

The Peru 2023 World Bank Enterprise Survey Implementation Report

I. Introduction

This document provides information on the World Bank Enterprise Surveys (WBES) implemented in Peru between August 2022 and August 2023 (baseline data collection) and between May and October 2023 (follow-up data collection). The WBES collect both objective data based on firms' day-to-day experiences, and perceptions of enterprises regarding the business environment in which they operate. The WBES currently cover over 200,000 firms in 155 countries with a total of 340 surveys since 2006. The WBES are also used to build a panel of enterprise data that will make it possible to track changes in the business environment over time.¹

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

II. Sampling Structure

The WBES use stratified random sampling, where the population of establishments is first separated into non-overlapping groups, called strata, and then respondents are selected through simple random sampling from each stratum. The detailed methodology is provided in the Sampling Note.² Stratified random sampling has several advantages over simple random sampling. In particular, it:

- produces unbiased estimates of the whole population or universe of inference, as well as at the levels of stratification
- ensures representativeness by including observations in all of those categories
- produces more precise estimates for a given sample size or budget allocation, and
- may reduce implementation costs by splitting the population into convenient subdivisions.

The WBES typically use three levels of stratification: industry classification, establishment size, and subnational region (used in combination). Starting in 2022, the WBES bases the industry classification on ISIC Rev. 4 (with earlier surveys using ISIC Rev. 3.1).³ For regional coverage within a country, the WBES has national coverage.

¹ A “panel interview” refers to an interview with a business that was also interviewed in the previous WBES.

² The Sampling Note is available at:

https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Sampling_Note-Consolidated-2-16-22.pdf. For further methodological background see, Richard L. Scheaffer; Mendenhall, W.; Lyman, R., “Elementary Survey Sampling”, Fifth Edition, 1996.

³ The WBES universe includes: all manufacturing (ISIC 4.0 codes 10-32), services (ISIC 4.0 codes 33, 41-43, 45-47, 49-56, 58, 61, 62, 69-75, 79, 95). Details on sectoral coverage and the WBES universe of inference can be found in the *Enterprise Surveys Manual and Guide* (p. 4).

II.1 Stratification Categories

The Peru 2023 WBES uses the following stratification categories:

- **Industry: 7 categories:**
 - Within manufacturing: Food, Textiles, Garments, Other manufacturing
 - Within services: Retail, Hotels, and Other Services
- **Size: 3 categories:** Small (5 to 19 employees), Medium (20 to 99 employees), Large (100 or more employees)
- **Region: 5 categories:** Lima, Arequipa, Chiclayo, Trujillo, Piura.

Industry strata for the manufacturing sector were selected by their contribution to employment, to total number of establishments, and to total sales value, using information from the SUNAT (Superintendencia Nacional de Aduanas y de Administración Tributaria) database extracted in March 2022. The manufacturing sectors stratified separately represent 53% of total employment of the universe covered by the ES, 33% of the number of establishments, and 33% of sales value, with the rest of sectors grouped into a residual “Other Manufacturing” stratum.

The strata for the services sector were selected by contribution to the same indicators (total number of establishments, employment, and total sales value), also using the listing from SUNAT extracted in March 2022. The sectors stratified separately represent 17% of the total number of establishments in the services sector, 22% of the workforce, and 20% of the sales value; the rest of services sectors are grouped into a residual “Other services” stratum.

Region strata of the Peru 2023 WBES were selected based on administrative divisions, with the aim to achieve minimum required precision of estimates at the level of each stratification region. Lima covers the region of Lima, Arequipa covers the Arequipa region, Trujillo covers La Libertad region, Chiclayo covers Lambayeque region, and finally Piura covers Piura region. The most remote areas of the country were not part of the ES universe for Peru.

II.2 Universe

The universe of inference includes all formal (i.e., registered) private sector businesses (with at least 1% private ownership) and with at least five employees. In terms of sectoral criteria, all manufacturing businesses (ISIC Rev 4. codes 10-33) are eligible; for services businesses, those corresponding to the ISIC Rev 4 codes 41-43, 45-47, 49-53, 55-56, 58, 61-62, 69-75, 79, and 95 are included in the Enterprise Surveys. Cooperatives and collectives are excluded from the Enterprise Surveys. All eligible establishments must be registered with the registration agency. In the case of Peru, the listing from SUNAT, extracted in March 2022, was used. The registration agency is also SUNAT. The universe table is the total number of eligible establishments, and the table is partitioned by the stratification groups (industry classification, establishment size, and subnational region) in a country.

For the Peru 2023 WBES, the universe table, shown in Table 1 below, was obtained from SUNAT in March 2022.

II.3 Sampling Frame

The WBES requires the most complete and up-to-date Sampling Frame, the list of eligible establishments with information on industry classification, size, address and other contact information that will be used to randomly select the sample. In countries where a previous round of the WBES exists, the Sampling Frame also includes the Panel Sampling Frame, which provides information about all the establishments that participated in the previous round of the WBES in the country.

The Sampling Frame for the Peru 2023 WBES was constructed from the following sources (see counts of establishments in the frame in Table 2). The Panel Sampling Frame was constructed using information on all the establishments that participated in the Peru 2017 WBES. The Fresh Sampling Frame, i.e., list of establishments that are in the WBES universe and that have not participated in the Peru 2017 WBES, for both the manufacturing sector (ISIC 4.0 codes 10-32) and the services sector (ISIC 4.0 codes 41-43, 45-47, 49-56, 58, 61, 62, 69-75, 79, 95), was obtained from SUNAT.

For every WBES, necessary measures are taken to ensure the quality of the frame; however, the sample frames are not immune to the typical problems found in establishment surveys: positive rates of non-eligibility, repetition, non-existent units, etc. Given the impact that non-eligible units included in the sample universe may have on the results, eligibility adjustments may be needed when computing the appropriate sampling weights for individual observations (if and only if the weights are computed the sampling frame that is also the universe). Table 4 reports response outcomes.

II.4 Sample Design

The WBES sample design, i.e., target number of interviews in each combination of stratification categories (cells), is generated using the two primary criteria: 1) minimize the difference from the purely proportional sample within each cell; and 2) achieve a sufficient sample size by stratification category to allow for estimates of a given level of precision.⁴ Additional information on the criteria for determining the sample size by stratification category is given in the *Sampling Note*, and additional information on the sample design is given in the *Enterprise Surveys Manual and Guide*.⁵ The original survey design for the Peru 2023 WBES is given in Table 3.

III. Data Collection

The detailed information on the WBES methodology and data collection is provided in the Enterprise Surveys Manual and Guide. The interviews for the Peru 2023 WBES were conducted between August 2022 and August 2023. The interviews were conducted in Spanish. For monetary

⁴ Additional constraints are also considered in the design stage. These are generally practical and include, for example, having a sufficient number of available contacts in the sample.

⁵ The *Enterprise Surveys Manual and Guide* is available at:

<https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Enterprise-Surveys-Manual-and-Guide.pdf>

variables, the currency was PEN (Nuevo Soles). About thirty variables were collected through follow-up phone surveys, conducted between May 2023 and October 2023; these variables have the suffix _BR. Although there was an attempt to re-contact all the establishments that participated in the baseline surveys to collect the variables needed for the B-ready report, attrition occurred in the follow-up surveys: 830 were successfully recontacted (84% realization rate); 139 refused to participate, and 18 were unobtainable.

Apart from the challenges with participation and call-backs that are standard for all surveys, the Peru 2023 WBES faced challenges due to political instability in several regions of the country in the first trimester of 2023 and adverse climate events in March 2023. Both events caused a temporary suspension of fieldwork in the affected areas.

III.1 Questionnaire

The standard WBES questionnaire covers several topics regarding the business environment and business performance. These topics include general firm characteristics, infrastructure, sales and supplies, management practices, competition, innovation, capacity, land and permits, finance, business-government relations, exposure to bribery, labor, and performance. Information about the general structure of the questionnaire is available in the *Enterprise Surveys Manual and Guide*.

The baseline questionnaire implemented in the Peru 2023 WBES included additional questions covering green economy.

The follow-up questionnaire included new questions that are asked for the Business Ready (B-READY) project.

III.2 Contractor

The fieldwork for the Peru 2023 WBES was implemented by Datum Internacional SA. The selection for the implementing agency followed the standard World Bank procurement practices that are described in more detail in the *Enterprise Surveys Manual and Guide*.

III.3 Sampling and screening

Samples are drawn by the Enterprise Surveys team in batches, following the stratification and sample design. The contractor conducted a thorough screening process before scheduling the ES interviews. Results of the screening are provided using the eligibility and status codes as listed in Table 4. In cases of unit non-response (either a refusal or an inability to obtain an interview after exhaustive attempts), the contractor proceeded with the contact that appeared next in the list drawn in the respective cell. The process of sampling and screening is described in more detail in the *Enterprise Surveys Manual and Guide*.

III.4 Survey response

In all surveys, including the WBES, some respondents choose not to participate. The Enterprise Analysis team and the contractor take all necessary measures to boost participation,

through various methods of recruitment. The proper management of the screening process and sample replacement ensures that the resulting sample remains random.

The main measure of survey participation is the yield, which is the ratio of the total number of achieved interviews to the total number of contacted establishments. There are two main elements that boost yields. First is the survey participation rate, measured as the share of establishments that participated among those that can be assumed to have been eligible. The second element is the quality of frame. If only a small fraction of the contacted establishments is actually eligible to participate in the survey, then the sampling frame is far from ideal. This quality is measured by the ratio of the total number of establishments that can be assumed to be eligible for the WBES with the total number of contacted establishments in the frame. In other words:

$$Yield = Survey\ response\ rate * Rate\ of\ quality\ of\ the\ frame$$

which can be rewritten as follows:

$$\frac{Total\ interviewed}{Total\ contacted} = \frac{Total\ interviewed}{Assumed\ eligible} * \frac{Assumed\ eligible}{Total\ contacted}$$

Table 5 provides these measures for the Peru 2023 WBES and across its stratification levels.

III.5 Achieved Sample

Tables 6 and 7 provide count of the WBES interviews collected for each stratification cell, i.e., broken down by industry, establishment size, and region. Table 6 reports full sample, while Table 7 shows counts of only panel interviews.

III.6 Sampling Weights

Since the WBES uses stratified random sampling, individual observations should be properly weighted when making inferences about the population, since unweighted estimates are biased unless sample sizes are proportional to the size of each stratum. For each WBES, special care is given to correctly compute sampling weights. Whenever the Universe is used to draw the sample (i.e., Sampling Frame is the same as the Universe) it is imperative to accurately adjust the universe within each stratum to account for the presence of ineligible establishments (e.g., the firm discontinued businesses, or is deemed ineligible due to its business activity or having fewer than five employees). Proper treatment of panel establishments is also crucial. Details about how the WBES sampling weights are calculated are given in the *Sampling Note*.

Three versions of sampling weights are calculated, depending on the assumptions that determine eligibility of establishments to be counted towards the WBES universe. These assumptions are called weak, medium, and strong; and are defined as given in the table below. Prevalence of each of these outcomes for the Peru 2023 WBES is given in Table 4. All indicators and analysis conducted by the Enterprise Surveys team use the sampling weights based on the median assumption. Tables 8-10 report estimated universe based on the respective assumption.

Assumption	Eligibility codes for inclusion in the WBES universe
Strict	1,2,3,4,16
Median	1,2,3,4,16,10,11,13
Weak	1,2,3,4,16,10,11,13,91,92,93,94,12

For descriptions of each eligibility code, see Table 4.

Two different sets of weights are presented in the dataset. The standard weights discussed above apply to the standard Enterprise Survey questions that were administered in the baseline survey to all respondents. The second set of weights are denoted with the suffix `_BR` and they apply to the questions asked in the follow-up surveys, i.e., to all the variables denoted with the suffix `_BR`. Both sets of weights are scaled such that they are nationally representative of the businesses operating in the country. This implies that all variables with the suffix `_BR` must be used with the weights with suffix `_BR` whereas variables without the suffix must use the weights without suffix when making inferences to the population.

III.7 Item response rates

Item response rate must be differentiated from survey response rates. The latter refers to participation in the survey itself (see Section III.4) whereas the former refers to the absence of responses to specific survey questions.⁶ The WBES, as any survey, suffer from item non-response; and different strategies are used by the data collection team to address this. In particular:

- For sensitive questions, such as on corruption or tax evasion, enumerators were instructed to collect the refusal to respond (-8) as a separate response category from don't know (-9).
- Establishments with incomplete information were re-contacted to fill gaps.

Table 11 provides item response rates for several key variables, broken down across the stratification levels.

III.8 Database Structure

The WBES datafiles are organized in ways that reflect the corresponding questionnaire. The variables that are standard across countries have the first letter in their name correspond to the questionnaire section where the variable belongs in the questionnaire, i.e., *a1* denotes section A. For the follow-up survey, all the variables have the suffix `_BR`, including the weights. 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.

The WBES datafiles contain two establishment identifiers, *idstd* and *id*. The former is a global unique identifier of each establishment, while the latter is unique identifier within each survey. The variable *idstd* can be used to match the WBES establishment one-to-one across

⁶ The WBES questionnaire is organized so that there is always some entry in the database when the question was posed. An empty entry means that the question was not asked to the corresponding respondent, typically, due to skip patterns, or lack of applicability of that question in general.

databases. The variables *wweak*, *wmedian*, and *wstrong* corresponding to sampling weights based on, respectively, weak, median, and strong assumptions about eligibility (see Section III.6). The variable *strata* corresponds to the stratum of each observation.

Additionally, the WBES datafiles contain many standard variables. The variable *d1a2_v4* denotes the main activity of the establishment, as obtained during the WBES interview, coded in the four-digit ISIC Rev. 4. Users should note that this activity may differ from the industry classification given in the Sampling Frame, *a4a*. Users are generally advised to use industry categories based on the realized information in *d1a2_v4*. Additional sampling information is contained in variables *a2* (region) and *a6a* (size). The variable *panel* identifies panel establishments, i.e., those that participated in the Peru 2017 WBES. The combination of *a4a*, *a2*, *a6a*, and *panel* forms stratum of each establishment, which is contained in variable *strata*.

The last complete fiscal year for each establishment is contained in variables *a20m* (last month of last complete fiscal year) and *a20y* (last complete fiscal year).

Note that when an entry in the WBES database is empty, this means that the question was not asked to the corresponding respondent. This happens when the question is deemed inapplicable, due to skip patterns or other reasons. In cases when the question was posed, some entry is provided, including don't know, which is an example of item non-response.

IV. Useful Links

The users of the WBES data may find the following links useful:

- *Sampling Note* is available at:
https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Sampling_Note-Consolidated-2-16-22.pdf
- The *Enterprise Surveys Manual and Guide* is available at:
<https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Enterprise-Surveys-Manual-and-Guide.pdf>
- The WBES global questionnaires are available at:
<https://www.enterprisesurveys.org/en/methodology>
- The projects that are currently being implemented by the Enterprise Surveys team are available at: <https://www.enterprisesurveys.org/en/current-projects>
- The list of all WBES databases and detailed information about each is available here:
<https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/DataDetails.xls>
- The description of the WBES indicators is available at:
<https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/Indicator-Description.pdf>

Fact Sheet

Source of Universe Table	SUNAT March 2022
Source of Sampling Frame	SUNAT March 2022
Stratification sectors	Manufacturing of: Food, Textiles, Garments, Other manufacturing; Retail, Hotels, and Other Services
Stratification sizes	Small (5 to 19 employees), Medium (20 to 99 employees), and Large (100 or more)
Stratification regions	Lima, Arequipa, Chiclayo, Trujillo, Piura
Contractor	Datum Internacional SA
Fieldwork dates	August 2022 – August 2023 (Baseline)
Interview languages	Spanish
Survey software	Survey Solutions
Currency for nominal variables	PEN (Nuevo Soles)
Reference fiscal year	2021 (396 obs.) and 2022 (591 obs.)
Sample Size	Total: 987 Fresh: 629 Panel: 358
Survey response rates	Yield: 13.4% Response rate: 25% Frame quality: 53.5%
Item response rates	d2: 95.1% n2a: 83.9% 11: 100% all TFP vars.: 71.2%
Additional topics covered in the questionnaire	Green economy
Additional surveys available (if any)	Informal Sector Enterprise Survey

Tables

Table 1: Peru 2023 WBES Universe

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Grand Total
Lima	Small (5-19)	644	313	585	3,515	2,863	399	14,483	29,622
Lima	Medium (20-99)	215	82	109	786	375	93	3,395	
Lima	Large (100 or more)	152	38	47	325	124	28	1,051	
Arequipa	Small (5-19)	74	21	37	238	299	77	1,604	2,790
Arequipa	Medium (20-99)	23	1	2	53	23	8	230	
Arequipa	Large (100 or more)	5	4	3	22	6	0	60	
Chiclayo	Small (5-19)	64	0	2	88	151	35	645	1,136
Chiclayo	Medium (20-99)	9	0	0	15	10	4	80	
Chiclayo	Large (100 or more)	9	0	0	5	2	0	17	
Trujillo	Small (5-19)	54	3	4	177	259	59	1,562	2,515
Trujillo	Medium (20-99)	11	0	1	26	21	5	266	
Trujillo	Large (100 or more)	10	0	0	6	5	0	46	
Piura	Small (5-19)	63	1	4	97	229	52	841	1,551
Piura	Medium (20-99)	28	0	0	14	20	4	141	
Piura	Large (100 or more)	19	0	0	3	6	0	29	
		1,380	463	794	5,370	4,393	764	24,450	37,614

Source: SUNAT March 2022

Table 2: Peru 2023 WBES Sample Frame (Fresh and Panel Combined)

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Grand Total
Lima	Small (5-19)	480	205	507	1507	1177	250	5105	14,436
Lima	Medium (20-99)	173	86	81	664	295	70	2252	
Lima	Large (100 or more)	175	52	66	355	122	25	789	
Arequipa	Small (5-19)	60	20	42	240	275	61	1304	2,508
Arequipa	Medium (20-99)	26	2	5	65	26	9	241	
Arequipa	Large (100 or more)	8	7	5	29	9	0	74	
Chiclayo	Small (5-19)	49	0	6	88	130	32	533	1,017
Chiclayo	Medium (20-99)	11	0	0	13	13	5	98	
Chiclayo	Large (100 or more)	12	0	0	4	3	0	20	
Trujillo	Small (5-19)	47	2	6	194	226	53	1201	2,141
Trujillo	Medium (20-99)	9	0	2	34	27	7	254	
Trujillo	Large (100 or more)	11	0	0	8	3	1	56	
Piura	Small (5-19)	48	1	2	77	148	36	592	1,137
Piura	Medium (20-99)	22	0	0	13	21	4	115	
Piura	Large (100 or more)	19	0	0	2	6	0	31	
		1,150	375	722	3,293	2,481	553	12,665	21,239

Source: The frame was obtained by enriching the dataset from the Universe. Universe generally did not contain any contact information but the vendor, using the info available in the universe (RUC, firm denomination) did desk research to identify the contact information. The enrichment happened using the following sources: Top 10mil (base especializada), Top PYME (base especializada), Redes sociales (Facebook y LinkedIn), Página web de las empresas, Internet en general).

Table 3: Original Survey Design (Fresh and Panel Combined)

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Grand Total
Lima	Small (5-19)	7	25	25	25	19	16	17	435
Lima	Medium (20-99)	19	27	28	32	11	19	25	
Lima	Large (100 or more)	25	17	24	28	26	7	13	
Arequipa	Small (5-19)	8	6	14	10	11	17	20	180
Arequipa	Medium (20-99)	9	1	3	19	8	3	10	
Arequipa	Large (100 or more)	3	3	3	10	4	0	18	
Chiclayo	Small (5-19)	11	0	3	11	15	9	20	120
Chiclayo	Medium (20-99)	3	0	0	4	5	3	21	
Chiclayo	Large (100 or more)	4	0	0	2	2	0	7	
Trujillo	Small (5-19)	12	1	3	11	21	16	20	160
Trujillo	Medium (20-99)	3	0	1	11	9	2	24	
Trujillo	Large (100 or more)	4	0	0	3	1	1	17	
Piura	Small (5-19)	4	0	1	5	8	10	4	105
Piura	Medium (20-99)	7	0	0	5	8	2	33	
Piura	Large (100 or more)	5	0	0	1	2	0	10	
		124	80	105	177	150	105	259	1,000

Table 4: Response Outcomes

		Totals	Rates relative to total contacted
Overall	Contacts available in frame	21,239	
	Issued	8,109	
	Contacted	7,386	
Screening phase	Eligibles	1,204	16.3%
	Screeners refusals	2,152	29.1%
	Assumed eligibles	3,953	53.5%
	Ineligible + out of target	627	8.5%
	Unobtainables	3,403	46.1%
Interview phase (only if eligible)	Interview refusals	217	2.9%
	Complete interviews	987	13.4%

Table 5: Survey Yield Rates

	Stratification	Yield	Survey response rate	Frame quality
Panel	Fresh	9.9%	19.3%	51.2%
	Panel	35.7%	52.1%	68.5%
Size	Small (5-19)	12.4%	25.6%	48.6%
	Medium (20-99)	16.2%	29.6%	54.6%
	Large (100+)	11.7%	18.9%	62.1%
Region	Lima	10.7%	19.3%	55.5%
	Arequipa	16.6%	27.9%	59.4%
	Chiclayo	20.2%	40.7%	49.6%
	Trujillo	15.7%	34.1%	46.0%
	Piura	15.0%	31.8%	47.2%
Sector	Food	13.9%	24.2%	57.3%
	Textiles	11.8%	21.3%	55.5%
	Garments	12.2%	25.9%	47.3%
	Other Manufacturing	16.2%	30.4%	53.2%
	Retail	12.9%	24.9%	51.9%
	Hotels	16.1%	25.5%	63.1%
	Other Services	11.7%	22.4%	52.3%
Overall	Peru 2023	13.4%	25.0%	53.5%

Notes: the rates are calculated as defined in Section III.4.

Table 6: Achieved Total Sample (Fresh and Panel Combined)

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Grand Total
Lima	Small (5-19)	8	18	25	23	11	25	16	436
Lima	Medium (20-99)	25	11	12	44	28	13	21	
Lima	Large (100 or more)	28	8	12	54	12	7	35	
Arequipa	Small (5-19)	5	4	12	20	18	17	17	176
Arequipa	Medium (20-99)	7	1	1	14	3	3	34	
Arequipa	Large (100 or more)	1	2	2	5	0	0	10	
Chiclayo	Small (5-19)	9	0	2	13	23	6	15	112
Chiclayo	Medium (20-99)	4	0	0	4	6	2	23	
Chiclayo	Large (100 or more)	0	0	0	1	1	0	3	
Trujillo	Small (5-19)	6	0	2	25	26	7	19	155
Trujillo	Medium (20-99)	2	0	0	9	5	1	41	
Trujillo	Large (100 or more)	1	0	0	0	0	0	11	
Piura	Small (5-19)	9	0	0	12	22	7	12	108
Piura	Medium (20-99)	2	0	0	3	5	1	24	
Piura	Large (100 or more)	2	0	0	0	0	0	9	
		109	44	68	227	160	89	290	987

Table 7: Achieved Panel Sample

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Grand Total
Lima	Small (5-19)	6	3	13	18	8	0	1	189
Lima	Medium (20-99)	15	7	8	29	10	0	11	
Lima	Large (100 or more)	13	6	8	25	3	1	4	
Arequipa	Small (5-19)	1	0	4	5	5	0	10	49
Arequipa	Medium (20-99)	3	1	1	5	1	0	3	
Arequipa	Large (100 or more)	0	2	2	2	0	0	4	
Chiclayo	Small (5-19)	3	0	2	4	5	1	11	40
Chiclayo	Medium (20-99)	1	0	0	0	2	2	6	
Chiclayo	Large (100 or more)	0	0	0	0	1	0	2	
Trujillo	Small (5-19)	4	0	1	8	10	1	15	58
Trujillo	Medium (20-99)	1	0	0	2	3	1	8	
Trujillo	Large (100 or more)	1	0	0	0	0	0	3	
Piura	Small (5-19)	2	0	0	3	4	0	2	22
Piura	Medium (20-99)	1	0	0	1	4	0	3	
Piura	Large (100 or more)	0	0	0	0	0	0	2	
		51	19	39	102	56	6	85	358

Table 8: Weak Universe Estimates

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Garment and Other Mfg	Textiles Garment and Other Mfg	Textiles and Garment	Grand Total
Lima	Small (5-19)	567	290	522	3315	2692	386	14174	0	0	0	28355
Lima	Medium (20-99)	185	78	95	723	344	88	3241	0	0	0	
Lima	Large (100 or more)	144	45	55	314	109	25	964	0	0	0	
Arequipa	Small (5-19)	63	0	0	220	273	72	1526	0	0	0	2655
Arequipa	Medium (20-99)	22	0	0	58	0	8	224	0	0	0	
Arequipa	Large (100 or more)	6	0	0	25	0	0	66	0	0	0	
Arequipa	Medium and Large (20 or more)	0	0	0	0	29	0	0	0	0	0	
Arequipa	All sizes (5 or more)	0	23	39	0	0	0	0	0	0	0	
Chiclayo	Small (5-19)	55	0	0	0	140	0	622	89	0	0	1102
Chiclayo	Medium (20-99)	0	0	0	14	0	0	93	0	0	0	
Chiclayo	Large (100 or more)	0	0	0	4	0	0	18	0	0	0	
Chiclayo	Medium and Large (20 or more)	18	0	0	0	13	0	0	0	0	0	
Chiclayo	Small and Medium (5 to 99)	0	0	0	0	0	36	0	0	0	0	
Trujillo	Small (5-19)	48	0	0	185	246	0	1545	0	0	0	2482
Trujillo	Medium (20-99)	0	0	0	0	0	0	257	0	0	0	
Trujillo	Large (100 or more)	0	0	0	0	0	0	52	0	0	0	
Trujillo	Medium and Large (20 or more)	18	0	0	36	28	0	0	0	0	0	
Trujillo	Small and Medium (5 to 99)	0	0	0	0	0	0	0	0	0	11	
Trujillo	All sizes (5 or more)	0	0	0	0	0	57	0	0	0	0	
Piura	Small (5-19)	56	0	0	0	216	51	827	0	97	0	1492
Piura	Medium (20-99)	24	0	0	0	0	4	135	0	0	0	
Piura	Large (100 or more)	16	0	0	0	0	0	29	0	0	0	
Piura	Medium and Large (20 or more)	0	0	0	15	23	0	0	0	0	0	
		1222	436	711	4908	4115	728	23771	89	97	11	36086

Table 9: Median Universe Estimates

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Garment and Other Mfg	Textiles Garment and Other Mfg	Textiles and Garment	Grand Total
Lima	Small (5-19)	329	157	229	1608	1296	233	6760	0	0	0	14460
Lima	Medium (20-99)	124	49	48	408	193	62	1796	0	0	0	
Lima	Large (100 or more)	120	35	35	219	76	22	661	0	0	0	
Arequipa	Small (5-19)	41	0	0	119	147	49	811	0	0	0	1516
Arequipa	Medium (20-99)	16	0	0	37	0	6	138	0	0	0	
Arequipa	Large (100 or more)	6	0	0	19	0	0	50	0	0	0	
Arequipa	Medium and Large (20 or more)	0	0	0	0	22	0	0	0	0	0	
Arequipa	All sizes (5 or more)	0	23	31	0	0	0	0	0	0	0	
Chiclayo	Small (5-19)	27	0	0	0	57	0	251	39	0	0	483
Chiclayo	Medium (20-99)	0	0	0	6	0	0	44	0	0	0	
Chiclayo	Large (100 or more)	0	0	0	3	0	0	10	0	0	0	
Chiclayo	Medium and Large (20 or more)	12	0	0	0	8	0	0	0	0	0	
Chiclayo	Small and Medium (5 to 99)	0	0	0	0	0	25	0	0	0	0	
Trujillo	Small (5-19)	22	0	0	71	93	0	580	0	0	0	1005
Trujillo	Medium (20-99)	0	0	0	0	0	0	112	0	0	0	
Trujillo	Large (100 or more)	0	0	0	0	0	0	28	0	0	0	
Trujillo	Medium and Large (20 or more)	11	0	0	19	15	0	0	0	0	0	
Trujillo	Small and Medium (5 to 99)	0	0	0	0	0	0	0	0	0	10	
Trujillo	All sizes (5 or more)	0	0	0	0	0	44	0	0	0	0	
Piura	Small (5-19)	27	0	0	0	88	26	334	0	31	0	634
Piura	Medium (20-99)	14	0	0	0	0	2	63	0	0	0	
Piura	Large (100 or more)	11	0	0	0	0	0	17	0	0	0	
Piura	Medium and Large (20 or more)	0	0	0	8	13	0	0	0	0	0	
		762	263	344	2517	2008	469	11655	39	31	10	18098

Table 10: Strict Universe Estimates

		Food	Textiles	Garments	Other Mfg	Retail	Hotels	Other Services	Garment and Other Mfg	Textiles Garment and Other Mfg	Textiles and Garment	Grand Total
Lima	Small (5-19)	50	19	31	273	217	45	1110	0	0	0	2465
Lima	Medium (20-99)	26	11	12	85	42	13	333	0	0	0	
Lima	Large (100 or more)	28	8	12	54	13	7	76	0	0	0	
Arequipa	Small (5-19)	12	0	0	40	48	19	261	0	0	0	503
Arequipa	Medium (20-99)	7	0	0	15	0	3	50	0	0	0	
Arequipa	Large (100 or more)	1	0	0	6	0	0	11	0	0	0	
Arequipa	Medium and Large (20 or more)	0	0	0	0	7	0	0	0	0	0	
Arequipa	All sizes (5 or more)	0	7	15	0	0	0	0	0	0	0	
Chiclayo	Small (5-19)	13	0	0	0	31	0	130	22	0	0	279
Chiclayo	Medium (20-99)	0	0	0	4	0	0	27	0	0	0	
Chiclayo	Large (100 or more)	0	0	0	1	0	0	4	0	0	0	
Chiclayo	Medium and Large (20 or more)	6	0	0	0	7	0	0	0	0	0	
Chiclayo	Small and Medium (5 to 99)	0	0	0	0	0	35	0	0	0	0	
Trujillo	Small (5-19)	7	0	0	28	34	0	209	0	0	0	394
Trujillo	Medium (20-99)	0	0	0	0	0	0	47	0	0	0	
Trujillo	Large (100 or more)	0	0	0	0	0	0	11	0	0	0	
Trujillo	Medium and Large (20 or more)	4	0	0	9	6	0	0	0	0	0	
Trujillo	Small and Medium (5 to 99)	0	0	0	0	0	0	0	0	0	18	
Trujillo	All sizes (5 or more)	0	0	0	0	0	22	0	0	0	0	
Piura	Small (5-19)	10	0	0	0	34	12	126	0	21	0	255
Piura	Medium (20-99)	5	0	0	0	0	1	27	0	0	0	
Piura	Large (100 or more)	3	0	0	0	0	0	9	0	0	0	
Piura	Medium and Large (20 or more)	0	0	0	3	5	0	0	0	0	0	
		173	45	70	517	442	157	2431	22	21	18	3896

Table 11: Item Response Rates

	Screeners/Interview	d2	l1	n2a	all TFP variables
Panel	Fresh	94.8%	100.0%	83.1%	69.2%
	Panel	95.8%	100.0%	85.2%	73.5%
Size	Small (5-19)	94.4%	100.0%	85.3%	74.7%
	Medium (20-99)	96.6%	100.0%	85.9%	73.3%
	Large (100+)	94.1%	100.0%	77.3%	62.5%
Region	Lima	94.3%	100.0%	83.5%	70.6%
	Arequipa	96.6%	100.0%	84.1%	71.4%
	Chiclayo	96.4%	100.0%	84.8%	63.6%
	Trujillo	93.5%	100.0%	86.5%	75.0%
	Piura	97.2%	100.0%	80.6%	78.6%
Sector	Food	95.5%	100.0%	76.6%	72.1%
	Textiles	97.4%	100.0%	82.1%	76.9%
	Garments	93.1%	100.0%	86.1%	72.2%
	Other Manufacturing	97.4%	100.0%	82.5%	69.7%
	Retail	95.5%	100.0%	85.9%	0.0%
	Hotels	88.9%	100.0%	85.2%	0.0%
	Other Services	95.0%	100.0%	86.0%	0.0%
Overall	Peru 2023	95.1%	100.0%	83.9%	71.2%

Notes: the rates are calculated as follows. The number of responses with informative content in the respective variable (or combination of variables in the case of TFP) is divided by the same number plus the number of responses that are "don't know" (code -9) or refusal (code -8).