

CENTRAL STATISTICAL AGENCY

**BUSINESS
STATISTICS**



Report on
The 3rd Quarter of the 2008 E.F.Y
Manufacturing Business Survey



ADDIS ABABA

July,2016

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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.

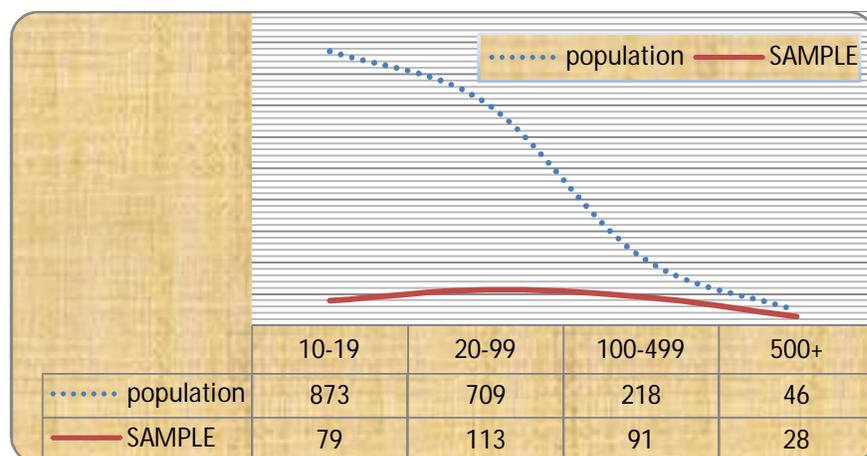
III.c. Sample Design

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 3rd 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 3rd quarter of 2008 E.F.Y., a total of 228,072 workers were engaged in the manufacturing industry, of which 187,455 (81.85 percent) were permanent while the remaining 41,572 (18.15 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 24.96 percent of the total work force in the sector followed by manufacture of wearing apparel, except fur apparel which took in around 18.30 percent. On the other hand, Manufacture of tobacco products establishment contributed 0.48 percent of the total employment, which contains the smallest number of employees.

Table1: Number of Persons Engaged by Major Industrial Groups, 3rd Quarter 2008 E.F.Y (2015/16)

Major Industrial Groupings	Number of Estab.	Permanent	Contract	Total
Manufacture of food products	905	39,743	17,831	57,175
Manufacture of beverage	53	13,065	802	13,867
Manufacture of tobacco products	1	963	135	1,098
Manufacture of textiles	46	17,235	1,734	18,969
Manufacture of wearing apparel, except fur apparel	197	41,142	769	41,910
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	10	16,299	3,152	19,451
Manufacture of wood and products of cork, except furniture	-	-	-	-
Manufacture of paper and paper products.	118	9,237	1,521	10,758
Manufacture of chemicals and chemical products	77	9,332	4,519	13,850
Manufacture of rubber products	124	12,456	1,514	13,970
Manufacture of other non-metallic products	476	8,974	4,646	13,497
Manufacture of basic iron and steel	77	3,303	876	4,180
Manufacture of fabricated metal products except machinery and equipment	100	3,793	1,086	4,460
Manufacture of motor vehicles, trailers and semi-trailers	8	2,879	1,727	4,606
Manufacture of furniture	192	9,033	1,262	10,281
Total	2,482	187,455	41,572	228,072

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, 534 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, 15.77 percent of them expect that the number of employees will decrease in the next quarter. But 1,948 (78.46% from the total of 2,482 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 4th quarter 2008 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	90	192	622
Manufacture of beverage	8	5	41
Manufacture of tobacco products	1	-	-
Manufacture of textiles	-	5	41
Manufacture of wearing apparel, except fur apparel	4	-	192
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	1	14	95
Manufacture of wood and of products and cork, except furniture	-	-	-
Manufacture of paper & paper products.	2	3	114
Manufacture of chemicals and chemical products	8	9	61
Manufacture of rubber products	2	7	115
Manufacture of other non-metallic products	-	48	428
Manufacture of basic iron and steel	-	-	77
Manufacture of fabricated metal products except machinery and equipment	23	13	63
Manufacture of motor vehicles, trailers and semi-trailers	5	-	3
Manufacture of furniture	-	95	96
Total of Manufacturing	143	391	1,948
Total %	5.77	15.77	78.46

While 5.77 percent of them forecasted that the number of employees will be increase 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 31.61 billion birr. Among the industries, the largest share of production value is contributed by manufacturing of food products accompanied by Manufacture beverage and Manufacture of rubber products , contributing 34.42, 13.69% and 11.33% of the total value, respectively. The smallest values of production were registered by manufacture of furniture products which is 0.78% of the total as shown below in Table 3.

Table3: Total Value of production by Major Industrial Group, 3rd Quarter 2008 E.F.Y (2015/16)

	in 000'birr	
Major Industrial Groupings	Value of Production	Percentage
Manufacture of food products	10,881,254	34.42
Manufacture of beverage	4,329,449	13.69
Manufacture of tobacco products	412,934	1.31
Manufacture of textiles	1,856,691	5.87
Manufacture of wearing apparel ,except fur apparel	753,910	2.38
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	2,942,709	9.31
Manufacture of wood and of products and cork, except furniture	-	-
Manufacture of paper & paper products.	957,069	3.03
Manufacture of chemicals and chemical products	2,066,672	6.54
Manufacture of rubber products	3,582,808	11.33
Manufacture of other non-metallic products	1,625,085	5.14
Manufacture of basic iron and steel	1,025,329	3.24
Manufacture of fabricated metal products except machinery and equipment	675,028	2.14
Manufacture of motor vehicles, trailers and semi-trailers	258,530	0.82
Manufacture of furniture	247,157	0.78
Total	31,614,626	100.00

Revenue Generation and Prospects

A total of 34.79 billion birr was earned as revenue in the manufacturing sector during the 3rd quarter of 2008 E.F.Y, of which 97.19 percent was generated from local sales while the remaining 2.38 percent was generated from exports. Manufacture of food product, Manufacturers of beverage and Manufacture of rubber products contributed the largest share of the total revenue generated during the quarter, amounting to 18.16, 16.29 and 12.76 percent of the total revenue, respectively. On the other hand, manufacture of furniture revenue was the lowest, amounting only 1.12 percent of the total. Most of the establishments supplied their products to local markets as shown in table4.

Manufacturing industries of Tanning and dressing of leather, manufacture of footwear, luggage and hand bags has earned about 38.33 percent of the total export revenue of the large and medium scale 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 21.09 billion birr was spent as cost of production in manufacturing industries in this quarter. This is equal to 60.63 percent of their revenue. Relative to revenue from sales, the low expense for production related activities were registered in these quarter compare with the last. Manufacture of food products and rubber product amounting to 4.72 and 3.25 billion birr out of the total expense, respectively.

Table 4: Revenue from Sales, Stock and expenses by Major Industrial Group 3rd quarter 2008 E.F.Y (2015/16) in 000' Birr

Major Industrial Groupings	Revenue from sales						Stock	Expenses
	Local	%	Export	%	Total	%		
Manufacture of food products	6,079,311	96.21	57,445	0.91	6,319,027	100.0	763,054	4,721,766
Manufacture of beverage	5,664,482	99.99	844	0.01	5,665,326	100.0	180,925	2,756,301
Manufacture of tobacco products	426,496	90.96	42,411	9.04	468,907	100.0	70,782	152,726
Manufacture of textiles	1,034,981	96.90	33,142	3.10	1,068,123	100.0	816,936	996,301
Manufacture of wearing apparel, except fur apparel	827,805	78.73	223,637	21.27	1,051,442	100.0	103,822	666,285
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	3,464,661	91.58	317,899	8.40	3,783,116	100.0	486,876	2,234,768
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	1,165,954	100.0	-	-	1,127,662	100.0	329,307	945,936
Manufacture of chemicals and chemical products	2,437,516	99.46	13,306	0.54	2,450,822	100.0	2,789,195	1,823,272
Manufacture of rubber products	4,439,972	100	-	-	4,439,972	100.0	265,164	3,251,084
Manufacture of other non-metallic products	1,539,410	93.81	97,152	5.92	1,641,030	100.0	464,654	1,130,511
Manufacture of basic iron and steel	1,113,677	100	-	-	1,113,677	100.0	57,314	940,599
Manufacture of fabricated metal products except machinery and equipment	4,305,045	99.75	11,789	0.27	4,315,806	100.0	88,865	1,232,776
Manufacture of motor vehicles, trailers and semi-trailers	953,387	100	-	-	953,387	100.0	4,427,291	32,130
Manufacture of furniture	356,980	91.84	31,736	8.16	388,716	100.0	122,663	207,727
Total	33,809,677	97.19	829,361	2.38	34,787,014	100.0	10,966,848	21,092,183

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 1,021 of them (48.67 percent) would expect a future change in their total revenue due to a growing local demand for their products. On the other hand 490 respondents (23.36 percent) and 123 respondents (5.86 percent) expect a decline in their total revenue due to decrease in demand locality and shortage of or high price of impute 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, 3rd quarter 2008E.F.Y(2015/16)

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	315	170	36	-	3	18	-	19	167	729
Manufacture of beverage	48	2	-	-	-	-	-	-	1	51
Manufacture of tobacco products	-	-	-	-	-	-	-	-	1	1
Manufacture of textiles	5	4	-	2	-	24	-	-	7	41
Manufacture of wearing apparel, except fur apparel	126	-	-	-	-	23	-	-	-	149
Tanning and dressing of leather manufacture of footwear, luggage and hand bags	27	20	-	5	-	25	-	-	-	77
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	71	11	-	-	-	5	-	8	11	105
Manufacture of chemicals and chemical products	67	5	-	-	-	-	-	3	-	74
Manufacture of rubber products	90	17	-	-	-	1	-	3	14	124
Manufacture of other non-metallic products	157	142	88	-	-	36	-	-	22	445
Manufacture of basic iron and steel	25	30	-	-	-	-	-	-	-	55
Manufacture of fabricated metal products except machinery and equipment	51	17	-	-	-	13	-	4	11	97
Manufacture of motor vehicles, trailers and semi-trailers	3	1	-	-	-	-	-	4	-	8
Manufacture of furniture	37	70	-	-	-	15	-	-	19	141
Total	1,021	490	123	7	3	161	-	40	252	2,098

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 locally for their products has increase significantly. And the numbers of establishment which expect a change there revenue in the next quarter due to decrease demand locally decrease slightly as compared to the previous quarter.

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, 815 establishments, which constituting 47.52 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 651 establishments (37.96 percent), 140 establishments (8.16% of the total establishment) reported unreliable about the quality of locally available raw materials. Whereas 43 establishments (2.51 percent) was mentioned as the reason of the total for relying on imported raw materials due to locale suppliers are not reliable.

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 increase by 220 establishments in this quarter, where as there are 65 establishment which report ' others reason in the quarter under review.

Table 6: Distribution of Establishments by Reason for Dependency on imported Raw Materials, 3rd Quarter 2008 E.F.Y(2015/16)

Major industrial Groupings	Major reasons for consuming imported raw materials										
	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	%	Total
Manufacture of food products	218	32	440	64	15	2	-	-	11	2	684
Manufacture of beverage	12	23	36	69	-	-	-	-	4	8	53
Manufacture of tobacco products	1	100	-	-	-	-	-	-	-	-	1
Manufacture of textiles	2	11	8	53	5	30	-	-	1	6	15
Manufacture of wearing apparel, except fur apparel	97	49	27	14	-	-	25	13	48	24	197
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	36	33	49	45	-	-	25	23	-	-	110
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	24	21	74	63	-	-	20	17	-	-	18
Manufacture of chemicals and chemical products	53	69	23	30	1	1	-	-	-	-	77
Manufacture of rubber products	49	40	75	60	-	-	-	-	-	-	124
Manufacture of other non-metallic products	-	-	7	88	-	-	-	-	1	12	8
Manufacture of basic iron and steel	32	42	38	49	7	9	-	-	-	-	77
Manufacture of fabricated metal products except machinery and equipment	50	59	18	21	7	8	11	13	-	-	86
Manufacture of motor vehicles, trailers and semi-trailers	4	45	4	55	-	-	-	-	-	-	8
Manufacture of furniture	73	47	14	9	9	6	59	38	-	-	156
Total	651	38	815	48	43	3	140	8	65	4	1,715

New Capital Expenditure

New capital formation by the existing establishments in the quarter amounted to birr around 2.67 billion birr in these quarter. Of this amount, the share of manufacturing of food and beverage products was 2.06 billion birr (77.26 percent) and 168.27 million (6.30 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 71.16 million (2.66 percent) of the total new capital expenditure was spent on others, while birr 1.96 billion birr (73.51 percent) and 464.88 million (17.41 percent) of the total capital expenditure was spent for machinery & equipments and building respectively. Total new capital expenditure in the sector has increased by birr 1 billion birr (100 percent) as compared to the previous quarter. Regarding industrial groupings high investment in fixed capital was registered in manufacture of food and chemicals & chemical products for 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	258,443,427	1,717,722,267	81,638,499	5,003,703	2,062,807,897
Manufacture of beverage	34,016,701	59,005,062	36,998,549	45,305,756	168,270,535
Manufacture of tobacco products	-	-	-	4,867	4,867
Manufacture of textiles	4,403,738	98,464,062	418,567	4,932,844	108,219,211
Manufacture of wearing apparel, except fur apparel	-	4,685,114	2,200,000	311,381	7,196,495
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	100,040,00	2,688,810	446,341	3,281,817	104,328,310
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	4,922,427	1,005,126	998,249	3,782,593	10,708,396
Manufacture of chemicals and chemical products	52,403,915	37,386,814	27,024,441	3,346,421	120,161,592
Manufacture of rubber products	3,742,169	9,299,436	10,105,621	1,826,956	24,974,182
Manufacture of other non-metallic products	1,969,755	30,667,999	18,913,078	178,208	51,729,041
Manufacture of basic iron and steel	-	-	776,455	357,536	1,133,992
Manufacture of fabricated metal products except machinery and equipment	83,430	850,755	888,750	780,719	2,603,654
Manufacture of motor vehicles, trailers and semi-trailers	-	154,522	155,336	1,810,860	2,120,718
Manufacture of furniture	4,854,438	744,600	-	233,828	5,832,866
Total	464,880,001	1,962,674,568	180,563,887	71,157,491	2,670,091,754

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 53.94 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 product and manufacture of paper & paper product amounting to 76.00 and 74.41 percent respectively, while low level of capacity utilization was observed in manufacturing of motor vehicles, trailers & semi-trailers and manufacture of beverage products contributing 40.10 and 40.26 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	71	188	280	260	55.47
Manufacture of beverage	7	17	5	14	40.26
Manufacture of tobacco products	-	-	-	1	76.00
Manufacture of textiles	-	11	29	5	57.20
Manufacture of wearing apparel, except fur apparel	-	96	74	27	57.33
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	27	34	4	43	57.42
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	-	30	24	64	74.41
Manufacture of chemicals and chemical products	1	38	19	20	61.91
Manufacture of rubber products	9	18	34	64	69.32
Manufacture of other non-metallic products	136	186	145	8	45.07
Manufacture of basic iron and steel	25	23	14	15	45.56
Manufacture of fabricated metal products except machinery and equipment	3	64	26	1	49.49
Manufacture of motor vehicles, trailers and semi-trailers	-	1	-	4	40.10
Manufacture of furniture	57	64	41	30	46.63
Total	335	770	695	555	53.94

As shown in Table 8 among the total manufacturing establishments included in this survey, 14.23 percent of them were operating below or equal to 25 percent of their capacity, while around 29.51 percent of the establishments have been operating between 51 to 75 percent of their full capacity during the survey period. Most of the establishments (32.70 percent) have been utilizing between 26 to 50 percent of their full capacity, whereas 23.57 percent of them were operating above 75 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 slightly increase 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 decreased 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 33 percent of them reported lack of demand/market as the first major reason for not operating at their full capacity. On the other hand 34 percent of them reported also shortage of electricity & water supply 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	148	72	21	292	534	24
Shortage of spare parts	7	-	-	45	52	2
Shortage of foreign exchange	24	11	1	36	72	3
Lack of demand/market	151	14	79	485	729	33
Shortage of working capital	4	-	-	91	95	4
Shortage of electricity and water supply	117	-	4	369	489	22
Repeated breakage of machinery	24	-	2	44	70	3
Lack of skilled man power	2	-	-	-	2	0
Government rules and regulations	-	-	-	9	9	0
Others	-	2	47	90	139	6
Total	476	99	154	1,462	2,191	100
Second Major reason for not working at full capacity						
Shortage of raw materials	13	3	2	147	165	9
Shortage of spare parts	17	-	2	94	113	6
Shortage of foreign exchange	39	-	6	82	127	7
Lack of demand/market	31	68	-	164	263	14
Shortage of working capital	28	4	-	49	81	4
Shortage of electricity and water supply	213	21	80	335	648	34
Repeated breakage of machinery	98	11	51	195	354	19
Lack of skilled man power	-	-	-	25	25	1
Government rules and regulations	-	-	-	81	81	4
Others	4	11	-	33	48	3
Total	441	117	141	1,205	1,904	100
Third Major reason for not working at full capacity						
Shortage of raw materials	46	68	4	134	251	18
Shortage of spare parts	32	2	-	-	33	2
Shortage of foreign exchange	30	1	-	63	94	7
Lack of demand/market	27	-	-	50	77	5
Shortage of working capital	5	12	-	48	66	5
Shortage of electricity and water supply	45	15	4	92	155	11
Repeated breakage of machinery	25	-	1	209	235	17
Lack of skilled man power	74	-	-	127	201	14
Government rules and regulations	27	18	-	125	171	12
Others	21	-	47	76	144	10
Total	330	115	56	924	1,425	100

The number of establishments which reported “shortage of raw materials ” as a major reason has 534 establishment, Whereas there are 9 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 81 and 171 percent respectively .In general, compare to the previous quarter there is influence of government rules and regulations for not working at full capacity in the 2nd and 3rd 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.

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

- 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:

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

Where,

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

Other notations are as defined above.

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

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

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:

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

And

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

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

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.