00	1.39
Canelones	Small	7.25	1.57	26.55		34.75
	Medium	3.58	1.61	2.71	10.47	7.98
	Large	1.02	1.00	1.00	1.53	1.00

#### Average Median Cell Weight, Panel firms

Location	Firm Size	15	17-18	Manuf.	Retail	Services
Montevideo	Small	1.58	1.67	1.79	1.27	1.78
	Medium	1.21	1.71	2.15	1.48	1.58
	Large	1.06	1.46	1.39	1.00	1.21
Canelones	Small	1.00	1.42	2.11	1.43	2.08
	Medium	1.30	0.00	1.61	1.46	1.00
	Large	1.37	0.00	1.00	0.00	1.00

## Appendix D

### Strict Universe Estimates

Strict Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	Manuf.	Retail	Services	Grand Total
Montevideo	Small	90.81	67.66	128.56	211.41	413.88	912.32
	Medium	43.75	44.51	73.34	52.56	121.49	335.64
	Large	29.00	17.25	42.50	15.74	41.98	146.47
Total		163.56	129.42	244.40	279.71	577.35	1394.43
Canelones	Small	18.40	12.53	4.31	35.22	36.26	106.72
	Medium	7.59	1.00	7.44	7.17	9.12	32.32
	Large	3.00	1.00	2.00	1.00	4.00	11.00
Total		28.99	14.53	13.75	43.39	49.38	150.04
Grand Total		192.54	143.95	258.16	323.10	626.73	1544.47

### Weak Universe Estimates

Weak Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	Manuf.	Retail	Services	Grand Total
Montevideo	Small	423.89	177.98	547.09	939.78	2038.73	4127.46
	Medium	122.30	87.60	238.02	162.54	498.38	1108.84
	Large	47.03	25.03	50.34	25.95	70.73	219.08
Total		593.22	290.61	835.45	1128.27	2607.84	5455.38
Canelones	Small	78.26	22.35	6.90	176.11	219.35	502.99
	Medium	16.71	2.88	24.34	17.59	35.64	97.17
	Large	4.85	1.00	2.00	1.00	5.02	13.88
Total		99.83	26.24	33.24	194.70	260.02	614.03
Grand Total		693.05	316.84	868.69	1322.97	2867.86	6069.41

## Median Universe Estimates

Median Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	Manuf.	Retail	Services	Grand Total
Montevideo	Small	218.05	115.84	297.56	518.53	1095.50	2245.49
	Medium	76.39	58.91	157.03	105.06	309.03	706.41
	Large	32.92	20.02	44.20	20.95	52.01	170.09
Total		327.36	194.76	498.79	644.54	1456.54	3122.00
Canelones	Small	37.99	14.79	6.33	89.64	108.43	257.18
	Medium	10.10	1.61	15.31	11.27	19.96	58.25
	Large	3.75	1.00	2.00	1.00	4.00	11.75
Total		51.84	17.40	23.64	101.91	132.39	327.18
Grand Total		379.20	212.16	522.43	746.45	1588.93	3449.18

## Appendix E

### Original Sample Design, Uruguay:

Emp. Size	Region	15	17-18	Other Manuf.	Retail	Other Services	
5-19	Montevideo	34	60	32	42	32	200
20-99		37	35	37	46	39	194
100+		29	13	39	13	37	131
	Regional Total	100	108	108	101	108	525
5-19	Canelones	8	10	4	10	4	36
20-99		9	1	5	8	4	27
100+		3	1	3	1	4	12
	Regional Total	20	12	12	19	12	75
	TOTAL	120	120	120	120	120	600

### Completed Interviews, Uruguay:

Emp. Size	Region	15	17-18	Other Manuf.	Retail	Other Services	
5-19	Montevideo	41	55	33	51	27	207
20-99		30	35	37	35	42	179
100+		31	14	40	17	40	142
	Regional Total	102	104	110	103	109	528
5-19	Canelones	8	10	1	13	5	37
20-99		12	2	5	6	5	30
100+		3	0	3	1	5	12
	Regional Total	23	12	9	20	15	79
	TOTAL	125	116	119	123	124	607

## Appendix F

### Local Agency team involved in the study:

Local Agency	Equipos MORI
Enumerators involved:	8
Other staff involved:	Recruiter: 5 Editors: 1 Supervisors: 2 Data Entry: 4

### Sample Frame:

Characteristic of sample frame used:	Registro Permanente de Actividades Económicas. (Permanent Register of Economic Activities)
Source:	Uruguay National Statistics Institute (INE)
Year:	2008
Comments on the quality of sample frame:	In general, the quality of the sample frame is good.
Year and organism who conducted the last economic census	INE
Other sources for companies statistics	--

### Sectors included in the Sample:

Original Sectors	15 (food), 18 (garments), Retail, Other Manufacturing and Other Services.
Added Sectors	17-18

### Sample:

Comments/ problems on sectors and regions selected in the sample:	The manufacturing sector was difficult to access and schedule interviews, especially between small firms.
Comments on the response rate:	None
Comments on the sample design:	None
Other comments:	--

**Fieldwork:**

Date of Fieldwork	May 13th 2010 – January 13th 2011
Problems found during fieldwork:	None
Other observations:	--

**Questionnaires:**

Problems for the understanding of questions (write question number)	<p>A.11a Number of establishments, including the headquarters, included in the financial statements kept in the headquarters. It was always necessary to explain what “number of establishments” refers to, and what do we consider as an establishment.</p> <p>In most cases, the respondent understood that the question referred to being part of a multinational company or a partnership.</p> <p>For questions e.30, f.30, j.30, etc, the respondent frequently asked for clarification. It was not very clear if the questions referred to normal conditions or specific circumstances. For example, in hypothetical scenery of political problems, what would be the level of obstacle?</p> <p>Section E was particularly confusing for smaller and familiar establishments.</p>
Problems found in the navigability of questionnaires.	None
Comments on questionnaires length:	None
Suggestions or other comments on the questionnaire:	In many cases, smaller businesses did not understand questions, mainly because they are managed by family and work with almost no record of their activities.

**Country situation**

General aspects of economic, political or social situation of the country that could affect the results of the survey: & Relevant country events occurred during fieldwork:	<p>Regarding economical aspects, Uruguay’s performance has been extraordinarily good in the past few years.</p> <p>All “hard” economic indicators (GNP growth, employment, imports and exports) have been positive during the past year.</p> <p>In conclusion, the survey was implemented in an exceptionally positive context in the Uruguayan economy for almost all sectors of activity.</p>
Other aspects:	--