

The Chile 2010 Enterprise Surveys Data Set

I. Introduction

1. This document provides additional information on the data collected in Chile between May 2010 and April 2011 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 methodology, the sample structure as well as additional information that may be useful when using the data, such as information on non-response cases and the appropriate use of the weights.

II. Sampling Structure

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

a. To obtain unbiased estimates for different subdivisions of the population 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 5 manufacturing industries, 1 service industry -retail -, and 1 residual sector – other services- as defined in the sampling manual. The four identified manufacturing sectors each had targets of 160 interviews, with other manufacturing having a target of 120 interviews. Both retail and other services had targets of 120 interviews each.

5. Size stratification was defined following the standardized definition for the Enterprise Surveys: small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). For stratification purposes, the number of employees was defined on the basis of reported permanent full-time workers. 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 four locations (city and the surrounding business area): Antofagasta, Los Lagos, Santiago and Valparaíso.

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 Chile the local subcontractor was the Cadem Research.

9. For Chile, two sample frames were used. The first was supplied by the World Bank and consists of enterprises interviewed in Chile 2006. The World Bank required that attempts should be made to re-interview establishments responding to the Chile 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 was build using a census of Chilean companies conducted by the Chile National Institute of Statistics (INE) in 2007 for firms in services, and the Annual National Industry Survey 2007, Directory of Chilean companies, for firms in manufacturing. 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

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services	Grand Total
Santiago	Small	17	33	28	35	20	14	25	172
	Medium	16	53	51	35	43	16	53	267
	Large	12	21	33	20	20	12	31	149
		45	107	112	90	83	42	109	588
Valparaiso	Small	16	6	1	2	10	5	10	50
	Medium	12	3	4	2	3	10	9	43
	Large	4	0	2	2	1	4	4	17
		32	9	7	6	14	19	23	110
Antofagasta	Small	8	0	0	2	3	7	9	29
	Medium	5	2	2	4	5	8	6	32
	Large	1	0	1	3	6	2	3	16
		14	2	3	9	14	17	18	77
Los Lagos	Small	6	0	1	1	3	7	1	19
	Medium	11	4	0	4	4	7	5	35
	Large	12	0	1	0	4	7	6	30
		29	4	2	5	11	21	12	84
Grand Total		120	122	124	110	122	99	162	859

**Due to the 2010 earthquake, interviews were not conducted in Bio Bio. In 2006, 150 interviews were realized in that location

Sample Frames

Source: Chile National Institute of Statistics, Annual National Industry Survey 2007, Directory of Chilean companies,

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services	Grand Total
Antofagasta	5-19	15		3	12	21	393	680	1124
	20-99	8		7	14	10	69	184	292
	100+	2		9	27	2	9	37	86
Antofagasta Total		25		19	53	33	471	901	1502
Los Lagos	5-19	20	4	3	5	18	671	932	1653
	20-99	31	4	5	6	16	108	171	341
	100+	54	1			4	18	13	90
Los Lagos Total		105	9	8	11	38	797	1116	2084
Santiago	5-19	185	122	93	144	247	6553	9076	16420
	20-99	244	149	223	234	411	1092	3186	5539
	100+	85	48	108	83	133	262	809	1528
Santiago Total		514	319	424	461	791	7907	13071	23487
Valparaíso	5-19	66	14	14	17	50	1123	1640	2924
	20-99	60	13	18	15	29	129	401	665
	100+	23	1	8	13	12	25	42	124
Valparaíso Total		149	28	40	45	91	1277	2083	3713
Grand Total		793	356	491	570	953	10452	17171	30786

10. The enumerated establishments were then used as the frame for the selection of a sample with the aim of obtaining interviews at 1000 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 14.42% (364 out of 2525 establishments)⁴.

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

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 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 size by population (*a3*) and firm size by no. of workers (*l1*, *l6* and *l8*) that reflect more accurately the reality of each establishment. Advanced users are advised to use these variables for analytical purposes.

22. 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.

23. 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

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

25. Appendix B shows the overall estimates of the numbers of establishments in Chile based on the sample frame.

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

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

28. Strict assumption: eligible establishments are only those for which it was possible to directly determine eligibility.

The resulting weights, 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

29. Median assumption: eligible establishments are those for which it was possible to directly determine eligibility and those that rejected the screener questionnaire or an answering machine or fax was the only response.

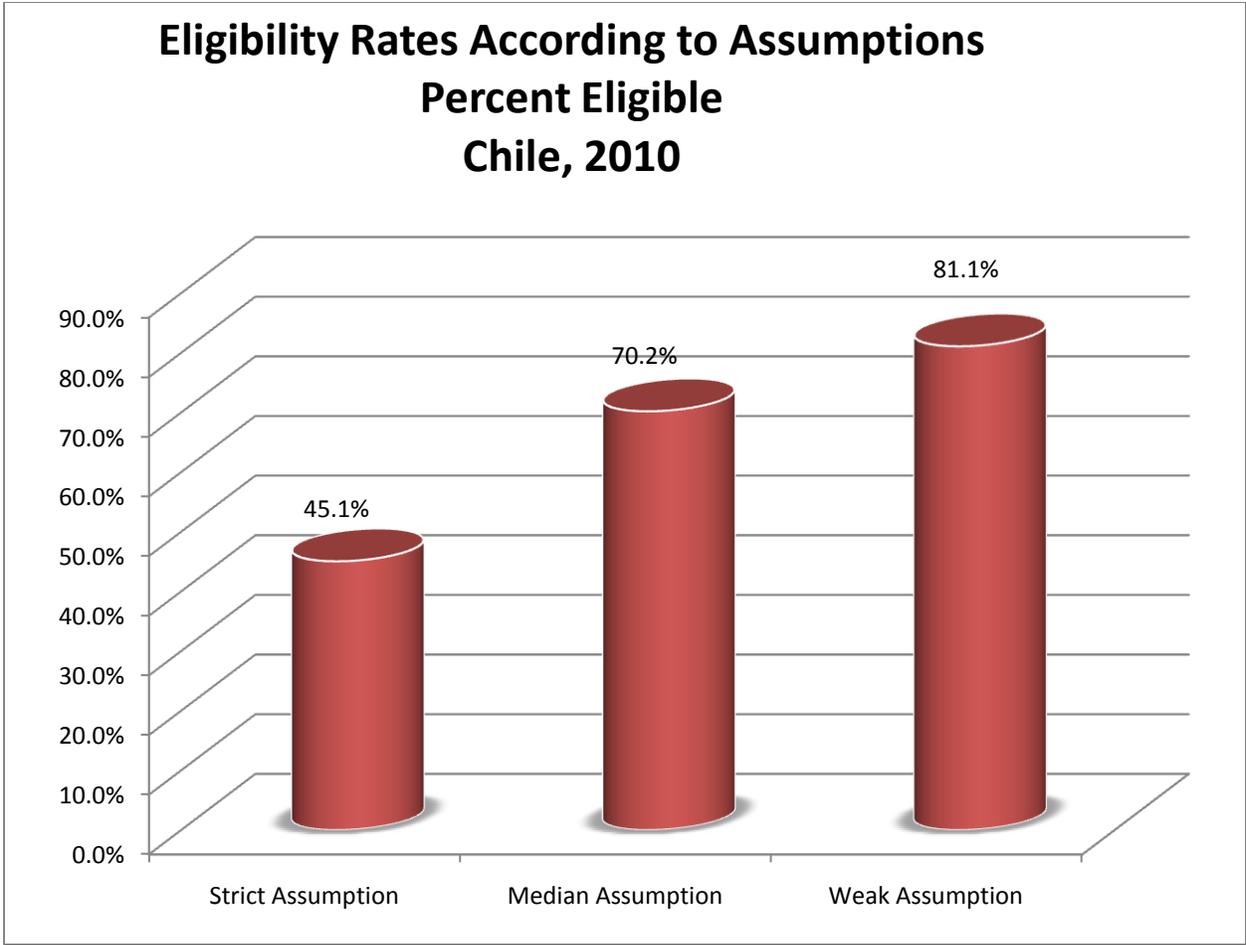
The resulting weights are included in the variable w_median_panadj .

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

30. Weak assumption: in addition to the establishments included in points a and b, all establishments for which it was not possible to contact or that refused the screening questionnaire are assumed eligible. This definition includes as eligible establishments with dead or out of service phone lines, establishments that never answered the phone, and establishments with incorrect addresses for which it was impossible to find a new address. 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

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



32. Universe estimates for the number of establishments in each industry-location-size cell in Chile 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.

33. 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

34. 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

35. 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.

36. Appendix C shows the cell weights for registered establishments in Chile.

VII. Appropriate use of the weights

37. 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.

38. 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

39. 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

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.

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.

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

40. 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.

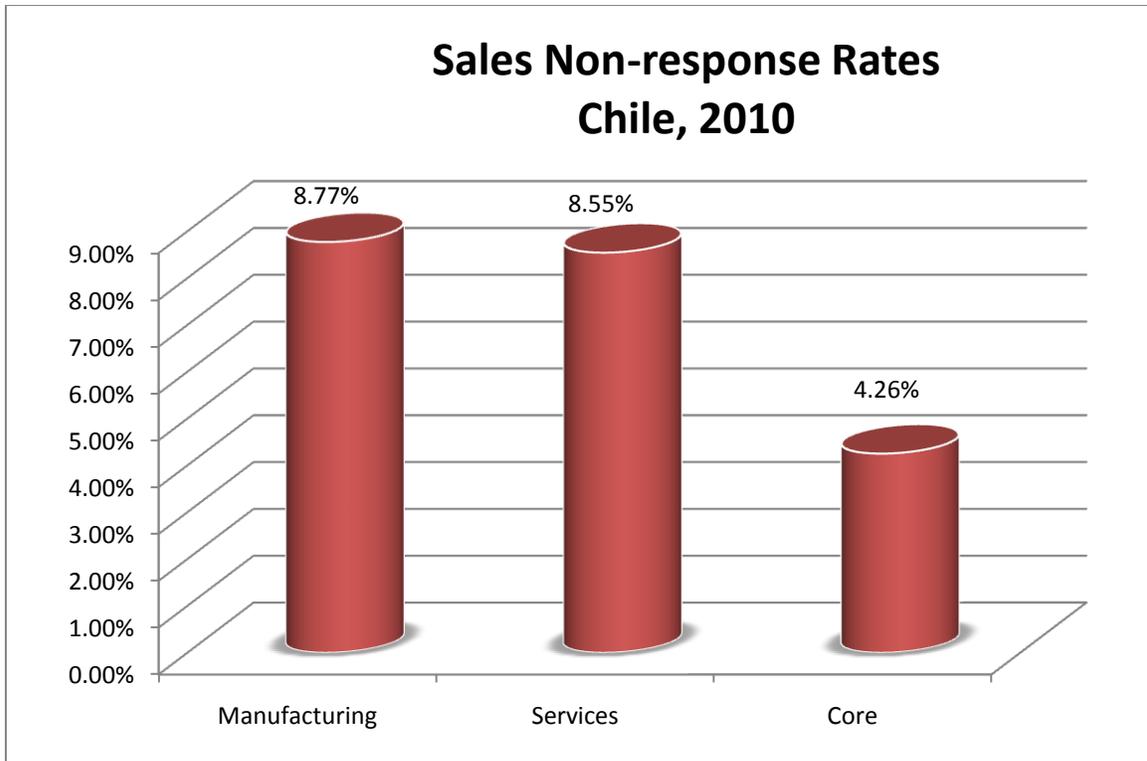
41. Item non-response was addressed by two strategies:

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).

⁸ The use weights in most model-assisted estimations usin

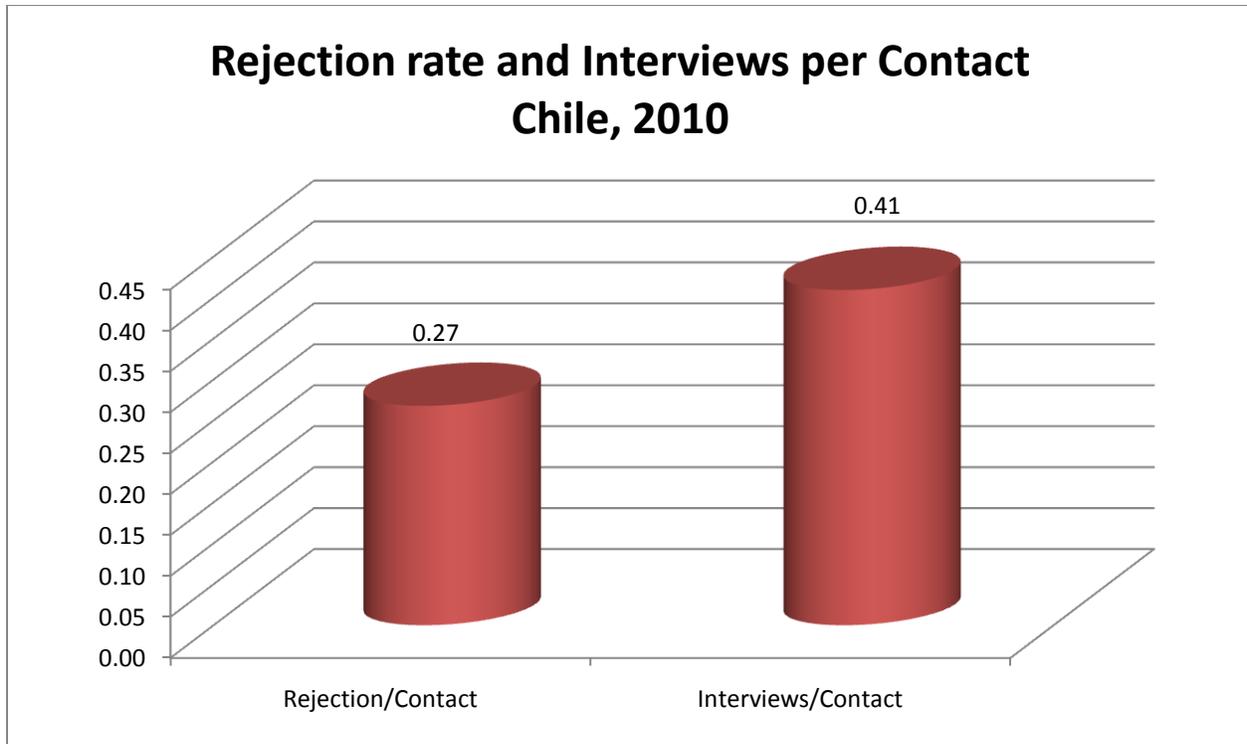
g survey data is strongly recommended by the statisticians specialized on survey methodology of the JPSM of the University of Michigan and the University of Maryland.



42. 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.

43. As the following graph shows, the number of realized interviews per contacted establishment was 0.41⁹. 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 0.27.

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



44. 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 Chile. 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)	531
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	3
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	7
Eligible	4. Eligible establishment (Moved and traced)	110
		0
Ineligible	5. The establishment has less than 5 permanent full time employees	71
Ineligible	6 The firm discontinued businesses	119
Ineligible	7. Not a business: Private household	20
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	64
Ineligible	151 Out of target - outside the covered locations	26
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	56
Unobtainable	92. Line out of order	9
Unobtainable	93. No tone	0
Unobtainable	10. Answering machine	1
Unobtainable	11. Fax line- data line	1
Unobtainable	12. Wrong address/ moved away and could not get the new references	158
	13. Refuses to answer the screener	480
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	113
	Total	1769

Response Outcomes Fresh:

Complete interviews	603
Incomplete interviews	5
Elegible in process	13
Refusals	30
Out of target	300
Impossible to contact	225
Refusal to the Screener	480

1656

Status Codes Panel:

	ELIGIBLES	
Eligible	1. Eligible establishment (Correct name and address)	447
Eligible	2. Eligible establishment (Different name but same address - the new firm/establishment bought the original firm/establishment)	1
Eligible	3. Eligible establishment (Different name but same address - the firm/establishment changed its name)	1
Eligible	4. Eligible establishment (Moved and traced)	38
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)	20
Ineligible	618 The firm discontinued businesses - (Original establishment disappeared and is now a different firm)	8
Ineligible	619 The firm discontinued businesses - (Establishment was bought out by another firm)	3
Ineligible	620 The firm discontinued businesses - (It was impossible to determine for what reason)	8
Ineligible	621 The firm discontinued businesses - (Other: SPECIFY in COMMENTS)	3
Ineligible	7. Not a business: Private household	2
Ineligible	8. Ineligible activity: Education, Agriculture, Finances, Government, etc.	15
Ineligible	151 Out of target - outside the covered locations	5
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	8
Unobtainable	92. Line out of order	3
Unobtainable	93. No tone	0
Unobtainable	10. Answering machine	1
Unobtainable	11. Fax line- data line	0
Unobtainable	12. Wrong address/ moved away and could not get the new references	41
	13. Refuses to answer the screener	152
	14. In process (the establishment is being called/ is being contacted - previous to ask the screener)	0
	Total	756

Response Outcomes Panel:

Panel	
Complete interviews	430
Incomplete interviews	0
Elegible in process	37
Refusals	20
Out of target	64
Impossible to contact	53
Refusal to the Screener	152
Total	756

Appendix B

Universe Estimate, Chile:

Source: Manufacturing = ENIA 2007

Source: Services = INE Precenso + Dun&Bradstreet 2007

Location name	Sampling Employee size	Other						Other Services	Grand Total
		15	17-18	24-25	27-29	Manufacturing	52		
Antofagasta	5-19	15		3	12	21	398	682	1131
	20-99	9		7	14	10	73	188	301
	100+	2		9	27	2	9	37	86
Antofagasta Total		26		19	53	33	480	907	1518
Los Lagos	5-19	20	4	4	5	18	674	936	1661
	20-99	31	4	5	7	16	108	172	343
	100+	54	1			4	18	13	90
Los Lagos Total		105	9	9	12	38	800	1121	2094
Santiago	5-19	186	127	98	149	248	6589	9124	16521
	20-99	247	165	231	238	411	1116	3220	5628
	100+	87	49	113	87	133	266	815	1550
Santiago Total		520	341	442	474	792	7971	13159	23699
Valparaíso	5-19	69	14	14	17	50	1133	1643	2940
	20-99	60	14	18	15	29	131	404	671
	100+	23	1	8	13	12	26	43	126
Valparaíso Total		152	29	40	45	91	1290	2090	3737
Grand Total		803	379	510	584	954	10541	17277	31048

Appendix C

Strict Cell Weights Fresh:

Strict Cell Weights*

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	3.49	1.58	2.05	2.31	6.03	58.65	230.90
	Medium	8.02	2.20	4.31	4.68	22.67	23.63	138.23
	Large	2.71	1.91	2.31	2.14	3.49	3.99	23.39
Valparaiso	Small	3.00	3.49	1.00	2.88	4.49	58.65	230.90
	Medium	3.08	1.14	3.09	1.43	7.35	10.26	37.29
	Large	1.50	1.00	1.18	1.01	1.74	1.79	4.46
Antofagasta	Small	2.39			1.00	2.20	58.65	230.90
	Medium	3.60			2.93	1.00	4.48	15.00
	Large	1.03		4.64	1.85		2.51	5.17
Los Lagos	Small	1.53		1.00	1.00	1.00	58.65	
	Medium	1.91	1.00		1.21	1.00	9.64	20.07
	Large	2.22	1.00			1.00	1.00	

Strict Cell Weights Panel:

Average Strict Cell Weights, Panel firms

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	1.00	1.00	1.02	1.91	1.00	1.00	1.00
	Medium	1.01	1.01	1.02	1.00	1.00	1.49	1.00
	Large	1.00	1.00	1.04	1.03	1.24	1.31	2.90
Valparaiso	Small	1.31	1.17	1.00	1.00	1.00	1.31	1.00
	Medium	1.00	1.00	1.67		1.00	1.39	1.55
	Large	1.13		1.00	3.40	1.00	1.16	4.18
Antofagasta	Small	1.24			1.00	1.86	1.61	1.00
	Medium	1.60	1.00	1.00	1.00	1.50	1.07	1.00
	Large	1.00		1.00	1.00	1.09	1.00	1.04
Los Lagos	Small	1.00			1.00	1.00	1.17	
	Medium	1.00	1.00		1.24	1.00	1.17	1.33
	Large	1.00		1.00		1.33		1.99

Weak Cell Weights Fresh:

Weak Cell Weights*

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	8.23	5.20	4.85	5.43	13.40	141.90	882.36
	Medium	14.35	5.63	7.69	8.56	39.14	45.45	419.90
	Large	4.25	4.22	3.60	3.38	5.19	6.60	61.16
Valparaiso	Small	6.95	11.31	1.98	6.65	9.78	141.90	882.36
	Medium	5.55	2.88	5.58	2.57	12.45	19.37	111.22
	Large	2.32	1.00	1.83	1.57	2.53	2.95	11.46
Antofagasta	Small	5.22			1.94	4.52	141.90	882.36
	Medium	6.11			4.96	1.18	8.55	42.11
	Large	1.50		6.79	2.69		4.39	12.49
Los Lagos	Small	3.82		1.15	1.77	2.13	141.90	
	Medium	3.71	1.61		2.33	1.56	19.58	64.43
	Large	3.71	1.00			1.53	1.60	

*Collapsed cells used in certain cases

Weak Cell Weights Panel:

Average Weak Cell Weights, Panel firms

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	1.87	2.06	1.56	2.72	1.15	1.29	1.65
	Medium	1.77	2.14	1.51	1.64	1.00	2.27	1.12
	Large	1.35	1.08	1.66	1.04	2.07	1.70	5.16
Valparaiso	Small	2.02	1.41	1.00	2.00	1.00	1.31	1.31
	Medium	1.00	1.00	1.72		1.08	2.90	1.92
	Large	1.00		1.00	3.54	1.00	1.19	7.40
Antofagasta	Small	2.30			1.00	1.94	1.63	2.49
	Medium	1.60	3.45	2.64	1.00	2.11	2.53	1.67
	Large	1.00		1.00	1.35	1.12	3.29	1.00
Los Lagos	Small	1.00			1.00	1.00	2.43	
	Medium	2.08	1.11		1.00	1.00	1.45	2.62
	Large	2.05		1.00		1.38		2.09

Medium Cell Weights Fresh:

Median Cell Weights*

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	7.28	4.28	4.28	4.73	11.52	77.35	511.79
	Medium	14.35	5.32	7.69	8.56	38.67	30.19	296.82
	Large	4.25	4.22	3.60	3.38	5.19	4.80	47.32
Valparaiso	Small	5.13	7.77	1.46	4.83	7.03	77.35	511.79
	Medium	4.71	2.27	4.72	2.15	10.28	10.75	65.69
	Large	2.16	1.00	1.69	1.43	2.29	1.79	7.40
Antofagasta	Small	3.64			1.33	3.07	77.35	511.79
	Medium	4.89			3.91	1.00	4.48	23.47
	Large	1.32		5.94	2.32		2.51	7.62
Los Lagos	Small	2.77		1.00	1.26	1.50	77.35	
	Medium	3.09	1.24		1.91	1.26	10.67	37.35
	Large	3.38	1.00			1.36	1.00	

*Collapsed cells used in certain cases

Medium Cell Weights Panel:

Average Median Cell Weights, Panel firms

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services
Santiago	Small	1.49	1.29	1.47	2.60	1.05	1.07	1.27
	Medium	1.71	1.73	1.30	1.22	1.00	1.78	1.04
	Large	1.34	1.00	1.56	1.05	1.70	1.64	5.18
Valparaiso	Small	1.70	1.51	1.00	2.00	1.00	1.44	1.26
	Medium	1.00	1.00	1.71		1.16	1.77	1.95
	Large	1.00		1.00	3.28	1.00	1.16	7.42
Antofagasta	Small	1.54			1.00	1.90	1.62	1.84
	Medium	1.60	2.59	2.56	1.00	1.59	1.79	1.17
	Large	1.00		1.00	1.35	1.11	2.59	1.00
Los Lagos	Small	1.00			1.00	1.00	2.16	
	Medium	1.00	1.16		1.00	1.09	1.40	1.86
	Large	2.08		1.00		1.37		2.01

Appendix D

Strict Universe Estimates

Strict Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services	Grand Total
Santiago	Small	139.01	46.36	57.80	98.94	329.93	1015.38	699.71	2387.12
	Medium	136.60	77.41	369.96	167.47	363.79	290.78	688.23	2094.25
	Large	70.57	31.02	105.93	85.18	126.48	362.59	957.05	1738.81
		346.19	154.80	533.68	351.58	820.21	1668.74	2344.98	6220.18
Valparaiso	Small	34.11	8.16	6.00	6.75	21.95	183.00	233.90	493.86
	Medium	44.74	6.58	12.18	4.30	15.69	34.95	45.05	163.49
	Large	14.25	1.00	9.80	10.91	6.21	23.11	45.93	111.21
		93.10	15.74	27.98	21.96	43.85	241.06	324.88	768.56
Antofagasta	Small	10.99	0.00	0.00	6.00	10.12	355.14	464.80	847.06
	Medium	5.20	1.00	1.00	8.86	10.70	16.66	23.17	66.59
	Large	2.03	0.00	5.64	14.92	3.26	66.65	261.94	354.44
		18.21	1.00	6.64	29.78	24.09	438.45	749.91	1268.08
Los Lagos	Small	12.12	0.00	2.00	3.00	8.00	237.96	0.00	263.08
	Medium	16.39	3.00	0.00	6.14	10.00	23.97	42.80	102.30
	Large	31.66	1.00	1.00	0.00	9.38	6.00	3.98	53.01
		60.17	4.00	3.00	9.14	27.38	267.93	46.78	418.39
Grand Total		517.67	175.53	571.30	412.46	915.53	2616.18	3466.55	8675.22

Weak Universe Estimates

Weak Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services	Grand Total
Santiago	Small	317.89	134.79	117.91	187.90	1090.08	2414.51	2658.61	6921.71
	Medium	253.48	189.53	1121.66	300.97	803.30	549.01	2208.72	5426.68
	Large	113.78	57.19	170.79	149.76	221.34	786.05	2946.77	4445.70
		685.16	381.51	1410.36	638.64	2114.73	3749.58	7814.11	16794.09
Valparaiso	Small	68.85	16.96	10.88	15.29	43.14	433.90	886.27	1475.29
	Medium	73.30	13.52	18.30	7.72	25.99	66.81	120.79	326.44
	Large	20.59	1.00	14.89	15.52	8.60	38.39	130.07	229.06
		162.74	31.48	44.07	38.53	77.73	539.11	1137.13	2030.79
Antofagasta	Small	21.91	0.00	0.00	9.74	15.29	854.67	1772.18	2673.79
	Medium	7.71	3.45	2.64	12.91	15.57	33.25	59.62	135.15
	Large	2.50	0.00	7.79	21.49	3.35	158.13	967.57	1160.83
		32.12	3.45	10.42	44.14	34.21	1046.05	2799.37	3969.77
Los Lagos	Small	21.27	0.00	2.30	4.54	13.59	574.59	0.00	616.29
	Medium	32.21	4.32	0.00	7.66	14.46	44.97	134.08	237.71
	Large	54.75	1.00	1.00	0.00	10.94	9.63	4.18	81.50
		108.23	5.32	3.30	12.20	38.99	629.19	138.27	935.50
Grand Total		988.24	421.76	1468.16	733.52	2265.67	5963.92	11888.88	23730.15

Median Universe Estimates

Median Universe Estimates (Fresh + Panel)

Location	Firm Size	15	17-18	24-25	27-29	Manuf.	Retail	Services	Grand Total
Santiago	Small	233.77	107.44	107.34	170.14	690.94	1334.61	1544.28	4188.52
	Medium	247.35	171.74	743.43	290.31	673.85	369.04	1452.23	3947.95
	Large	112.59	56.39	168.01	135.92	201.98	464.31	2010.14	3149.33
		593.71	335.56	1018.77	596.37	1566.77	2167.95	5006.65	11285.80
Valparaiso	Small	52.97	13.79	8.28	11.67	32.12	239.61	515.56	874.00
	Medium	65.73	11.10	16.04	6.45	21.72	37.56	75.43	234.04
	Large	19.27	1.00	13.50	14.04	7.87	24.41	80.52	160.60
		137.97	25.89	37.82	32.16	61.71	301.59	671.51	1268.64
Antofagasta	Small	14.95	0.00	0.00	7.32	11.94	467.34	1029.10	1530.65
	Medium	6.49	2.59	2.56	10.82	11.83	18.81	34.60	87.69
	Large	2.32	0.00	6.94	18.93	3.33	86.93	559.73	678.18
		23.75	2.59	9.50	37.06	27.10	573.08	1623.44	2296.51
Los Lagos	Small	17.06	0.00	2.00	3.53	10.62	315.22	0.00	348.42
	Medium	24.62	3.65	0.00	6.82	12.34	26.95	78.42	152.80
	Large	50.96	1.00	1.00	0.00	10.50	6.00	4.02	73.48
		92.64	4.65	3.00	10.35	33.46	348.16	82.44	574.70
Grand Total		848.07	368.69	1069.09	675.95	1689.04	3390.78	7384.04	15425.65

Appendix E

Original Sample Design, Chile:

Location	Firm Size	17-				Manuf.	Retail	Services	Grand Total
		15	18	24-25	27-29				
Santiago	Small	29	22	43	34	29	23	23	203
	Medium	26	66	50	33	19	14	21	229
	Large	27	48	42	45	23	18	14	217
Total		82	136	135	112	71	55	58	649
Antofagstata	Small	1	0	0	10	5	5	7	28
	Medium	1	1	1	7	4	8	7	29
	Large	7	0	1	6	8	10	11	43
Total		9	1	2	23	17	23	25	100
Los Lagos	Small	16	1	0	0	2	6	6	31
	Medium	11	3	2	4	6	7	7	40
	Large	6	1	1	1	7	9	6	31
Total		33	5	3	5	15	22	19	102
Valparaiso	Small	7	2	5	8	4	6	6	38
	Medium	12	9	9	5	3	8	6	52
	Large	17	7	6	7	10	6	6	59
Total		36	18	20	20	17	20	18	149
Grand Total		160	160	160	160	120	120	120	1000

Completed Interviews, Chile:

Location	Firm Size	17-				Manuf.	Retail	Services	Grand Total
		15	18	24-25	27-29				
Santiago	Small	22	43	36	42	20	12	14	189
	Medium	35	45	50	57	26	18	40	271
	Large	28	15	54	36	33	37	42	245
Total		85	103	140	135	79	67	96	705
Antofagstata	Small	5	0	0	8	5	7	8	33
	Medium	3	2	1	9	3	3	7	28
	Large	2	0	2	8	4	2	4	22
Total		10	2	3	25	12	12	19	83
Los Lagos	Small	8	0	2	4	6	5	3	28
	Medium	11	5	1	6	12	7	2	44
	Large	17	0	1	0	4	5	4	31
Total		36	5	4	10	22	17	9	103
Valparaiso	Small	19	2	6	3	8	10	3	51
	Medium	17	8	5	3	3	6	7	49
	Large	11	1	7	8	3	6	6	42
Total		47	11	18	14	14	22	16	142
Grand Total		178	121	165	184	127	118	140	1033

Appendix F

Local Agency team involved in the study:

Local Agency	Cadem Reasearch
Enumerators involved:	19
Other staff involved:	11 recruiters/coordinator/assistants

Sample Frame:

Characteristic of sample frame used:	Manufacturing sample frame was elaborated upon the census of Chilean companies. Core and Services were elaborated upon the ENIA (Annual National Industry Survey) Directory of Chilean companies.
Source:	Services: ENIA Manufacturing: INE (Chile National Institute of Statistics)
Year:	2007
Comments on the quality of sample frame:	Both sample frames presented a low quality. A lot of incorrect information, especially on the Retail and Core sample frames. In many cases we had no telephone and many incorrect addresses.
Year and organism who conducted the last economic census	ENIA 2007

Sectors included in the Sample:

Original Sectors	15, 18, 24, 28, Other Manufacturing, 52, Other Services
Added Sectors	15, 17-18, 24-25, 27-29, Other Manufacturing, 52, Other Services

Sample:

Comments/ problems on sectors and locations selected in the sample:	The original locations of the sample were Santiago, Antofagasta, Bio Bio and Los Lagos. Due to the earthquake in February 2010, we recommend removing the Bio Bio location (epicentre of the earthquake)
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Fieldwork:

Date of Fieldwork	May 5th, 2010 to April 14th, 2011
Problems found during fieldwork:	The quality of the sample frame.

Questionnaires:

Problems for the understanding of questions (write question number)	J10: Most respondents did not understand the question, because in Chile a license to import is not needed. LAC.L13, LAC.L15 And LAC.L17: Many respondents found those questions difficult to understand. Also, the information was difficult to obtain within the company.
Suggestions or other comments on the questionnaire:	The N5 could be in section N

Country situation

Relevant country events occurred during fieldwork:	The earthquake in February 2010, affected many companies. Although the epicenter was in the Bío Bío location, it was also very strong in Santiago.
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