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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 mangers 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.
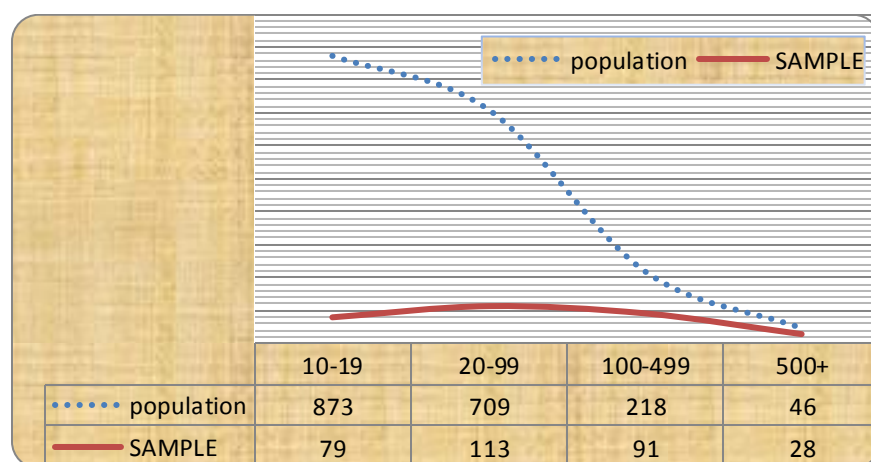
III.c. Sample Design

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 ½), 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.

	10-19	20-99	100-499	500+
population	873	709	218	46
SAMPLE	79	113	91	28

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 third quarter of 2007 E.F.Y., a total of 186,223 workers were engaged in the manufacturing industry, of which 148,454 (79.8 percent) were permanent while the remaining 37,650 (20.2 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 23.65 percent of the total work force in the sector followed by manufacture of rubber product which took in around 12.04 percent. On the other hand, Manufacture of tobacco products establishment contributed 0.35 percent of the total employment, which contains the smallest number of employees.

Table 1: Number of Persons Engaged by Major Industrial Groups, 3rd Quarter 2007 E.F.Y (2014/15)

Major Industrial Groupings	Number of Estab.	Permanent	Contract	Total
Manufacture of food products	756	34,917	9,078	44,013
Manufacture of beverage	55	11,336	1,450	12,786
Manufacture of tobacco products	1	605	51	656
Manufacture of textiles	44	10,075	3,378	13,552
Manufacture of wearing apparel, except fur apparel	60	11,901	1,132	13,033
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	168	15,117	3,053	18,170
Manufacture of wood and products of cork, except furniture	-	-	-	-
Manufacture of paper and paper products.	124	7,940	1,978	9,918
Manufacture of chemicals and chemical products	77	7,596	5,057	12,653
Manufacture of rubber products	149	20,677	1,739	22,416
Manufacture of other non-metallic products	403	10,932	6,140	17,072
Manufacture of basic iron and steel	66	1,749	171	1,920
Manufacture of fabricated metal products except machinery and equipment	66	3,509	864	4,373
Manufacture of motor vehicles, trailers and semi-trailers	10	2,824	2,311	5,135
Manufacture of furniture	179	9,276	1,249	10,525
Total	2,162	148,454	37,650	186,223

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, 584 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, 17.12 percent of them expect that the number of employs will increase in the next quarter. But 1,514 (72.15%) frome the total of 2,098 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 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	106	94	559
Manufacture of beverage	6	2	44
Manufacture of tobacco products	-	-	1
Manufacture of textiles	23	1	20
Manufacture of wearing apparel, except fur apparel	7	4	49
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	15	27	127
Manufacture of wood and of products and cork, except furniture	-	-	-
Manufacture of paper & paper products.	26	21	70
Manufacture of chemicals and chemical products	12	2	63
Manufacture of rubber products	54	-	95
Manufacture of other non-metallic products	75	16	267
Manufacture of basic iron and steel	-	-	66
Manufacture of fabricated metal products except machinery and equipment	15	1	50
Manufacture of motor vehicles, trailers and semi-trailers	3	-	7
Manufacture of furniture	16	57	97
Total of Manufacturing	359	225	1,514
Total %	17.12	10.73	72.15

While 10.73 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 24.4 billion birr. Among the industries, the largest share of production value is contributed by manufacturing of food products accompanied by Manufacture other non-metallic product and Manufacture of beverage products, contributing 21.15, 13.81% and 10.82% of the total value, respectively. The smallest values of production were registered by manufacture of wearing apparel, except fur apparel which is 1.54% of the total as shown below in Table 3.

Table 3: Total Value of production by Major Industrial Group, 3ʳᵈ Quarter 2007 E.F.Y (2014/15)

in 000'birr

Major Industrial Groupings	Value of Production	Percentage
Manufacture of food products	5,159,658	21.15
Manufacture of beverage	2,640,395	10.82
Manufacture of tobacco products	468,327	1.92
Manufacture of textiles	1,583,871	6.49
Manufacture of wearing apparel ,except fur apparel	374,674	1.54
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	1,359,911	5.57
Manufacture of wood and of products and cork, except furniture	-	-
Manufacture of paper & paper products.	903,573	3.70
Manufacture of chemicals and chemical products	1,830,893	7.50
Manufacture of rubber products	2,414,013	9.90
Manufacture of other non-metallic products	3,369,615	13.81
Manufacture of basic iron and steel	1,168,083	4.79
Manufacture of fabricated metal products except machinery and equipment	883,957	3.62
Manufacture of motor vehicles, trailers and semi-trailers	1,686,720	6.91
Manufacture of furniture	552,020	2.26
Total	**24,395,711**	**100.00**

Revenue Generation and Prospects

A total of 29.44 billion birr was earned as revenue in the manufacturing sector during the 3rd quarter of 2007 E.F.Y, of which 97.66 percent was generated from local sales while the remaining 2.34 percent was generated from exports. Manufacturers of beverage, Manufacture of food product and Manufacture of other non-metallic products contributed the largest share of the total revenue generated during the quarter, amounting to 21.92, 17.33 and 13.83 percent of the total revenue, respectively, on the other hand, manufacture of tobacco product industries' revenue were the lowest, amounting only 1.31 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 59.32 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 18.00 billon birr was spent as cost of production in manufacturing industries in this quarter. This is equal to 61.16 percent of their revenue. Relative to revenue from sales, the highest expense for production related activities were registered in these quarter. Manufacture of rubber products and food products amounting to 3.86 and 2.88 billion birr, respectively.

Table 4: Revenue from Sales, Stock and expenses by Major Industrial Group   3rd   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	5,091,776	99.81	9,817	0.19	5,101,593	100.0	870,235	2,886,580
Manufacture of beverage	6,446,676	99.91	5,962	0.09	6,452,637	100.0	55,247	2,571,395
Manufacture of tobacco products	385,250	100	-	-	385,250	100.0	83,077	-
Manufacture of textiles	1,443,601	88.61	185,576	11.39	1,629,177	100.0	1,261,050	1,351,481
Manufacture of wearing apparel, except fur apparel	622,469	99.55	2,798	0.45	625,267	100.0	72,915	257,585
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	926,783	69.38	409,034	30.62	1,335,816	100.0	384,195	886,457
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	1,026,115	100.0	-	-	1,026,115	100.0	88,520	619,275
Manufacture of chemicals and chemical products	2,630,220	99.17	21,888	0.83	2,652,107	100.0	486,903	1,314,419
Manufacture of rubber products	3,461,928	100.0	-	-	3,461,928	100.0	194,640	3,857,811
Manufacture of other non-metallic products	4,069,913	99.94	2,430	0.06	4,072,343	100.0	174,953	2,171,488
Manufacture of basic iron and steel	731,643	100.0	-	-	731,643	100.0	594,743	259,820
Manufacture of fabricated metal products except machinery and equipment	728,798	100.0	-	-	728,798	100.0	320,305	547,959
Manufacture of motor vehicles, trailers and semi-trailers	694,736	100.0	-	-	694,736	100.0	326,070	957,611
Manufacture of furniture	486,640	90.35	51,981	9.65	538,621	100.0	159,583	320,549
Total	28,746,548	97.66	689,485	2.34	29,436,032	100.0	5,072,437	18,002,427

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 1,069 of them (58.58 percent) would expect a future change in their total revenue due to a growing local demand for their products. On the other hand 317 respondents (17.37 percent) and 117 respondents (6.41 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.

Table 5: Distribution of major industrial group by major reasons for change in total sales revenue,3rd quarter 2007E.F.Y(2014/15)

Major Industrial Groupings	Major reasons for change in total sales revenue									
	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	Total
Manufacture of food products	374	132	5	-	3	78	-	-	33	627
Manufacture of beverage	30	2	-	-	-	4	-	-	-	36
Manufacture of tobacco products	-	-	-	-	-	-	-	-	1	1
Manufacture of textiles	27	3	9	1	-	-	-	-	5	44
Manufacture of wearing apparel, except fur apparel	5	-	7	-	-	-	-	-	48	60
Tanning and dressing of leather manufacture of footwear, luggage and hand bags	50	27	4	10	-	25	-	13	13	143
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	47	9	5	19	1	4	-	-	-	85
Manufacture of chemicals and chemical products	50	10	2	-	-	2	-	-	8	72
Manufacture of rubber products	93	38	-	-	-	-	-	5	11	148
Manufacture of other non-metallic products	295	6	-	2	11	3	-	-	13	327
Manufacture of basic iron and steel	5	1	-	-	-	-	-	13	16	35
Manufacture of fabricated metal products except machinery and equipment	63	1	-	-	-	1	-	-	1	66
Manufacture of motor vehicles, trailers and semi-trailers	10	-	-	-	-	-	-	-	-	10
Manufacture of furniture	19	87	-	-	4	-	-	-	60	170
Total	1,069	317	33	30	18	117	-	31	210	1,824

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, 964 establishments, which constituting 71.30 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 295 establishments (21.82 percent). 52 establishments (3.82% of the total establishment) reported unreliable about the quality of locally available raw materials. Whereas 23 establishments (1.70 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 increase by 5 establishments in this quarter, where as there are 20 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,3rd 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	65	13	404	79	20	4	-	3	22	4	510
Manufacture of beverage	31	60	21	40	-	-	-	-	-	-	51
Manufacture of tobacco products	-	-	1	100	-	-	-	-	-	-	1
Manufacture of textiles	2	12	14	88	-	-	-	-	-	-	16
Manufacture of wearing apparel, except fur apparel	1	8	4	33	-	-	7	58	-	-	12
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	33	23	83	59	-	-	25	18	-	-	141
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	40	32	63	51	-	-	20	16	1	1	124
Manufacture of chemicals and chemical products	13	18	56	82	-	-	-	-	-	-	69
Manufacture of rubber products	15	11	115	89	-	-	-	-	-	-	129
Manufacture of other non-metallic products	3	26	9	74	-	-	-	-	-	-	12
Manufacture of basic iron and steel	31	47	35	53	-	-	-	-	-	-	66
Manufacture of fabricated metal products except machinery and equipment	26	49	27	51	-	-	-	-	-	-	53
Manufacture of motor vehicles, trailers and semi-trailers	1	10	9	90	-	-	-	-	-	-	10
Manufacture of furniture	35	22	122	78	20	-	-	-	-	-	157
Total	**295**	**22**	**964**	**71**	**20**	**1**	**52**	**4**	**23**	**2**	**1,352**

New Capital Expenditure

New capital formation by the existing establishments in the quarter amounted to birr 2.32 billion birr in these quarter. Of this amount, the share of manufacturing tanning &dressing of leather, manufacture of footwear, luggage & hand bags and manufacture of food product was 1.33 billion birr (57.21 percent) and 449.10 million (19.34percent) 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 1.08 billion (46.52 percent) of the total new capital expenditure was spent on others, while birr 870.46 million birr (37.48 percent) and 209.16 million (9.01 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 206.5 billion birr (9.76 percent) as compared to the previous quarter. Regarding industrial groupings high investment in fixed capital was registered in manufacture of tanning &dressing of leather,footwear, luggage & hand bags 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	76,901,629	304,005,839	65,544,287	2,640,665	449,092,420
Manufacture of beverage	15,819,197	127,800,819	47,378,249	6,677,241	197,675,505
Manufacture of tobacco products	-	-	-	-	-
Manufacture of textiles	334,803	1,876,639	3,265,536	2,665,201	8,142,178
Manufacture of wearing apparel, except fur apparel	-	5,944,100	-	353,848	6,297,948
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	98,713,751	182,162,945	20,781	1,047,908	1,328,806,360
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	4,350,000	3,130,918	-	1,375,688	8,856,605
Manufacture of chemicals and chemical products	5,221,604	12,350,927	22,611,894	1,127,870	41,312,295
Manufacture of rubber products	1,488,332	123,990,026	-	2,653,250	128,131,607
Manufacture of other non-metallic products	721,723	98,737,017	5,144,520	673,033	105,276,293
Manufacture of basic iron and steel	-	2,697,000	1,570,000	134,100	4,401,100
Manufacture of fabricated metal products except machinery and equipment	82,899	1,287,406	10,319,471	13,187,364	24,877,141
Manufacture of motor vehicles, trailers and semi-trailers	-	1,226,017	6,720,784	737,011	8,683,812
Manufacture of furniture	5,526,416	5,246,448	-	324,735	11,097,599
Total	**209,160,354**	**870,456,100**	**162,575,521**	**1,080,458,889**	**2,322,650,864**

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 56.17 percent of the capacity of the manufacturing industries was being utilized. A relatively high degree of capacity utilization was observed in the manufacture of motor vehicles, trailers & semi-trailers and manufacture of wearing apparel except fur apparel amounting to 92.97 and 74.40 percent respectively, while low level of capacity utilization was observed in manufacturing of tobacco product and manufacture of other non-metallic products contributing 7.00 and 36.40 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	86	61	431	180	**64.53**
Manufacture of beverage	18	3	11	19	**56.09**
Manufacture of tobacco products	1	-	-	-	**7.00**
Manufacture of textiles	6	27	7	5	**53.14**
Manufacture of wearing apparel, except fur apparel	-	1	55	4	**74.40**
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	-	79	46	16	**44.42**
Manufacture of wood and of products and cork, except furniture	-	-	-	-	**-**
Manufacture of paper & paper products.	14	15	47	48	**64.78**
Manufacture of chemicals and chemical products	2	1	21	44	**70.50**
Manufacture of rubber products	-	33	25	87	**74.06**
Manufacture of other non-metallic products	133	183	28	15	**36.40**
Manufacture of basic iron and steel	-	32	34	-	**46.10**
Manufacture of fabricated metal products except machinery and equipment	2	14	31	18	**60.00**
Manufacture of motor vehicles, trailers and semi-trailers	-	-	2	8	**92.97**
Manufacture of furniture	51	34	63	12	**44.52**
Total	**312**	**482**	**803**	**456**	**56.17**

As shown in Table 8 among the total manufacturing establishments included in this survey, 15.73 percent of them were operating below or equal to 25 percent of their capacity, while around 23.33 percent of the establishments have been operating between 26 to 50 percent of their full capacity during the survey period. Most of the establishments (38.87 percent) have been utilizing between 51 to 75 percent of their full capacity, whereas 22.07 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 decrease 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 40 percent of them reported shortage of electricity & water as the first major reason for not operating at their full capacity. On the other hand 26 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	113	11	27	311	**461**	**23**
Shortage of spare parts	6	-	-	4	**11**	**1**
Shortage of foreign exchange	9	-	-	40	**48**	**2**
Lack of demand/market	79	1	101	151	**332**	**17**
Shortage of working capital	19	-	35	24	**78**	**4**
Shortage of electricity and water supply	241	12	192	352	**797**	**40**
Repeated breakage of machinery	89	-	11	13	**113**	**6**
Lack of skilled man power	1	-	-	-	**1**	**0**
Government rules and regulations	-	-	-	52	**52**	**3**
Others	1	-	5	78	**84**	**4**
Total	557	**24**	**372**	**1,025**	**1,977**	**100**
Second Major reason for not working at full capacity						
Shortage of raw materials	168	12	12	255	447	**25**
Shortage of spare parts	27	1	11	30	69	**4**
Shortage of foreign exchange	19	-	1	19	**39**	**2**
Lack of demand/market	42	-	-	112	**154**	**9**
Shortage of working capital	10	11	106	81	**208**	**11**
Shortage of electricity and water supply	104	-	117	243	**464**	**26**
Repeated breakage of machinery	4	-	6	98	**108**	**6**
Lack of skilled man power	56	-	-	106	**162**	**9**
Government rules and regulations	48	-	-	2	**50**	**3**
Others	28	-	79	10	**117**	**6**
Total	**506**	**24**	**331**	**958**	**1,819**	**100**
Third Major reason for not working at full capacity						
Shortage of raw materials	8	-	123	60	**191**	**15**
Shortage of spare parts	-	1	2	12	**15**	**1**
Shortage of foreign exchange	5	-	2	11	**18**	**1**
Lack of demand/market	4	-	102	46	**152**	**12**
Shortage of working capital	29	-	7	61	**96**	**7**
Shortage of electricity and water supply	95	-	15	187	**297**	**23**
Repeated breakage of machinery	25	12	7	153	**197**	**15**
Lack of skilled man power	3	-	59	93	**155**	**12**
Government rules and regulations	61	-	-	-	**61**	**5**
Others	55	11	-	69	**134**	**10**
Total	**284**	**24**	**317**	**691**	**1,316**	**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 413 to 332 establishment, Whereas there are 52 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 3 and 5 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 1st 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;

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

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

$M_{hi} =$ Basic value of the ith 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:

$$CV(\hat{Y}_h) = \frac{SE(\hat{Y}_h)}{\hat{Y}_h} x100 \text{ --- (6)}$$

And

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

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

5. Ratio estimates:

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

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

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

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.