

## **The Portugal 2023 World Bank Enterprise Survey Implementation Report**

### **I. Introduction**

This document provides information on the World Bank Enterprise Surveys (WBES) implemented in Portugal between April 2023 and February 2022. 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 209,000 firms in 158 countries with a total of 306 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.<sup>1</sup>

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.<sup>2</sup> 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).<sup>3</sup> For regional coverage within a country, the WBES has national coverage.

---

<sup>1</sup> A "panel interview" refers to an interview with a business that was also interviewed in the previous WBES.

<sup>2</sup> The Sampling Note is available at:

[https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Sampling\\_Note-Consolidated-2-16-22.pdf](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.

<sup>3</sup> The WBES universe includes: all manufacturing (ISIC 4.0 codes 10-33), services (ISIC 4.0 codes 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 Portugal 2023 WBES uses the following stratification categories:

- **Industry: 8 categories:**
  - Within manufacturing:
    1. Food
    2. Garments
    3. Fabricated Metal Products
    4. Other manufacturing
  - Within services:
    5. Construction
    6. Retail
    7. Hotels
    8. Other Services
- **Size: 3 categories:**
  1. Small (5 to 19 employees)
  2. Medium (20 to 99 employees)
  3. Large (100 or more employees)
- **Region: 7 categories:**
  1. North
  2. Algarve
  3. Center
  4. Lisbon Metropolitan Area
  5. Alentejo
  6. Autonomous Region of the Azores
  7. Autonomous Region of Madeira

Industry strata for the manufacturing sector were selected by their contribution to total value added, to employment and to total number of establishments, using INEI business registry February 2023.

The strata for the services sector were selected by contribution to total number of establishments, using the INEI business registry February 2023

Region strata of the Portugal 2023 WBES were selected based on NUTS 2 statistical divisions.

## 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 Portugal, Notary Institute was used. 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 Portugal 2023 WBES, the universe table, shown in Table 1 below, was obtained from INEI business registry February 2023.

### **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 Portugal 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 Portugal 2019 WBES. The Fresh Sampling Frame, i.e., list of establishments that are in the WBES universe and that have not participated in the Portugal 2019 WBES, for the all sectors, was obtained mainly from the Bureau van Dijk.

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.<sup>4</sup> 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*

---

<sup>4</sup> 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.

*Surveys Manual and Guide*.<sup>5</sup> The original survey design for the Portugal 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 Portugal 2023 WBES were conducted between April 2023 and February 2024. The interviews were conducted Portuguese. For monetary variables, the currency was Euro.

#### **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 questionnaire implemented in the Portugal 2023 WBES included additional questions tailored for the Business Ready Report covering infrastructure, trade, government regulations, finance, labor, and other topics.

#### **III.2 Contractor**

The fieldwork for the Portugal 2023 WBES was implemented by Kapa Research with Equação Logica as a subcontractor. 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,

---

<sup>5</sup> The *Enterprise Surveys Manual and Guide* is available at:  
<https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Enterprise-Surveys-Manual-and-Guide.pdf>

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:

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

which can be rewritten as follows:

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

Table 5 provides these measures for the Portugal 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 Portugal 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,
Median	1,2,3,4,10,11,13
Weak	1,2,3,4,10,11,13,91,92,93,94,12

For descriptions of each eligibility code, see Table 4.

### 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.<sup>6</sup> 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. 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 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.<sup>7</sup>

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

<sup>6</sup> 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.

<sup>7</sup> Note that the sampling weights may vary within *strata* for panel establishments due to the procedure used for projecting the universe from the previous round of the survey.

establishments, i.e., those that participated in the Portugal 2019 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](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/methodology/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	INEI business registry February 2023
Source of Sampling Frame	Bureau van Dijk
Stratification sectors	Manufacturing of: Food, Garments, Fabricated Metal Products, Other manufacturing; Construction, Retail, Hotels, and Other Services
Stratification sizes	Small (5 to 19 employees), Medium (20 to 99 employees), Large (100 or more employees)
Stratification regions	North, Algarve, Center, Lisbon Metropolitan Area Alentejo, Autonomous Region of the Azores, and Autonomous Region of Madeira
Contractor	Kapa Research, sub-contractor: Equação Logica
Fieldwork dates	April 2023 – February 2024
Interview languages	Portuguese
Survey software	Survey solution
Currency for nominal variables	Euro
Reference fiscal year	2022 (921 obs.) and 20223(86 obs.)
Sample Size	Total: 1007      Fresh: 699      Panel: 308
Survey response rates	Yield: 16.8% Response rate: 31.4% Frame quality: 53.6%
Item response rates	d2: 99.6% n2a: 99.1% 11: 100% all TFP vars.: 65.5%
Additional topics covered in the questionnaire	
Additional surveys available (if any)	

## Tables

**Table 1: Portugal 2023 WBES Universe**

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	709	1457	1191	4094	4942	3575	365	11108	<b>35,081</b>
North	Medium (20-99)	170	812	383	1878	1060	433	112	1820	
North	Large (100-199)	42	105	62	376	98	63	11	215	
Algarve	Small (5-19)	92	3	54	126	821	589	228	2017	<b>4,590</b>
Algarve	Medium (20-99)	22	0	5	17	120	79	98	259	
Algarve	Large (100-199)	0	0	0	0	5	6	33	16	
Center	Small (5-19)	609	50	835	1538	2727	2359	272	6568	<b>18,695</b>
Center	Medium (20-99)	221	48	337	774	420	329	87	1007	
Center	Large (100-199)	49	21	50	223	32	14	4	121	
Metropolitan Area Lisbon	Small (5-19)	248	22	322	939	2806	2590	424	10344	<b>22,493</b>
Metropolitan Area Lisbon	Medium (20-99)	132	10	84	345	547	404	206	2248	
Metropolitan Area	Large (100-199)	33	1	9	111	75	104	37	452	
Alentejo	Small (5-19)	230	4	70	275	590	659	110	1697	<b>4,383</b>
Alentejo	Medium (20-99)	81	0	21	115	86	105	28	218	
Alentejo	Large (100-199)	16	1	1	37	8	3	4	24	
Autonomous Region of the Azores	Small (5-19)	56	0	30	62	189	293	63	561	<b>1,608</b>
Autonomous Region of the Azores	Medium (20-99)	31	0	5	13	79	41	23	122	
Autonomous Region of the Azores	Large (100-199)	11	0	1	1	2	8	8	9	
Autonomous Region of Madeira	Small (5-19)	57	2	23	71	261	263	56	759	<b>1,869</b>
Autonomous Region of Madeira	Medium (20-99)	17	0	7	15	67	34	57	141	
Autonomous Region of Madeira	Large (100-199)	1	0	1	1	8	3	14	11	
		<b>2,827</b>	<b>2,536</b>	<b>3,491</b>	<b>11,011</b>	<b>14,943</b>	<b>11,954</b>	<b>2,240</b>	<b>39,717</b>	<b>88,719</b>

Source: INEI business registry February 2023

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

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	643	1357	1200	3965	4931	3503	354	10749	<b>34,476</b>
North	Medium (20-99)	175	794	396	1914	1102	438	100	1800	
North	Large (100 or more)	45	115	67	392	99	64	13	260	
Algarve	Small (5-19)	77	2	61	132	802	573	217	1814	<b>4,342</b>
Algarve	Medium (20-99)	25	0	5	22	115	81	110	239	
Algarve	Large (100 or more)	0	0	0	2	6	7	35	17	
Center	Small (5-19)	561	53	823	1507	2596	2281	271	6384	<b>18,231</b>
Center	Medium (20-99)	213	46	335	797	440	306	72	999	
Center	Large (100 or more)	52	26	53	234	33	15	3	131	
Metropolitan Area Lisbon	Small (5-19)	220	21	325	901	2675	2495	389	9549	<b>21,381</b>
Metropolitan Area Lisbon	Medium (20-99)	122	11	91	335	574	400	192	2225	
Metropolitan Area	Large (100 or more)	33	3	14	120	81	92	38	475	
Alentejo	Small (5-19)	204	4	73	295	555	613	116	1632	<b>4,263</b>
Alentejo	Medium (20-99)	75	1	25	117	95	111	27	227	
Alentejo	Large (100 or more)	16	1	2	36	7	0	4	27	
Autonomous Region of the Azores	Small (5-19)	44	0	30	59	191	251	58	572	<b>1,558</b>
Autonomous Region of the Azores	Medium (20-99)	30	0	7	16	72	38	26	118	
Autonomous Region of the Azores	Large (100 or more)	8	0	1	2	5	10	8	12	
Autonomous Region of Madeira	Small (5-19)	45	0	27	81	256	272	57	821	<b>1,986</b>
Autonomous Region of Madeira	Medium (20-99)	20	0	10	15	82	37	59	147	
Autonomous Region of Madeira	Large (100 or more)	2	0	0	2	14	3	15	21	
		<b>2,610</b>	<b>2,434</b>	<b>3,545</b>	<b>10,944</b>	<b>14,731</b>	<b>11,590</b>	<b>2,164</b>	<b>38,219</b>	<b>86,237</b>

Source: Bureau van Dijk

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

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
<b>North</b>	Small (5-19)	4	19	5	18	17	11	2	29	<b>210</b>
<b>North</b>	Medium (20-99)	4	22	4	6	5	4	2	6	
<b>North</b>	Large (100-199)	5	20	7	5	4	4	3	4	
<b>Algarve</b>	Small (5-19)	8	2	10	4	2	5	4	7	<b>120</b>
<b>Algarve</b>	Medium (20-99)	10	0	3	8	3	11	16	4	
<b>Algarve</b>	Large (100-199)	0	0	0	2	2	3	13	3	
<b>Center</b>	Small (5-19)	4	10	9	6	9	9	2	21	<b>180</b>
<b>Center</b>	Medium (20-99)	7	16	6	7	3	4	2	5	
<b>Center</b>	Large (100-199)	5	11	11	17	5	6	1	4	
<b>Lisbon Metropolitan Area</b>	Small (5-19)	4	7	7	4	10	15	3	29	<b>180</b>
<b>Lisbon Metropolitan Area</b>	Medium (20-99)	4	5	6	5	2	5	5	10	
<b>Lisbon Metropolitan Area</b>	Large (100-199)	7	2	5	16	8	7	8	6	
<b>Alentejo</b>	Small (5-19)	8	3	11	4	2	6	2	6	<b>120</b>
<b>Alentejo</b>	Medium (20-99)	8	1	8	14	3	4	7	4	
<b>Alentejo</b>	Large (100-199)	6	1	2	10	3	0	2	5	
<b>Autonomous Region of the Azores</b>	Small (5-19)	8	0	9	9	3	7	12	4	<b>120</b>
<b>Autonomous Region of the Azores</b>	Medium (20-99)	11	0	3	8	13	4	6	3	
<b>Autonomous Region of the Azores</b>	Large (100-199)	4	0	1	2	3	4	2	4	
<b>Autonomous Region of Madeira</b>	Small (5-19)	4	1	9	8	4	5	12	6	<b>120</b>
<b>Autonomous Region of Madeira</b>	Medium (20-99)	7	0	4	5	16	4	12	5	
<b>Autonomous Region of Madeira</b>	Large (100-199)	2	0	0	2	3	2	4	5	
		<b>120</b>	<b>120</b>	<b>120</b>	<b>160</b>	<b>120</b>	<b>120</b>	<b>120</b>	<b>170</b>	<b>1,050</b>

**Table 4: Response Outcomes**

		<b>Totals</b>	<b>Rates relative to total contacted</b>
Overall	Contacts available in frame	86,237	
	Issued	6,194	
	Contacted	5,992	
Screening phase	Eligibles	3,070	51.2%
	Screeners refusals	139	2.3%
	Assumed eligibles	3,210	53.6%
	Ineligible + out of target	196	3.3%
	Unobtainables	2,586	43.2%
Interview phase	Interview refusals	1,930	32.2%
(only if eligible)	Complete interviews	1,007	16.8%

**Table 5: Survey Yield Rates**

	<b>Stratification</b>	<b>Yield</b>	<b>Survey response rate</b>	<b>Frame quality</b>
Panel	Fresh	14.2%	28.2%	50.3%
	Panel	29.0%	42.2%	68.7%
Size	Small (5-19)	15.2%	29.8%	51.0%
	Medium (20-99)	17.4%	32.5%	53.6%
	Large (100+)	20.1%	33.3%	60.4%
Region	North	14.7%	29.6%	49.7%
	Algarve	18.1%	32.0%	56.7%
	Center	15.4%	26.9%	57.2%
	Lisbon Metropolitan Area	13.2%	25.7%	51.4%
	Alentejo	17.6%	30.7%	57.3%
	Autonomous Region of the Azores	28.0%	45.2%	62.0%
	Autonomous Region of Madeira	22.8%	46.6%	49.0%
Sector	Food	20.0%	36.6%	54.5%
	Garments	12.8%	25.0%	51.3%
	Fabricated Metal Products	19.1%	31.9%	60.0%
	Other Manufacturing	19.6%	33.2%	59.0%
	Construction	15.3%	35.0%	43.6%
	Retail	13.1%	24.5%	53.5%
	Hotels	19.6%	34.2%	57.5%
	Other Services	17.1%	32.5%	52.6%
Overall	Portugal 2023	16.8%	31.4%	53.6%

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

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

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	4	25	8	21	17	15	3	30	<b>233</b>
North	Medium (20-99)	6	18	7	10	4	5	2	4	
North	Large (100 or more)	6	22	8	6	3	2	1	6	
Algarve	Small (5-19)	6	1	10	5	2	4	1	11	<b>102</b>
Algarve	Medium (20-99)	6	0	3	6	2	7	14	3	
Algarve	Large (100 or more)	0	0	0	2	2	3	10	4	
Center	Small (5-19)	5	9	9	9	8	7	5	25	<b>157</b>
Center	Medium (20-99)	3	9	4	5	3	2	2	3	
Center	Large (100 or more)	3	7	10	14	5	3	0	7	
Lisbon Metropolitan Area	Small (5-19)	2	2	2	7	14	10	3	28	<b>167</b>
Lisbon Metropolitan Area	Medium (20-99)	2	4	7	11	3	3	6	6	
Lisbon Metropolitan Area	Large (100 or more)	7	0	4	9	14	12	7	4	
Alentejo	Small (5-19)	5	2	11	5	3	6	2	7	<b>103</b>
Alentejo	Medium (20-99)	7	1	7	14	3	2	6	3	
Alentejo	Large (100 or more)	4	0	0	6	2	0	2	5	
Autonomous Region of the Azores	Small (5-19)	11	0	8	11	2	5	24	2	<b>123</b>
Autonomous Region of the Azores	Medium (20-99)	9	0	0	8	16	6	8	3	
Autonomous Region of the Azores	Large (100 or more)	1	0	1	0	1	4	1	2	
Autonomous Region of Madeira	Small (5-19)	8	0	7	6	6	3	9	6	<b>122</b>
Autonomous Region of Madeira	Medium (20-99)	10	0	4	4	16	6	14	6	
Autonomous Region of Madeira	Large (100 or more)	2	0	0	1	1	1	5	7	
		<b>107</b>	<b>100</b>	<b>110</b>	<b>160</b>	<b>127</b>	<b>106</b>	<b>125</b>	<b>172</b>	<b>1,007</b>

**Table 7: Achieved Panel Sample**

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	2	9	3	9	2	2	0	7	<b>74</b>
North	Medium (20-99)	2	5	5	3	0	3	0	0	
North	Large (100 or more)	4	9	2	4	0	0	0	3	
Algarve	Small (5-19)	4	1	6	1	0	3	0	2	<b>45</b>
Algarve	Medium (20-99)	5	0	1	5	0	5	1	1	
Algarve	Large (100 or more)	0	0	0	2	0	2	5	1	
Center	Small (5-19)	2	0	5	4	1	3	0	2	<b>48</b>
Center	Medium (20-99)	1	0	0	5	0	0	0	1	
Center	Large (100 or more)	0	4	3	12	1	1	0	3	
Lisbon Metropolitan Area	Small (5-19)	1	1	1	5	0	0	1	5	<b>43</b>
Lisbon Metropolitan Area	Medium (20-99)	0	2	3	7	0	1	0	1	
Lisbon Metropolitan Area	Large (100 or more)	2	0	0	7	0	4	0	2	
Alentejo	Small (5-19)	3	1	5	4	0	2	0	1	<b>45</b>
Alentejo	Medium (20-99)	4	1	4	12	0	0	0	1	
Alentejo	Large (100 or more)	2	0	0	2	1	0	0	2	
Autonomous Region of the Azores	Small (5-19)	4	0	5	5	0	3	0	0	<b>32</b>
Autonomous Region of the Azores	Medium (20-99)	4	0	0	6	0	2	0	0	
Autonomous Region of the Azores	Large (100 or more)	0	0	1	0	1	1	0	0	
Autonomous Region of Madeira	Small (5-19)	1	0	1	2	0	1	0	3	<b>21</b>
Autonomous Region of Madeira	Medium (20-99)	3	0	1	2	0	0	0	3	
Autonomous Region of Madeira	Large (100 or more)	2	0	0	1	0	1	0	0	
		<b>46</b>	<b>33</b>	<b>46</b>	<b>98</b>	<b>6</b>	<b>34</b>	<b>7</b>	<b>38</b>	<b>308</b>

**Table 8: Weak Universe Estimates**

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	691	1358	1156	3945	4734	3430	356	10619	<b>33,746</b>
North	Medium (20-99)	170	753	379	1834	1050	418	109	1730	
North	Large (100 or more)	44	107	65	379	95	62	13	249	
Algarve	Small (5-19)	93	3	61	131	813	584	230	1993	<b>4,592</b>
Algarve	Medium (20-99)	25	0	5	22	118	80	110	254	
Algarve	Large (100 or more)	0	0	0	2	6	7	38	17	
Center	Small (5-19)	606	50	822	1514	2670	2313	271	6416	<b>18,381</b>
Center	Medium (20-99)	219	45	330	769	428	321	0	978	
Center	Large (100 or more)	52	25	52	231	32	15	0	128	
Center	Medium and Large (20+)	0	0	0	0	0	0	92	0	
Lisbon Metropolitan Area	Small (5-19)	249	21	323	932	2769	2560	426	10186	<b>22,267</b>
Lisbon Metropolitan Area	Medium (20-99)	132	0	91	341	563	397	206	2201	
Lisbon Metropolitan Area	Large (100 or more)	33	0	14	119	80	103	38	469	
Lisbon Metropolitan Area	Medium and Large (20+)	0	14	0	0	0	0	0	0	
Alentejo	Small (5-19)	231	4	72	292	582	651	117	1669	<b>4,391</b>
Alentejo	Medium (20-99)	81	0	0	115	93	0	28	222	
Alentejo	Large (100 or more)	16	0	0	37	8	0	4	27	
Alentejo	Medium and Large (20+)	0	2	27	0	0	114	0	0	
Autonomous Region of the Azores	Small (5-19)	56	0	30	61	188	288	63	561	<b>1,611</b>
Autonomous Region of the Azores	Medium (20-99)	31	0	0	0	77	40	26	119	
Autonomous Region of the Azores	Large (100 or more)	11	0	0	0	5	10	8	12	
Autonomous Region of the Azores	Medium and Large (20+)	0	0	8	18	0	0	0	0	
Autonomous Region of Madeira	Small (5-19)	57	81	27	0	257	268	57	805	<b>1973</b>
Autonomous Region of Madeira	Medium (20-99)	20	0	0	15	80	36	59	144	
Autonomous Region of Madeira	Large (100 or more)	3	0	0	2	14	3	15	21	
Autonomous Region of Madeira	Medium and Large (20+)	0	0	11	0	0	0	0	0	
		<b>2817</b>	<b>2464</b>	<b>3473</b>	<b>10759</b>	<b>14662</b>	<b>11699</b>	<b>2267</b>	<b>38821</b>	<b>86961</b>



**Table 9: Median Universe Estimates**

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
North	Small (5-19)	311	668	597	2119	1980	1613	190	5166	<b>16485</b>
North	Medium (20-99)	79	381	202	1013	451	202	60	866	
North	Large (100 or more)	23	61	39	236	46	34	8	141	
Algarve	Small (5-19)	43	1	33	73	353	285	127	1005	<b>2280</b>
Algarve	Medium (20-99)	12	0	3	12	53	40	63	132	
Algarve	Large (100 or more)	0	0	0	2	3	4	26	10	
Center	Small (5-19)	294	27	458	877	1203	1173	156	3364	<b>9543</b>
Center	Medium (20-99)	109	25	189	379	199	167	0	528	
Center	Large (100 or more)	29	15	34	155	17	9	0	78	
Center Lisbon	Medium and Large (20+)	0	0	0	0	0	0	58	0	
Metropolitan Area Lisbon	Small (5-19)	110	10	163	491	1135	1180	223	4856	<b>10556</b>
Metropolitan Area Lisbon	Medium (20-99)	60	0	48	184	237	188	111	1079	
Metropolitan Area Lisbon	Large (100 or more)	17	0	8	73	38	55	23	260	
Metropolitan Area	Medium and Large (20+)	0	7	0	0	0	0	0	0	
Alentejo	Small (5-19)	108	2	39	163	252	317	64	841	<b>2195</b>
Alentejo	Medium (20-99)	39	0	0	66	41	0	16	115	
Alentejo	Large (100 or more)	9	0	0	24	4	0	3	16	
Alentejo Autonomous Region of the Azores	Medium and Large (20+)	0	1	16	0	0	61	0	0	
Autonomous Region of the Azores	Small (5-19)	30	0	18	39	94	162	40	327	<b>926</b>
Autonomous Region of the Azores	Medium (20-99)	17	0	0	0	40	24	17	71	
Autonomous Region of the Azores	Large (100 or more)	7	0	0	0	2	6	6	8	
Autonomous Region of the Azores	Medium and Large (20+)	0	0	4	13	0	0	0	0	
Autonomous Region of Madeira	Small (5-19)	24	41	13	0	101	118	29	368	<b>894</b>
Autonomous Region of Madeira	Medium (20-99)	10	0	0	8	32	16	30	68	
Autonomous Region of Madeira	Large (100 or more)	2	0	0	1	6	1	9	11	
Autonomous Region of Madeira	Medium and Large (20+)	0	0	6	0	0	0	0	0	
		<b>1333</b>	<b>1240</b>	<b>1869</b>	<b>5928</b>	<b>6287</b>	<b>5656</b>	<b>1258</b>	<b>19308</b>	<b>42879</b>

**Table 10: Strict Universe Estimates**

		Food	Garments	Fabricated Metal Products	Other Manufacturing	Construction	Retail	Hotels	Other Services	Grand Total
<b>North</b>	Small (5-19)	304	661	603	2097	1935	1584	174	4701	<b>15842</b>
<b>North</b>	Medium (20-99)	78	382	206	1015	447	201	55	798	
<b>North</b>	Large (100 or more)	24	64	41	247	48	35	8	135	
<b>Algarve</b>	Small (5-19)	37	1	28	63	298	242	101	792	<b>1861</b>
<b>Algarve</b>	Medium (20-99)	10	0	3	11	45	34	50	105	
<b>Algarve</b>	Large (100 or more)	0	0	0	2	3	4	22	8	
<b>Center</b>	Small (5-19)	282	26	453	850	1153	1128	140	3000	<b>8929</b>
<b>Center</b>	Medium (20-99)	106	24	189	352	193	163	0	476	
<b>Center</b>	Large (100 or more)	30	16	35	159	17	9	0	73	
<b>Center</b>	Medium and Large (20+)	0	0	0	0	0	0	55	0	
<b>Center Lisbon</b>	Small (5-19)	103	10	158	466	1065	1112	196	4243	<b>9553</b>
<b>Metropolitan Area Lisbon</b>	Medium (20-99)	57	0	47	177	226	180	99	955	
<b>Metropolitan Area Lisbon</b>	Large (100 or more)	17	0	8	73	38	55	22	239	
<b>Metropolitan Area Lisbon</b>	Medium and Large (20+)	0	7	0	0	0	0	0	0	
<b>Alentejo</b>	Small (5-19)	103	2	38	158	242	305	58	751	<b>2052</b>
<b>Alentejo</b>	Medium (20-99)	38	0	0	65	40	0	14	104	
<b>Alentejo</b>	Large (100 or more)	9	0	0	24	4	0	2	15	
<b>Alentejo</b>	Medium and Large (20+)	0	1	17	0	0	62	0	0	
<b>Autonomous Region of the Azores</b>	Small (5-19)	27	0	17	35	83	144	33	268	<b>795</b>
<b>Autonomous Region of the Azores</b>	Medium (20-99)	15	0	0	0	36	21	14	59	
<b>Autonomous Region of the Azores</b>	Large (100 or more)	6	0	0	0	2	6	5	7	
<b>Autonomous Region of the Azores</b>	Medium and Large (20+)	0	0	4	12	0	0	0	0	
<b>Autonomous Region of Madeira</b>	Small (5-19)	24	40	13	0	98	116	26	334	<b>845</b>
<b>Autonomous Region of Madeira</b>	Medium (20-99)	10	0	0	8	32	16	28	63	
<b>Autonomous Region of Madeira</b>	Large (100 or more)	2	0	0	1	6	1	8	11	
<b>Autonomous Region of Madeira</b>	Medium and Large (20+)	0	0	6	0	0	0	0	0	

**Table 11: Item Response Rates**

	<b>Screener/Interview</b>	<b>d2</b>	<b>l1</b>	<b>n2a</b>	<b>all TFP variables</b>
Panel	Fresh	99.6%	100.0%	99.0%	67.9%
	Panel	99.7%	100.0%	99.4%	62.5%
Size	Small (5-19)	99.1%	100.0%	98.9%	70.0%
	Medium (20-99)	100.0%	100.0%	99.1%	66.9%
	Large (100+)	100.0%	100.0%	99.5%	55.7%
Region	North	98.7%	100.0%	97.9%	70.1%
	Algarve	100.0%	100.0%	99.0%	76.5%
	Center	100.0%	100.0%	99.4%	60.3%
	Lisbon Metropolitan Area	99.4%	100.0%	98.8%	49.0%
	Alentejo	100.0%	100.0%	100.0%	57.4%
	Autonomous Region of the Azores	100.0%	100.0%	100.0%	65.9%
	Autonomous Region of Madeira	100.0%	100.0%	100.0%	82.5%
Sector	Food	100.0%	100.0%	100.0%	62.7%
	Garments	100.0%	100.0%	100.0%	78.2%
	Fabricated Metal Products	100.0%	100.0%	100.0%	62.2%
	Other Manufacturing	100.0%	100.0%	98.2%	62.1%
	Construction	100.0%	100.0%	100.0%	N/A
	Retail	99.1%	100.0%	98.3%	N/A
	Hotels	100.0%	100.0%	100.0%	N/A
	Other Services	98.4%	100.0%	97.9%	N/A
Overall	Portugal 2023	99.6%	100.0%	99.1%	65.5%

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).