

The Bulgaria 2023 World Bank Enterprise Survey Implementation Report

I. Introduction

This document provides information on the World Bank Enterprise Surveys (WBES) implemented in Bulgaria between April 2023 and December 2023. 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 207,000 firms in 158 countries with a total of 334 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 10-33), 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 Bulgaria 2023 WBES uses the following stratification categories:

- **Industry: 6 categories:**
 1. Food (ISIC Rev. 4 code 10)
 2. Garments (ISIC Rev. 4 code 14)
 3. Other manufacturing (ISIC Rev 4. Codes 11-13, 15-33)
 4. Retail (ISIC Rev. 4 code 47)
 5. Construction (ISIC Rev. 4 code 41-43)
 6. Other Services (ISIC Rev 4. codes 44-46, 49-53, 56, 58, 61, 62, 69-75, 79, 95)
- **Size: 3 categories:**
 1. Small (5 to 19 employees)
 2. Medium (20 to 99 employees)
 3. Large (100 or more employees)
- **Region: 6 categories:**
 1. Northwestern (BG31)
 2. Northern Central (BG32)
 3. Northeastern (BG33)
 4. Southeastern (BG34)
 5. Southwestern (BG41)
 6. Southern Central (BG42)

Industry strata for the manufacturing sector has the food manufacturing sector (ISIC Rev. 4 code 10) singled out since it is the highest in terms of employment and number of establishments out of the manufacturing sectors. From the services, other than retail (ISIC Rev. 47), which is the largest sector by number of firms, the accommodation sector (ISIC Rev. 4 code 55) has been singled out due to its importance of the economy in Bulgaria.

Region strata of the Bulgaria 2023 WBES were selected based on NUTS 1 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 General Commercial Registry (GEMI). 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 Bulgaria 2023 WBES, the universe table, shown in Table 1 below, was obtained from Hellenic Statistic Authority.

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 Bulgaria 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 Bulgaria 2016 WBES. The Fresh Sampling Frame, i.e., list of establishments that are in the WBES universe and that have not participated in the Bulgaria 2016 WBES, for the manufacturing sector (ISIC 4.0 codes 10-32), was obtained mainly from General Commercial Registry (GEMI) and ERGAI II platform from the Ministry of Labor.

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 Bulgaria 2023 WBES is given in Table 3.

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>

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 Bulgaria 2023 WBES were conducted between April 2023 and December 2023. The interviews were conducted in the following languages: Greek. For monetary variables, the currency was Euros.

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 Bulgaria 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 Bulgaria 2023 WBES was implemented by Kapa Research. 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 Bulgaria 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 Bulgaria 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.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. 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.⁷

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 Bulgaria 2016 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

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.

⁷ 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.

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/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	Hellenic Statistic Authority
Source of Sampling Frame	General Commercial Registry (GEMI) and ERGAI II platform from the Ministry of Labor
Stratification sectors	<ol style="list-style-type: none"> 1. Food (ISIC Rev. 4 code 10) 2. Garments (ISIC Rev. 4 code 14) 3. Other manufacturing (ISIC Rev 4. codes 11-13, 15-33) 4. Retail (ISIC Rev. 4 code 47) 5. Construction (ISIC Rev 4. codes 41-43) 6. Other Services (ISIC Rev 4. codes 44-46, 49-53, 56, 58, 61, 62, 69-75, 79, 95)
Stratification sizes	<ol style="list-style-type: none"> 1. Small (5 to 19 employees) 2. Medium (20 to 99 employees) 3. Large (100 or more employees)
Stratification regions	<ol style="list-style-type: none"> 1. Northwestern (BG31) 2. Northern Central (BG32) 3. Northeastern (BG33) 4. Southeastern (BG34) 5. Southwestern (BG41) 6. Southern Central (BG42)
Contractor	Kapa Research
Fieldwork dates	April 2023 – December 2023
Interview languages	Bulgarian
Survey software	Survey Solutions
Currency for nominal variables	Euro
Reference fiscal year	2022 (708 obs.) ; 2023 (2 obs.)
Sample Size	Total: 710 Fresh: 492 Panel: 218
Survey response rates	Yield: 24% Response rate: 39% Frame quality: 61%
Item response rates	d2: 100% n2a: 100% 11: 100% all TFP vars.: 55.6%
Additional topics covered in the questionnaire	
Additional surveys available (if any)	

Tables

Table 1: Bulgaria 2023 WBES Universe

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	89	68	295	565	171	852	2746
Northwestern (BG31)	Medium (20-99)	56	54	164	89	48	184	
Northwestern (BG31)	Large (100+)	16	16	52	8	6	13	
Northern Central (BG32)	Small (5-19)	141	71	442	585	264	1173	3697
Northern Central (BG32)	Medium (20-99)	75	86	222	84	84	290	
Northern Central (BG32)	Large (100+)	26	16	89	6	11	32	
Northeastern (BG33)	Small (5-19)	143	50	418	745	481	1695	4844
Northeastern (BG33)	Medium (20-99)	63	36	214	197	163	458	
Northeastern (BG33)	Large (100+)	18	7	54	19	25	58	
Southeastern (BG34)	Small (5-19)	166	43	472	780	526	1803	5032
Southeastern (BG34)	Medium (20-99)	91	33	242	126	175	400	
Southeastern (BG34)	Large (100+)	19	3	76	13	18	46	
Southwestern (BG41)	Small (5-19)	275	307	1198	2082	1676	6998	16943
Southwestern (BG41)	Medium (20-99)	135	181	584	449	511	1809	
Southwestern (BG41)	Large (100+)	34	31	137	88	77	371	
Southern Central (BG42)	Small (5-19)	252	221	979	1097	636	2395	7657
Southern Central (BG42)	Medium (20-99)	157	123	502	185	213	573	
Southern Central (BG42)	Large (100+)	35	45	154	13	20	57	
		1,791	1,391	6,294	7,131	5,105	19,207	40,919

Source: 6th Economic Census (conducted between January 2013 and April 2014).

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

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	95	69	51	259	171	95	1329
Northwestern (BG31)	Medium (20-99)	64	53	163	94	49	48	
Northwestern (BG31)	Large (100+)	15	17	57	9	6	14	
Northern Central (BG32)	Small (5-19)	142	69	49	174	122	105	1312
Northern Central (BG32)	Medium (20-99)	75	87	91	86	83	44	
Northern Central (BG32)	Large (100+)	26	17	91	7	10	34	
Northeastern (BG33)	Small (5-19)	140	49	53	223	183	193	1594
Northeastern (BG33)	Medium (20-99)	70	36	64	186	161	45	
Northeastern (BG33)	Large (100+)	19	7	58	20	26	61	
Southeastern (BG34)	Small (5-19)	163	42	68	215	180	229	1656
Southeastern (BG34)	Medium (20-99)	93	33	91	125	176	56	
Southeastern (BG34)	Large (100+)	20	3	80	14	20	48	
Southwestern (BG41)	Small (5-19)	52	49	121	166	120	524	1864
Southwestern (BG41)	Medium (20-99)	43	44	69	42	40	143	
Southwestern (BG41)	Large (100+)	34	31	137	88	79	82	
Southern Central (BG42)	Small (5-19)	43	181	102	135	64	234	1614
Southern Central (BG42)	Medium (20-99)	143	123	58	45	83	68	
Southern Central (BG42)	Large (100+)	37	46	157	16	19	60	
		1,274	956	1,560	1,904	1,592	2,083	9,369

Source: Annual Survey of Industries (ASI, 2018-2019), and the 6th EC (conducted between January 2013 and April 2014).

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

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	6	8	5	12	7	8	120
Northwestern (BG31)	Medium (20-99)	9	9	4	7	9	4	
Northwestern (BG31)	Large (100+)	9	7	7	1	4	4	
Northern Central (BG32)	Small (5-19)	4	9	6	9	6	4	120
Northern Central (BG32)	Medium (20-99)	12	10	9	4	11	6	
Northern Central (BG32)	Large (100+)	10	4	4	2	6	4	
Northeastern (BG33)	Small (5-19)	5	5	4	13	11	8	120
Northeastern (BG33)	Medium (20-99)	8	9	3	8	9	3	
Northeastern (BG33)	Large (100+)	8	3	5	6	6	6	
Southeastern (BG34)	Small (5-19)	7	5	7	9	6	10	120
Southeastern (BG34)	Medium (20-99)	7	7	5	5	6	6	
Southeastern (BG34)	Large (100+)	6	1	11	5	11	6	
Southwestern (BG41)	Small (5-19)	5	5	9	12	8	23	120
Southwestern (BG41)	Medium (20-99)	5	4	7	6	2	5	
Southwestern (BG41)	Large (100+)	4	7	6	2	7	3	
Southern Central (BG42)	Small (5-19)	3	3	11	11	4	12	120
Southern Central (BG42)	Medium (20-99)	6	17	7	4	3	4	
Southern Central (BG42)	Large (100+)	6	7	10	4	4	4	
		120	120	120	120	120	120	720

Table 4: Response Outcomes

		Totals	Rates relative to total contacted
Overall	Contacts available in frame	9369	
	Issued	4012	
	Contacted	2990	
Screening phase	Eligibles	1694	56.7%
	Screener refusals	56	1.9%
	Assumed eligibles	1837	61.4%
	Ineligible + out of target	140	4.7%
	Unobtainables	975	32.6%
Interview phase (only if eligible)	Interview refusals	646	21.6%
	Complete interviews	710	23.7%

Table 5: Survey Yield Rates

	Stratification	Yield	Survey response rate	Frame quality
Panel	Fresh	22.0%	36.6%	60.1%
	Panel	29.0%	44.3%	65.3%
Size	Small (5-19)	20.6%	39.2%	52.4%
	Medium (20-99)	23.7%	36.1%	65.6%
	Large (100+)	30.2%	41.4%	72.9%
Region	Northwestern (BG31)	21.1%	35.6%	59.2%
	Northern Central (BG32)	20.0%	35.2%	56.9%
	Northeastern (BG33)	23.0%	36.6%	62.8%
	Southeastern (BG34)	28.0%	46.4%	60.4%
	Southwestern (BG41)	27.5%	40.8%	67.4%
	Southern Central (BG42)	24.7%	38.9%	63.5%
Sector	Food	26.8%	42.1%	63.6%
	Garments	25.7%	44.0%	58.4%
	Other Manufacturing	25.7%	39.6%	65.0%
	Retail	20.0%	33.6%	59.3%
	Construction	20.7%	34.2%	60.6%
	Other Services	24.6%	39.5%	62.4%
Overall	Bulgaria 2023	23.7%	38.6%	61.4%

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

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

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	5	8	6	11	5	8	115
Northwestern (BG31)	Medium (20-99)	9	10	3	7	8	4	
Northwestern (BG31)	Large (100+)	9	7	7	1	4	3	
Northern Central (BG32)	Small (5-19)	4	9	6	9	5	4	120
Northern Central (BG32)	Medium (20-99)	13	12	10	4	10	7	
Northern Central (BG32)	Large (100+)	10	3	4	1	5	4	
Northeastern (BG33)	Small (5-19)	3	7	5	12	11	10	123
Northeastern (BG33)	Medium (20-99)	8	9	3	8	10	3	
Northeastern (BG33)	Large (100+)	8	3	6	6	6	5	
Southeastern (BG34)	Small (5-19)	8	5	7	10	6	10	124
Southeastern (BG34)	Medium (20-99)	7	8	5	5	6	6	
Southeastern (BG34)	Large (100+)	6	2	12	4	11	6	
Southwestern (BG41)	Small (5-19)	5	5	9	11	7	25	122
Southwestern (BG41)	Medium (20-99)	5	4	7	5	2	7	
Southwestern (BG41)	Large (100+)	4	7	5	3	8	3	
Southern Central (BG42)	Small (5-19)	3	5	11	9	3	12	119
Southern Central (BG42)	Medium (20-99)	6	17	7	4	3	4	
Southern Central (BG42)	Large (100+)	6	7	10	4	4	4	
		119	128	123	114	114	125	723

Table 7: Achieved Panel Sample

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	2	0	0	7	0	6	36
Northwestern (BG31)	Medium (20-99)	5	0	2	2	1	2	
Northwestern (BG31)	Large (100+)	1	1	4	0	1	2	
Northern Central (BG32)	Small (5-19)	1	0	4	4	0	1	26
Northern Central (BG32)	Medium (20-99)	1	0	6	0	0	3	
Northern Central (BG32)	Large (100+)	1	0	2	0	1	2	
Northeastern (BG33)	Small (5-19)	0	0	2	5	1	3	33
Northeastern (BG33)	Medium (20-99)	4	0	1	5	1	0	
Northeastern (BG33)	Large (100+)	3	0	4	0	0	4	
Southeastern (BG34)	Small (5-19)	4	0	5	5	1	4	57
Southeastern (BG34)	Medium (20-99)	2	0	3	3	2	4	
Southeastern (BG34)	Large (100+)	4	0	8	1	8	3	
Southwestern (BG41)	Small (5-19)	2	3	5	3	0	4	32
Southwestern (BG41)	Medium (20-99)	2	2	3	1	0	2	
Southwestern (BG41)	Large (100+)	1	1	1	0	1	1	
Southern Central (BG42)	Small (5-19)	1	1	5	3	1	7	46
Southern Central (BG42)	Medium (20-99)	4	0	5	1	1	2	
Southern Central (BG42)	Large (100+)	3	0	7	2	1	2	
		41	8	67	42	20	52	184

Table 8: Weak Universe Estimates

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	78	56	243	398	137	716	2312
Northwestern (BG31)	Medium (20-99)	61	51	157	77	46	180	
Northwestern (BG31)	Large (100+)	15	16	54	7	6	14	
Northern Central (BG32)	Small (5-19)	120	60	374	424	217	1015	3215
Northern Central (BG32)	Medium (20-99)	74	85	219	73	80	292	
Northern Central (BG32)	Large (100+)	26	17	90	6	11	34	
Northeastern (BG33)	Small (5-19)	125	44	366	559	409	1516	4344
Northeastern (BG33)	Medium (20-99)	71	36	218	172	161	476	
Northeastern (BG33)	Large (100+)	19	7	59	17	26	63	
Southeastern (BG34)	Small (5-19)	151	39	431	610	467	1683	4697
Southeastern (BG34)	Medium (20-99)	98	35	257	115	182	434	
Southeastern (BG34)	Large (100+)	21	3	85	13	21	52	
Southwestern (BG41)	Small (5-19)	252	281	1103	1642	1499	6583	16027
Southwestern (BG41)	Medium (20-99)	144	193	625	412	531	1979	
Southwestern (BG41)	Large (100+)	36	33	147	81	82	405	
Southern Central (BG42)	Small (5-19)	211	185	822	789	518	2054	6594
Southern Central (BG42)	Medium (20-99)	153	119	490	155	202	571	
Southern Central (BG42)	Large (100+)	36	45	153	13	19	60	
		1691	1305	5892	5561	4612	18127	37189

Table 9: Median Universe Estimates

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	51	34	164	270	87	433	1528
Northwestern (BG31)	Medium (20-99)	44	34	116	57	32	119	
Northwestern (BG31)	Large (100+)	12	11	43	6	4	10	
Northern Central (BG32)	Small (5-19)	70	32	225	256	123	546	1885
Northern Central (BG32)	Medium (20-99)	47	50	144	48	50	172	
Northern Central (BG32)	Large (100+)	17	10	63	4	7	21	
Northeastern (BG33)	Small (5-19)	78	25	236	361	248	874	2716
Northeastern (BG33)	Medium (20-99)	49	23	154	122	107	301	
Northeastern (BG33)	Large (100+)	14	5	44	13	18	43	
Southeastern (BG34)	Small (5-19)	91	22	267	379	272	931	2814
Southeastern (BG34)	Medium (20-99)	65	21	174	78	116	263	
Southeastern (BG34)	Large (100+)	15	2	61	9	14	33	
Southwestern (BG41)	Small (5-19)	168	171	752	1121	961	4010	10465
Southwestern (BG41)	Medium (20-99)	105	129	467	308	373	1320	
Southwestern (BG41)	Large (100+)	28	23	116	64	61	287	
Southern Central (BG42)	Small (5-19)	140	112	560	538	332	1251	4376
Southern Central (BG42)	Medium (20-99)	111	80	366	116	142	381	
Southern Central (BG42)	Large (100+)	28	32	121	11	14	42	
		1133	817	4076	3760	2961	11038	23785

Table 10: Strict Universe Estimates

		Food	Garments	Other Manufacturing	Retail	Construction	Other Services	Grand Total
Northwestern (BG31)	Small (5-19)	49	30	157	253	81	400	1417
Northwestern (BG31)	Medium (20-99)	40	29	107	52	28	106	
Northwestern (BG31)	Large (100+)	11	10	42	6	4	9	
Northern Central (BG32)	Small (5-19)	66	29	215	239	114	503	1743
Northern Central (BG32)	Medium (20-99)	43	43	133	43	45	153	
Northern Central (BG32)	Large (100+)	17	10	61	4	7	20	
Northeastern (BG33)	Small (5-19)	66	20	200	300	204	716	2227
Northeastern (BG33)	Medium (20-99)	40	18	126	97	85	238	
Northeastern (BG33)	Large (100+)	12	4	39	11	15	36	
Southeastern (BG34)	Small (5-19)	88	20	258	359	256	871	2639
Southeastern (BG34)	Medium (20-99)	60	18	163	71	105	238	
Southeastern (BG34)	Large (100+)	15	2	61	9	13	32	
Southwestern (BG41)	Small (5-19)	162	156	733	1070	911	3781	9859
Southwestern (BG41)	Medium (20-99)	98	113	440	284	341	1202	
Southwestern (BG41)	Large (100+)	28	22	117	63	60	279	
Southern Central (BG42)	Small (5-19)	129	98	522	491	301	1127	3953
Southern Central (BG42)	Medium (20-99)	99	67	329	102	124	331	
Southern Central (BG42)	Large (100+)	26	28	116	10	13	39	
		1051	716	3819	3462	2707	10082	21838

Table 11: Item Response Rates

	Screener/Interview	d2	I1	n2a	all TFP variables
Panel	Fresh	100%	100%	100%	54%
	Panel	100%	100%	100%	59%
Size	Small (5-19)	100%	100%	100%	51%
	Medium (20-99)	100%	100%	100%	54%
	Large (100+)	100%	100%	100%	62%
Region	Northwestern (BG31)	100%	100%	99%	60%
	Northern Central (BG32)	100%	100%	100%	56%
	Northeastern (BG33)	100%	100%	100%	57%
	Southeastern (BG34)	100%	100%	100%	60%
	Southwestern (BG41)	100%	100%	100%	54%
	Southern Central (BG42)	100%	100%	100%	48%
Sector	Food	100%	100%	99%	
	Garments	100%	100%	100%	48%
	Other Manufacturing	100%	100%	100%	64%
	Retail	100%	100%	100%	56%
	Construction	100%	100%	100%	
	Other Services	100%	100%	100%	
Overall	Bulgaria 2023	100%	100%	100%	56%

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).