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I. Introduction

One of the major uses of industrial statistics is to support the compilation of annual national account. Even when annual industrial and other economic surveys are conducted, the information collected through them become available only sometime after the end of the reference period. For effective management of the economy as well as policy formulation it is necessary to have information available as early as possible in make use of short term indicators for measurement of changes in the level of the economic activities of the country.

In line with this, the current short term business survey is carried out to obtain data which could be used to monitor the current business situation and forecast short term developments and turning points of the business cycle. The range of information and/or indicators covered in this survey goes beyond variables that can easily be captured by conventional quantitative methods like ‘qualitative information’ of capacity utilization, production bottlenecks, and plans and expectations for immediate future and the managers view on overall current economic situation of the country.

Hence, the Central Statistical Agency (CSA) as the body charged with collecting and compiling accurate and up to date Statistical information on almost all socio-economic aspects of the country. Thus, CSA has carried out this quarterly survey in line with its mandates after a hiatus of almost a year, by incorporating suggestions given by major users of this report. This business survey could play a significant role in meeting the needs of short term statistics in order to monitor the economic development of the country in quarterly basis.

Short term business statistics like all business statistics faces the opposing forces of the need for data on one hand and the cost of burden of providing data on the other. In fact the production of such statistics can be considered as bridging the gap between information users and information held by the respondents. *The current business survey can be defined as a business cycle analysis of interrelated developments. This kind of survey tries to capture judgments on past, current and future economic developments.*

Consequently, there are many users of short term statistics with many different motivations for using the data, the analysis performed generally fall in to one of the two types:

- Comparison between two different point in time, of one or several parts of the business population, and
- Comparison within one reference period of two or more different sub populations.

With this framework, these kinds of business survey play a vital role in answering the following types of questions:

- Which phase of the economic cycle are we in at present?
- What will be the probable development in near future?
- Are we currently in the continuation of the moment already started (upward or downward) or,
- Is it possible that are we in a break in relation to this moment, i.e. turning or reversal point?

Hence, to meet the demands of such kind of statistics, CSA has made a rebasing to keep up with the development and accordingly to come up with an accurate, reliable and timely information about the business activities of manufacturing industries.

II. Objectives of the Survey

This quarterly business survey aims to provide statistical information necessary to improve the competitiveness and performance of the business community in the country and also to provide information on a wide range of economic activity that are increasingly becoming important for economic analysis.

The main objectives of this quarterly business survey are:

- To produce and compile up-to-date, reliable, and comparable information on the activity, competitiveness and performance of manufacturing industries,
- To assist in economic analysis and forecast the future trend of the business sector,

- To be used in compiling the various components of quarterly national accounts, which are in turn needed in the calculation of GDP, and
- To show the cyclical movement of the sector in terms of major indicators.

Therefore, conducting the current business survey on dynamic economic sectors like manufacturing industries is an accepted way of availing basic business information to depict the general trend on interrelated developments of the economy. Moreover, it could be a base for examining the nature of the sequence of evolution and future expectations in order to ensure that adequate decisions can be made on time.

Structure of this report

Section III provides an overview of the survey methodology. Section IV presents the background on training of field staffs. Section V states the concept and definition of terms. Section VI describes about data entry, editing, cleaning and tabulation of the results. Section VII explores the major findings of the survey. Finally, Appendix I, describes the estimation procedure we followed.

III. SURVEY METHODOLOGY

III. a. Scope and Coverage

The Quarterly Manufacturing Business Sample Survey was conducted covering only those establishments producing their goods using power driven machines having 10 and above workforce in both public and private owned manufacturing industries found in the country.

III.b. Sampling Frame

The list of basic values of each and every establishment was obtained or constructed from the 2008/09 Large and Medium Scale Manufacturing Industries Census and was used as a frame for conducting this Quarterly Manufacturing Business Sample Survey.

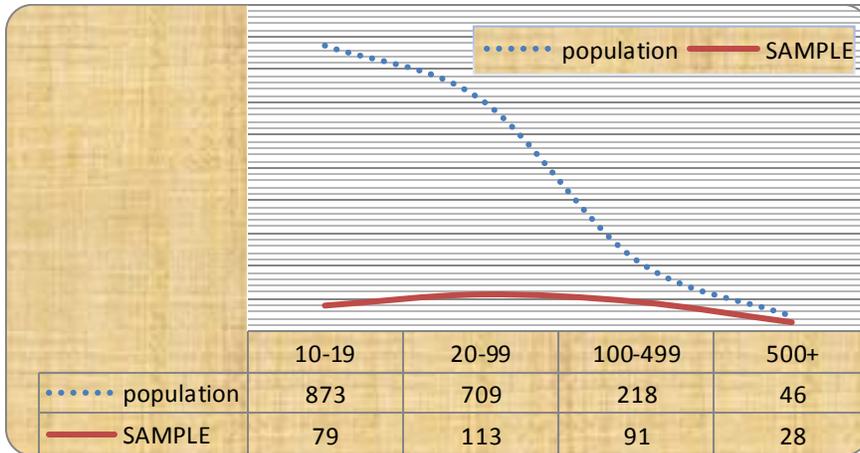
III.c. Sample Design

A single stage stratified sample design has been implemented to select sample establishments. In order to do so, each of the establishment under consideration was grouped into a four-digit level of International Standard Industrial Classification (ISIC rev 3.1) and considered as stratum. However, the total number of the four-digit level ISICs was found to be too many and the contribution of some of the ISIC's to the total basic value was also very low. Hence, a cut-off strategy was adopted for considering those ISIC's having a contribution of 0.6 percent (threshold value) and above to the overall basic value. Therefore, a total of 33 out of 49 ISICs were finally taken into consideration but the contributions of those below the threshold value is distributed to their related ISIC's in order to limit bias of the final estimate. Fifteen domains of estimates (reporting levels) are then constructed from the 33 ISICs and major findings of the survey are reported for them. Taking into account resource constraints and the production structure of the manufacturing sector, 310 sample establishments were initially decided to be sufficient to conduct the survey. The spread of basic values across the four-digit ISICs as observed from the frame was, however, uneven. Therefore, a power allocation (with a power of $\frac{1}{2}$), have been employed to distribute the 310 sample establishments among the 33 ISICs since it increases the precision of small strata by slightly decreasing the precision of large strata.

However, it was found that the basic values are not good measure of size in reflecting the current structure and growth of the manufacturing sector. The reasons for this are, one the weighting structure based on basic values are too old enough to reflect the current dynamic economic performance of the sector. Second the basic values reported are not that much reliable enough to differentiate the big and small establishments so that estimates based of the basic values are not reflecting the reality, i.e. some domains are underestimated and others are overestimated, so that the need arise to change the weighting structure based on employment size are relatively more stable over time and that can reflect the right situation of manufacturing sector. Therefore, in this 4th quarter and onward estimates are grossed up by employment size to infer about the population parameters.

A systematic sampling with probability proportional to size (PPS) selection procedure were employed, measure of size being basic value obtained from the frame, was used in order to select

sample establishments from each of the 33 ISIC. In fact for the selection purpose basic value are already employed but PPS ensure the selection of big establishments so that using employment size instead of basic value does not distort their representation on the selected establishments rather than reflecting the current situation. See the following figure of already sampled establishment's representation when employment size was used instead of the basic value.



As regards to the ultimate coverage, the survey was not carried out for 14 establishments out of the sampled 310 establishments; it is because of non-response and closed establishment while the survey is conducted. As a result, the survey succeeded to cover 296 (95.5 percent) establishments throughout the country.

Estimation procedures of totals, ratios and sampling error are given in Appendix I.

IV. Training of Field Staff and Data Collection

The training was conducted in one phase by two senior staff members of the Business Statistics Directorate and experienced branch statistical office staffs took part in establishment surveys training exercise. Enumerator's manual was prepared for the survey to introduce them with the detailed explanations of the basic concepts and how to handle each and every part of the questionnaire.

V. Concepts and Definitions

Manufacturing: - is defined here according to International Standard Industrial Classification (ISIC Rev. 3) as “the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or the worker’s home, and whether the products are sold at wholesale or retail. The assembly of the component parts of manufactured products is also considered as manufacturing activities.”

An Establishment: - is defined as the whole of the premises under the same ownership or management at a particular address. (E.g. a bakery, sawmill, etc.).

Permanent Workers: - these are employees, (based on the agreement between the workers and employers) engaged to work in the factory for long period of time. These workers are usually found regularly on the payroll of the establishment. Basically, this category consists of production, administrative and technical employees. According to this definition, unpaid family workers, active partners and working proprietors are excluded.

Seasonal and Temporary Workers: - these include workers who are employed for a whole or part of the year with the agreement that they work for short period of time. These workers are not regularly on the payroll of the establishment.

Revenue from Sales: - represents the total sales value of all products and by-products during the reference period valued at market price.

Raw Materials: - include all raw and auxiliary materials, parts and containers which are consumed during the reference period. The value of local raw materials is the value of locally produced raw materials and is the cost incurring the factory, which includes the purchasing price, transport charges, taxes and other incidental costs. The value of imported raw materials is the value of raw materials produced in other countries and obtained directly or from local market

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New Capital Expenditure: - is the cost of new or used capital equipment bought during the reference period by the existing establishments.

Survey Period: Based on the Ethiopian Fiscal Year, this periods are defined as follows:-

- *First Quarter* – July 8 – October 10
- *Second Quarter* – October 11 – January 8
- *Third Quarter* – January 9 – April 8
- *Fourth Quarter* - April 9 – July 7

VI. Data Processing

Editing, Coding and Verification

A number of quality control steps were taken to ensure the data quality. Instruction manuals on editing were given to personnel involved in the editing process. Briefings on the subject along with the editing manual were put to use, to edit and code the data collected. Finally, the edited and coded questionnaires were checked and verified by another group of professionals.

Data Entry, Cleaning and Tabulation

The data were entered and verified on personal computers using CSPro software. Four CSA data entry staff participated in this purpose for one day, with close supervision of one programmer. Then, the data entered were cleaned using a personal computer in combination with manual editing for some serious errors. Finally, the tabulation of the results was processed using the same software by two programmers from business statistics directorate.

VII. Summary of Survey Findings

Employment

A more compressive measure of the total size of employment in industries is the number of persons engaged at a particular time, which in turn is an important indicator for measuring performance of industries. Survey results in Table 1 below publicize that, in this second quarter of 2007 E.F.Y., a total of 202,341 workers were engaged in the manufacturing industry, of which 162,775 (80 percent) were permanent while the remaining 39,565 (20 percent) persons were seasonal or temporary employees. Among the industrial groupings, manufacturing of food products were the major employers like in the previous quarters, were by, they employed around 29.05 percent of the total work force in the sector followed by manufacture of textiles industries which took in around 10.8 percent. On the other hand, Manufacture of tobacco products establishment contributed 0.34 percent of the total employment, which contains the smallest number of employees.

Table 1: Number of Persons Engaged by Major Industrial Groups, 2nd Quarter 2007 E.F.Y (2014/15)

Major Industrial Groupings	Number of Estab.	Permanent	Contract	Total
Manufacture of food products	903	43,448	15,325	58,773
Manufacture of beverage	54	11,203	1,230	12,433
Manufacture of tobacco products	1	653	42	695
Manufacture of textiles	52	20,252	1,602	21,854
Manufacture of wearing apparel, except fur apparel	85	14,325	882	15,206
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	168	15,446	2,771	18,218
Manufacture of wood and products of cork, except furniture	-	-	-	-
Manufacture of paper and paper products.	134	8,770	1,784	10,554
Manufacture of chemicals and chemical products	100	5,512	3,237	8,749
Manufacture of rubber products	150	15,229	3,205	18,434
Manufacture of other non-metallic products	417	11,314	4,943	16,256
Manufacture of basic iron and steel	50	1,792	68	1,861
Manufacture of fabricated metal products except machinery and equipment	98	3,450	965	4,415
Manufacture of motor vehicles, trailers and semi-trailers	10	2,761	1,583	4,344
Manufacture of furniture	188	8,620	1,928	10,548
Total	2,410	162,775	39,565	202,341

As a follow-up question about the employment situation, respondents were asked about their expectation on the number of employees in the next quarter. As presented in Table 2 below, 485 establishments responded that they would expect a change (upward or downward) in the number of the work force due to different reasons. Out of these establishments, 8.98 percent of them expect that the number of employs will increase in the next quarter. But 1,925 (79.87%) from the total of 2,410 establishments responded that they expect no changes of the work force in the next quarter.

Table 2: Number of Establishments by Reason for Change in the Number of Persons Engaged in The Next Quarter (expectation of the 2nd quarter 2007 E.C labor force).

Major Industrial Groupings	Size of employees in the next quarter compared to the current one		
	It will increase	It will decrease	It will be the same
Manufacture of food products	15	136	752
Manufacture of beverage	18	4	32
Manufacture of tobacco products	-	-	1
Manufacture of textiles	3	1	48
Manufacture of wearing apparel, except fur apparel	48	-	37
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	59	3	106
Manufacture of wood and of products and cork, except furniture	-	-	-
Manufacture of paper & paper products.	3	1	130
Manufacture of chemicals and chemical products	11	2	87
Manufacture of rubber products	40	-	109
Manufacture of other non-metallic products	-	98	318
Manufacture of basic iron and steel	-	-	50
Manufacture of fabricated metal products except machinery and equipment	18	3	77
Manufacture of motor vehicles, trailers and semi-trailers	2	4	4
Manufacture of furniture	-	15	173
Total of Manufacturing	216	269	1,925
Total %	8.98	11.15	79.87

While 11.15 percent of them forecasted that the number of employees will be decline in the next quarter.

Value of Production

The value of production is regarded as one of the important variables for measuring economic activity & development of industrial production. In this quarter manufacturing industries contributes a total value of production amounting to 22.98 billion birr. Among the industries, the largest share of production value is contributed by manufacturing of food products accompanied by Manufacture beverage processing and Manufacture of other Manufacture of rubber products , contributing 22.64, 19.58 and 9.37% of the total value, respectively. The smallest values of production were registered by manufacture of tobacco which is 1.61% of the total as shown below in Table 3.

Table3: Total Value of production by Major Industrial Group, 2nd Quarter 2007 E.F.Y (2014/15)

in 000'birr		
Major Industrial Groupings	Value of Production	Percentage
Manufacture of food products	5,202,580	22.64
Manufacture of beverage	4,500,250	19.58
Manufacture of tobacco products	370,081	1.61
Manufacture of textiles	1,124,287	4.89
Manufacture of wearing apparel ,except fur apparel	460,774	2.01
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	1,369,151	5.96
Manufacture of wood and of products and cork, except furniture	-	-
Manufacture of paper & paper products.	990,474	4.31
Manufacture of chemicals and chemical products	1,372,117	5.97
Manufacture of rubber products	2,153,496	9.37
Manufacture of other non-metallic products	1,961,451	8.54
Manufacture of basic iron and steel	680,423	2.96
Manufacture of fabricated metal products except machinery and equipment	575,732	2.51
Manufacture of motor vehicles, trailers and semi-trailers	1,822,544	7.93
Manufacture of furniture	394,881	1.72
Total	22,978,240	100.0

Revenue Generation and Prospects

A total of 27.43 billion birr was earned as revenue in the manufacturing sector during the 2nd quarter of 2007 E.F.Y, of which 97.07 percent was generated from local sales while the remaining 2.93 percent was generated from exports. Manufacture of food products, Manufacturers of beverage and Manufacture of rubber products contributed the largest share of the total revenue generated during the quarter, amounting to 29.67, 14.96 and 12.18 percent of the total revenue, respectively, on the other hand, manufacture of tobacco product industries' revenue were the lowest, amounting only 1.38 percent of the total. Most of the establishments supplied their products to local markets as shown in table4.

Manufacturing industries of tanning has earned about 55.38 percent of the total export revenue of the large and medium manufacturing industries. This trend indicates that the export performance of Ethiopian manufacturing industries is still very low and relies on few industries. This situation calls for prompt action concerned bodies and stakeholders to promote and enhance the performance and competence of manufacturing industries both locally and internationally.

On the other hand, a total of 14.19 billion birr was spent as cost of production in manufacturing industries in this quarter. This is equal to 51.72 percent of their revenue. Relative to revenue from sales, the lowest expense for production related activities were registered in these quarter. Manufacture of food industries and beverage amounting to 3.68 and 2.07 billion birr, respectively.

Table 4: Revenue from Sales, Stock and expenses by Major Industrial Group 2nd quarter 2007 E.F.Y (2014/15)
in 000' Birr

Major Industrial Groupings	Revenue from sales						Stock	Expenses
	Local	%	Export	%	Total	%		
Manufacture of food products	8,108,933	99.62	30,997	0.38	8,139,930	100.0	950,747	3,683,959
Manufacture of beverage	4,091,512	99.67	13,463	0.33	4,104,975	100.0	348,852	2,072,201
Manufacture of tobacco products	378,432	100	-	-	378,432	100.0	28,976	146,718
Manufacture of textiles	781,739	74.05	273,996	25.95	1,055,735	100.0	5,530,097	759,467
Manufacture of wearing apparel, except fur apparel	377,581	92.95	28,633	7.05	406,214	100.0	13,788	283,670
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	1,004,575	69.33	444,490	30.67	1,449,065	100.0	6,913,157	1,010,993
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	931,794	100.0	-	-	931,794	100.0	77,657	552,941
Manufacture of chemicals and chemical products	1,829,451	99.40	11,030	0.60	1,840,481	100.0	338,441	1,064,077
Manufacture of rubber products	3,340,606	100.0	-	-	3,340,606	100.0	403,563	1,962,807
Manufacture of other non-metallic products	2,407,387	100.0	-	-	2,407,387	100.0	53,943	1,345,209
Manufacture of basic iron and steel	670,762	100.0	-	-	670,762	100.0	71,271	377,882
Manufacture of fabricated metal products except machinery and equipment	519,468	100.0	-	-	519,468	100.0	134,170	330,731
Manufacture of motor vehicles, trailers and semi-trailers	1,438,166	100.0	-	-	1,438,166	100.0	4,921,582	320,201
Manufacture of furniture	748,406	99.99	76	0.01	748,481	100.0	160,072	275,473
Total	26,628,811	97.07	802,684	2.93	27,431,495	100.0	19,946,316	14,186,329

Despite this fact, the surveyed manufacturing establishments were also asked about the likely direction of their sales revenue for the coming quarter. Among the establishments who responded to this question 812 of them (46.99 percent) would expect a future change in their total revenue due to a growing local demand for their products. On the other hand 339 respondents (19.62 percent) and 117 respondents (6.77 percent) expect a decline in their total revenue due to decrease in demand locality and shortage of or high price of inputs as depicted in the table 5 below.

Quarterly Manufacturing Industry Business Survey

Table 5: Distribution of major industrial group by major reasons for change in total sales revenue, 2nd quarter 2007E.F.Y(2014/15)

Major Industrial Groupings	Major reasons for change in total sales revenue									Total
	Increase demand locally	Decrease demand locally	Increase in international demand	Decrease in international demand	Unable to compete locally	Shortage of or high price of inputs	Unable to compete with imported products	Shortage of foreign exchange	Others	
Manufacture of food products	286	48	7	-	1	77	-	-	108	526
Manufacture of beverage	37	4	-	-	-	-	-	-	-	41
Manufacture of tobacco products	1	-	-	-	-	-	-	-	-	1
Manufacture of textiles	13	1	-	1	-	9	-	-	-	24
Manufacture of wearing apparel, except fur apparel	78	-	7	-	-	-	-	-	-	85
Tanning and dressing of leather manufacture of footwear, luggage and hand bags	67	40	29	4	-	1	-	-	-	142
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	69	21	5	5	14	15	-	-	-	128
Manufacture of chemicals and chemical products	59	2	-	-	-	6	-	1	-	68
Manufacture of rubber products	55	40	-	-	-	-	-	2	51	147
Manufacture of other non-metallic products	47	89	-	2	-	9	-	72	9	228
Manufacture of basic iron and steel	37	1	-	-	-	-	-	-	13	50
Manufacture of fabricated metal products except machinery and equipment	50	33	-	-	-	-	-	-	15	98
Manufacture of motor vehicles, trailers and semi-trailers	4	-	-	-	-	-	-	-	2	7
Manufacture of furniture	9	61	31	-	-	-	-	-	82	184
Total	812	339	78	12	15	117	-	75	280	1,728

As compared to the previous year quarter, the number of establishments which would expect a change in their revenue in the next quarter due to a increase in demand for their products has increased significantly.

Raw Materials

The majority of the Ethiopian manufacturing industries are known for high dependency on imported raw materials in their production activities and this urges for one to ask the reason for such a huge dependence. Out of the total respondent establishments for this particular question, 959 establishments, which constituting 61.87 percent, reported that unavailability of raw materials locally is the major for relying on imported raw materials, as shown in Table 6 below. Lack of sufficient local supply was reported as major reason by 393 establishments (25.35 percent). 101 establishments (6.52% of the total establishment) reported unreliable about the quality of locally available raw materials. Whereas 96 establishments (6.19 percent) was mentioned as the reason of the total for relying on imported raw materials due to other different reasons. In general, the results indicate that the raw material demand by local manufacturing industries couldn't be satisfied from domestic sources due to various reasons mentioned above and these calls for the government and stakeholders to look into the issue in order to reduce the outflow of the scare foreign currency.

Compare to previous quarter the number of establishments which reported 'Not available locally' as a major reason for not using locally produced raw materials have shown as decrease by 5 establishments in this quarter, where as there are 2 establishment which report 'locally supply not reliable' in the quarter under review.

Table 6: Distribution of Establishments by Reason for Dependency on imported Raw Materials, 2nd Quarter 2007 E.F.Y(2014/15)

Major industrial Groupings	Major reasons for consuming imported raw materials										Total
	Lack of available supply in the local market	%	The raw material is not found locally	%	Local suppliers are not reliable	%	The quality of locally available raw materials is not reliable	%	others	%	
Manufacture of food products	153	22	473	69	2	0	22	3	35	5	685
Manufacture of beverage	12	26	34	74	-	-	-	-	-	-	46
Manufacture of tobacco products	1	100	-	-	-	-	-	-	-	-	1
Manufacture of textiles	7	30	17	70	-	-	-	-	-	-	24
Manufacture of wearing apparel, except fur apparel	48	56	37	44	-	-	-	-	-	-	85
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	18	21	39	47	-	-	25	30	1	1	83
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	17	12	91	68	-	-	26	20	-	-	134
Manufacture of chemicals and chemical products	42	55	26	35	-	-	-	-	8	10	76
Manufacture of rubber products	21	25	61	75	-	-	-	-	-	-	82
Manufacture of other non-metallic products	-	-	3	76	-	-	-	-	1	24	4
Manufacture of basic iron and steel	-	-	50	100	-	-	-	-	-	-	50
Manufacture of fabricated metal products except machinery and equipment	9	10	76	90	-	-	-	-	-	-	85
Manufacture of motor vehicles, trailers and semi-trailers	4	42	6	58	-	-	-	-	-	-	10
Manufacture of furniture	61	33	45	24	2	-	28	15	51	27	185
Total	393	25	959	62	2	0	101	7	96	6	1,550

New Capital Expenditure

New capital formation by the existing establishments in the quarter amounted to birr 2.12 billion birr in these quarter. Of this amount, the share of manufacturing of beverage industries and manufacture of food product was 1.6 billion birr (77.20 percent) and 154.6 million (7.31 percent) respectively (see Table 7 below). The establishments have been investing their capital for acquisition of various fixed assets in the quarter, of which, around birr 920.95 million (43.52 percent) of the total new capital expenditure was spent on building, while birr 950.48 million birr (44.92 percent) and 115.11 million (5.44 percent) of the total capital expenditure was spent for machinery & equipments and vehicles respectively.

Total new capital expenditure in the sector has decreased by birr 3.5 billion birr (62.39 percent) as compared to the previous quarter. Regarding industrial groupings high investment in fixed capital was registered in manufacture of beverage industries and Manufacture of food products for building and Machinery & Equipment.

Table 7: Value of New Capital Expenditure on Fixed Assets for major industrial groupings.

Major Industrial Groupings	Building	Machinery & Equipment	Vehicles	Others	Total
Manufacture of food products	56,845,004	51,732,752	7,109,235	38,931,179	154,618,170
Manufacture of beverage	785,190,915	702,536,256	76,112,392	69,878,864	1,633,718,427
Manufacture of tobacco products	-	11,215,528	-	159,522	11,375,050
Manufacture of textiles	-	17,534,093	65,383	245,358	17,844,834
Manufacture of wearing apparel, except fur apparel	691,676	52,348	1,692,348	1,909,799	4,346,171
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	15,703,222	4,608,652	8,670,000	4,776,419	33,758,293
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	3,999,341	40,888,721	7,174,917	6,496,117	58,559,096
Manufacture of chemicals and chemical products	4,959,654	20,849,157	6,550,671	2,454,938	34,814,421
Manufacture of rubber products	26,926,551	51,917,136	544,985	2,542,149	81,930,821
Manufacture of other non-metallic products	1,435,869	28,933,869	263,190	192,751	30,825,679
Manufacture of basic iron and steel	3,467,229	-	-	461,563	3,928,793
Manufacture of fabricated metal products except machinery and equipment	6,396,346	7,748,324	2,398,743	309,013	16,852,426
Manufacture of motor vehicles, trailers and semi-trailers	-	5,118,457	3,347,000	1,182,654	9,648,112
Manufacture of furniture	15,332,699	7,343,477	1,177,746	74,054	23,927,976
Total	920,948,507	950,478,770	115,106,610	129,614,381	2,116,148,268

Capacity Utilization

In almost all short-term business surveys, capacity utilization is considered as an important variable in studying the efficiency and performance of manufacturing industries overtime. For this reason, two questions were forwarded to the respondents during the survey: the first, regarding the existing level of capacity utilization by the establishments whereas the second question was about the reasons for operating under their full capacity. As shown in Table 8 below, during the quarter, only 56.78 percent of the capacity of the manufacturing industries was being utilized. A relatively high degree of capacity utilization was observed in the manufacture of tobacco products and manufacture of furniture amounting to 86.00 and 79.19 percent respectively, while low level of capacity utilization was observed in manufacturing of basic iron & steel and manufacture of textiles exhibiting 27.32 and 30.59 percent respectively.

Table 8: Distribution of Establishments by Percentage of Capacity Utilization

Major Industrial Groupings	Number of establishments by Capacity utilization range				Average
	25 % and below	26 to 50 %	51 to 75 %	76 to 100 %	
Manufacture of food products	134	146	354	217	57.53
Manufacture of beverage	2	20	20	11	57.59
Manufacture of tobacco products	-	-	-	1	86.00
Manufacture of textiles	-	20	4	5	30.59
Manufacture of wearing apparel, except fur apparel	-	4	48	32	66.39
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	25	104	24	15	43.22
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	-	16	35	79	70.73
Manufacture of chemicals and chemical products	-	16	11	41	49.42
Manufacture of rubber products	3	59	45	40	60.05
Manufacture of other non-metallic products	31	100	224	16	53.85
Manufacture of basic iron and steel	31	19	-	-	27.32
Manufacture of fabricated metal products except machinery and equipment	28	28	36	6	45.35
Manufacture of motor vehicles, trailers and semi-trailers	3	-	3	4	62.56
Manufacture of furniture	-	9	92	87	79.19
Total	257	541	896	553	56.78

As shown in Table 8 among the total manufacturing establishments included in this survey, 7.31 percent of them were operating below or equal to 25 percent of their capacity, while around 25.76 percent of the establishments have been operating above 75 percent of their full capacity during the survey period. Most of the establishments (41.73 percent) have been utilizing between 51 to 75 percent of their full capacity, whereas 25.20 percent of them were operating between 26 to 50 percent. In general, the survey results indicate Ethiopian manufacturing industries are operating at a medium level of capacity.

The average level of capacity utilization in the survey quarter has shown the same as compared to the previous quarters. On the other hand, the number of establishments which operated between 25 & below percent of their full capacity has shown slightly increased in this quarter as compared to the previous quarter.

The low level of capacity utilization in the sector would compel one to ask “what was behind this weak level of capacity utilization?” The responses obtained are presented in Table 9, which revealed 36 percent of them reported shortage of raw materials as the first major reason for not operating at their full capacity. On the other hand 38 percent of them reported shortage of electricity and water as the second major reason for not operating at their full capacity.

Table 9: Number of Establishments by reason for not working at full capacity

	Year of Commencement					
	Less than 3 years	3 to 5 years	6 to 8 years	Above 8 years	Total	%
First Major reason for not working at full capacity						
Shortage of raw materials	188	11	84	492	775	36
Shortage of spare parts	4	-	-	11	14	1
Shortage of foreign exchange	16	-	19	14	49	2
Lack of demand/market	94	11	128	180	413	19
Shortage of working capital	9	-	-	37	47	2
Shortage of electricity and water supply	97	-	32	454	583	27
Repeated breakage of machinery	22	-	-	102	124	6
Lack of skilled man power	-	22	-	4	26	1
Government rules and regulations	-	-	-	-	-	-
Others	-	-	-	100	100	5
Total	431	43	262	1,394	2,131	100
Second Major reason for not working at full capacity						
Shortage of raw materials	14	-	8	162	184	10
Shortage of spare parts	7	-	-	66	73	4
Shortage of foreign exchange	17	11	1	59	88	5
Lack of demand/market	33	7	-	247	287	16
Shortage of working capital	14	-	19	34	67	4
Shortage of electricity and water supply	125	22	110	423	679	38
Repeated breakage of machinery	87	-	11	66	164	9
Lack of skilled man power	13	-	-	56	69	4
Government rules and regulations	9	-	31	43	83	5
Others	23	-	19	51	93	5
Total	343	40	198	1,207	1,787	100
Third Major reason for not working at full capacity						
Shortage of raw materials	40	-	-	121	160	13
Shortage of spare parts	18	-	-	43	62	5
Shortage of foreign exchange	7	-	-	26	33	3
Lack of demand/market	7	-	-	27	34	3
Shortage of working capital	33	22	8	25	87	7
Shortage of electricity and water supply	17	11	-	220	248	20
Repeated breakage of machinery	24	-	99	174	297	24
Lack of skilled man power	3	-	20	64	86	7
Government rules and regulations	60	-	-	2	61	5
Others	36	-	4	146	186	15
Total	245	33	131	847	1,255	100

The number of establishments which reported “Lack of market demand ” as a major reason has slightly declined in this quarter as compared to the previous quarter which decreases from 480 to 413 establishment, Whereas there are no establishment reported government rules and regulation as a major problem for not operating at their full capacity in these quarter. And in the 2nd and 3rd major reason for not working at full capacity because of government rules and regulation shares 4.64 and 4.86 percent respectively .In general, compare to the previous quarter there is high influence of government rules and regulations for not working at full capacity in the 2nd major reason in this quarter.

APPENDIX

Estimation procedures of total, ratio and sampling errors

To estimate the required variables by reporting levels (domains), the following formulas were used.

1. Estimate of domain total \hat{Y}_h is given by:

$$\hat{Y}_h = \sum_{i=1}^{n_h} W_{hi} y_{hi} \text{ -----} \quad (1)$$

Where;

$$W_{hi} = \frac{M_h}{n_h M_{hi}} \text{ Is the basic sampling weight}$$

$M_h =$ Sum of basic values of establishments in stratum h obtained from the sampling frame.

$M_{hi} =$ Basic value of the i^{th} establishment in stratum h obtained from the sampling frame.

$n_h =$ Number of successfully covered sample establishments in stratum h.

$y_{hi} =$ The observed value of a characteristic y for manufacturing industry i in stratum h.

Note:

- Estimate of total manufacturing characteristic, \hat{Y} is obtained by summing up stratum/domain total estimates.

$$\hat{Y} = \sum_{h=1} \hat{Y}_h \text{-----} \quad (2)$$

- During the time of sample selection establishments having a basic value higher than the sampling interval were selected with certainty (with a probability of 1). Hence, the basic sampling weight of those establishments was taken to be 1.

3. Sampling variance of the estimates:

Sampling variance of estimate of stratum total are given by the following formulas:

The variance of domain or reporting total estimate is:

$$V(\hat{Y}_h) = \frac{n_h}{n_h - 1} \left[\sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right)^2 \right] \text{-----} \quad (3)$$

Where,

$$\hat{Y}_{hi} = W_{hi} y_{hi}$$

Other notations are as defined above.

$$V(\hat{Y}) = \sum_h V(\hat{Y}_h) \text{-----} \quad (4)$$

$$SE(\hat{Y}_h) = \sqrt{Var(\hat{Y}_h)} \text{-----} \quad (5)$$

4. Coefficient of variation and confidence interval

The following formulas were used to calculate coefficient of variation and confidence interval of the domain (reporting level) total.

The coefficient of variation (CV) of domain total in percentage is:

$$CV(\hat{Y}_h) = \frac{SE(\hat{Y}_h)}{\hat{Y}_h} \times 100 \text{-----} \quad (6)$$

And

A 95 % confidence interval (CI) of domain total is:

$$\hat{Y}_h \pm 1.96x SE(\hat{Y}_h) \text{-----} \quad (7)$$

5. Ratio estimates:

$$\hat{R}_h = \frac{\hat{Y}_h}{\hat{X}_h} \text{ and } \hat{R} = \frac{\hat{Y}}{\hat{X}} \text{-----} \quad (8)$$

Where, the numerator and the denominator are estimates of domain totals of characteristic y and x, respectively.

$$Var(\hat{R}_h) = \frac{1}{\hat{X}_h^2} [Var(\hat{Y}_h) + \hat{R}_h^2 Var(\hat{X}_h) - 2\hat{R}_h Cov(\hat{Y}_h, \hat{X}_h)]$$

In which

$$Cov(\hat{Y}_h, \hat{X}_h) = \frac{n_h}{n_h - 1} \left[\sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right) \left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h} \right) \right]$$

Where,

$$\hat{X}_{hi} = W_{hi} X_{hi}$$

Other notations are as defined above.

Estimates of standard error, coefficient of variation and confidence interval for the ratio estimate can be calculated by adopting formulas 5, 6 and 7.