

# CENTRAL STATISTICAL AGENCY

**BUSINESS  
STATISTICS**



## Report on

# The 1<sup>st</sup> Quarter of the 2005 E.F.Y. Manufacturing Business Survey



**Business statistics directorate  
Addis Ababa  
January, 2013**

**Report on**  
**The 1<sup>st</sup> Quarter of the 2005 E.F.Y Manufacturing**  
**Business Survey**



**ADDIS ABABA**  
*January, 2013*

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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***

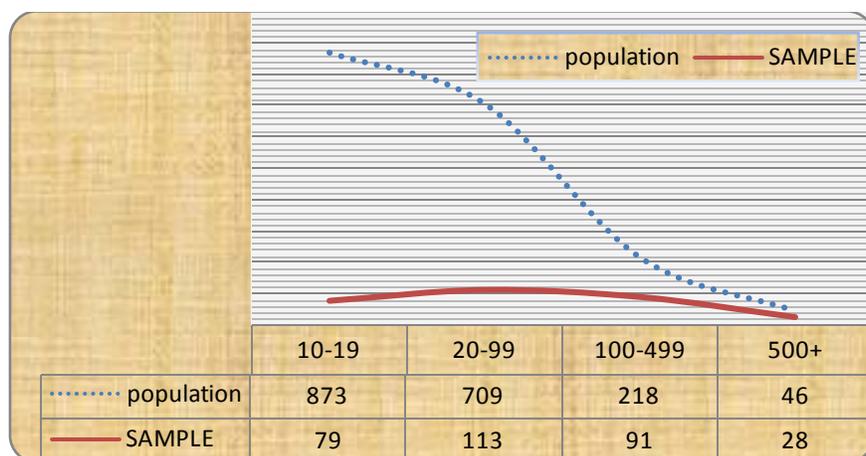
The list of basic values of each and every establishment was obtained or constructed from the 2008/09 Large and Medium Scale Manufacturing Industries Census and was used as a frame for conducting this Quarterly Manufacturing Business Sample Survey.

### ***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 fourth 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 and is the cost incurring the factory which includes the purchasing price, transport charges, taxes and other incidental costs.

**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 first quarter of 2005 E.F.Y., a total of 188,359 workers were engaged in the manufacturing industry, of which 141,094 (74.9 percent) were permanent while the remaining 47,265 (25.1 percent) persons were seasonal or temporary employees. Among the industrial groupings, manufacturing of food products contains the highest number of employs, employing around 24.3 percent of the total work force in the sector accompanied by non-metallic products which took around 14.2 percent. On the other hand, Manufacture of tobacco products contributed 1.4 percent of the total employment, which contains the smallest number of employs.

**Table 1 Number of Persons Engaged by Major Industrial Groupings**

Major Industrial Groupings	Number of Estab.	Permanent	Contract	Total
Manufacture of food products	882	31,868	13,933	45,801
Manufacture of beverage	52	9,985	1,344	11,329
Manufacture of tobacco products	1	2,605	65	2,670
Manufacture of textiles	36	5,354	1,240	6,594
Manufacture of wearing apparel, except fur apparel	85	13,922	854	14,776
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	178	12,075	3,387	15,462
Manufacture of wood and products of cork, except furniture	-	-	-	-
Manufacture of paper and paper products.	255	16,092	3416	19,508
Manufacture of chemicals and chemical products	104	6,590	4,073	10,663
Manufacture of rubber products	180	9,960	1,694	11,654
Manufacture of other non-metallic products	549	14,361	12,302	26,663
Manufacture of basic iron and steel	83	2,790	1383	4,173
Manufacture of fabricated metal products except machinery and equipment	90	4,067	609	4,676
Manufacture of motor vehicles, trailers and semi-trailers	8	1,933	1100	3,033
Manufacture of furniture	281	9,492	1,867	11,359
<b>Total</b>	<b>2,784</b>	<b>141,094</b>	<b>47,265</b>	<b>188,359</b>

Beside this, a follow-up question about the employment situation was forwarded to respondents about their expectation on the number of employees in the next quarter. As presented in Table 2 below, 768 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, 15.95 percent of them forecasted there will be an increase in the number of employs, while 12.22 percent of them expect that the number of employs will decline in the next quarter. The remaining 70.83 percent would expect no change in the next quarter.

**Table 2. Number of Establishments by Reason for Change in the Number of Persons Engaged in The Next Quarter**

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	203	86	592
Manufacture of beverage	7	5	40
Manufacture of tobacco products	1	-	-
Manufacture of textiles	3	23	10
Manufacture of wearing apparel, except fur apparel	4	-	81
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	20	8	147
Manufacture of wood and of products and cork, except furniture	-	-	-
Manufacture of paper & paper products .	52	-	200
Manufacture of chemicals and chemical products	11	12	81
Manufacture of rubber products	21	13	146
Manufacture of other non-metallic products	106	98	344
Manufacture of basic iron and steel	1	-	82
Manufacture of fabricated metal products except machinery and equipment	2	53	35
Manufacture of motor vehicles, trailers and semi-trailers	1	3	4
Manufacture of furniture	4	31	196
Total of Manufacturing	435	333	1,959
<b>Total %</b>	<b>15.95</b>	<b>12.22</b>	<b>71.83</b>

**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 20.43 billion birr. Among the industries, the largest share of production value is contributed by manufacturing of food products accompanied by Manufacture of chemicals and chemical products and manufacture of basic iron and steel contributing 21.28%, 16.37% and 11.33% of the total value, respectively. The smallest values of production were registered by manufacturer of furniture and tobacco manufacturing which are 1.9% and 0.68% of the total respectively as shown below in Table 3.

**Table 3 Total Value of production by Major Industrial Groupings**

Major Industrial Groupings	Value of Production	Percentage
Manufacture of food products	4,346,500,386	21.28
Manufacture of beverage	2,045,409,550	10.01
Manufacture of tobacco products	138,183,523	0.68
Manufacture of textiles	432,352,712	2.12
Manufacture of wearing apparel ,except fur apparel	414,414,325	2.03
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	888,514,398	4.35
Manufacture of wood and of products and cork, except furniture	-	-
Manufacture of paper & paper products .	1,793,976,063	8.78
Manufacture of chemicals and chemical products	3,342,724,661	16.37
Manufacture of rubber products	886,434,222	4.34
Manufacture of other non-metallic products	1,356,236,251	6.64
Manufacture of basic iron and steel	2,314,146,683	11.33
Manufacture of fabricated metal products except machinery and equipment	1,200,071,848	5.88
Manufacture of motor vehicles, trailers and semi-trailers	876,584,658	4.29
Manufacture of furniture	389,869,804	1.91
<b>Total</b>	<b>20,425,419,083</b>	<b>100.00</b>

***Revenue Generation and Prospects***

A total of 20.4 billion birr was earned as revenue in the manufacturing sector during the first quarter of 2005 E.F.Y, of which 98.77 percent was generated from local sales while the remaining 1.23 percent was generated from exports. Manufacturers of food, beverage products and chemicals and chemical products contributed the largest share of the total revenue generated during the quarter, amounting to 19.04, 15.66, and 13.18 percent of the total revenue, respectively, whereas, tobacco products manufacturing industries' revenue were the lowest, amounting only 1.64 percent of the total. Most of the establishments supplied their products to local markets, except manufacturing industries of tanning, which generated 17.86 percent of its revenue from export market, as shown in Table 4 below.

Manufacturing industries of tanning has earned about 48.7 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 15.86 billion birr was spent as cost of production in manufacturing industries in this quarter. This is equal to 76.7 percent of their revenue. Relative to revenue from sales, the highest expense for production related activities were registered in the quarter in Manufacture of other non-metallic products, tanning industries and Manufacture of fabricated metal products except machinery and equipment amounting to 1.27 billion, 741 million and 832 million birr, respectively.

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**Table 4: Revenue from Sales by Major Industrial Groupings**

*In 000' Birr*

Major Industrial Groupings	Revenue from sales						Stock	Expenses
	Local	%	Export	%	Total	%		
Manufacture of food products	3,937,499,793	98.16	73,889,636	1.84	4,011,389,430	100	1,078,788,486	2,455,596,193
Manufacture of beverage	3,238,981,209	99.96	1,407,528	0.04	3,240,388,737	100	163,522,594	1,656,812,920
Manufacture of tobacco products	338,548,355	99.9	313,211	0.09	338,861,566	100	45,899,684	120,764,299
Manufacture of textiles	667,735,855	96.23	26,163,000	3.77	693,898,855	100	46,493,863	369,580,238
Manufacture of wearing apparel, except fur apparel	355,371,635	93.78	2,760,956	0.73	378,951,482	100	67,006,663	190,856,792
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	524,427,820	82.14	113,993,247	17.86	638,421,067	100	327,223,306	741,966,759
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	1,847,013,399	100.00	-	-	1,847,013,399	100	179,574,075	1,306,043,411
Manufacture of chemicals and chemical products	2,726,525,055	99.51	13,530,030	0.49	2,740,055,085	100	216,999,973	3,054,499,226
Manufacture of rubber products	1,286,933,391	100.00	-	-	1,286,933,391	100	278,753,632	867,305,490
Manufacture of other non-metallic products	918,186,131	99.79	1,976,413	0.21	920,162,544	100	179,892,856	1,272,386,146
Manufacture of basic iron and steel	2,485,130,302	100.00	-	-	2,485,130,302	100	77,358,708	2,041,043,360
Manufacture of fabricated metal products except machinery and equipment	738,278,849	100.00	-	-	738,278,849	100	156,980,996	832,392,071
Manufacture of motor vehicles, trailers and semi-trailers	838,057,887	100.00	-	-	838,057,887	100	72,824,738	732,531,047
Manufacture of furniture	523,342,506	100.00	-	-	523,342,506	100	96,263,203	216,686,319
<b>Total</b>	<b>20,426,032,187</b>	<b>98.77</b>	<b>234,034,021</b>	<b>1.13</b>	<b>20,680,885,100</b>	<b>100</b>	<b>2,987,582,777</b>	<b>15,858,464,271</b>

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, 994 of them (41.89 percent) would expect a future change in their total revenue due to a growing local demand for their products. On the other hand, 744 respondents (31.35 percent) and 369 respondents (15.55 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.

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**Table 5 Number of establishments by Reason for Change in Sales revenue with respect to the coming quarter**

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	272	7	-	16	23	-	-	52	744
Manufacture of beverage	11	3	-	2	-	17	-	-	3	36
Manufacture of tobacco products	1	-	-	-	-	-	-	-	-	1
Manufacture of textiles	-	6	3	-	-	28	-	-	-	36
Manufacture of wearing apparel, except fur apparel	53	25	-	-	-	-	-	-	-	78
Tanning and dressing of leather manufacture of footwear, luggage and hand bags	100	58	10	7	-	-	-	-	-	175
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products .	145	47	19	-	1	14	-	-	6	232
Manufacture of chemicals and chemical products	23	24	-	-	-	23	-	-	3	73
Manufacture of rubber products	45	52	-	-	-	27	-	-	50	175
Manufacture of other non-metallic products	161	135	-	-	6	112	-	-	35	450
Manufacture of basic iron and steel	19	17	-	-	-	-	24	-	15	76
Manufacture of fabricated metal products except machinery and equipment	14	45	-	-	-	16	-	-	1	76
Manufacture of motor vehicles, trailers and semi-trailers	5	-	-	-	-	3	-	-	-	8
Manufacture of furniture	42	60	-	6	-	107	-	-	-	215
<b>Total</b>	<b>994</b>	<b>744</b>	<b>38</b>	<b>15</b>	<b>24</b>	<b>369</b>	<b>24</b>	<b>-</b>	<b>165</b>	<b>2,373</b>

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 decrease in demand for their products has increased significantly.

***Raw Materials***

Even though, raw material is one of the major factors of production, 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, 1,091 establishments, constituting 62 percent reported that the raw material is not available locally and hence, the major reason for depending on imported raw materials, as shown in Table 6 below. Moreover, Shortage of the available supply in the local market was reported as the second major reason by 472 establishment's i.e.27 percent of the total for relying on imported raw materials. In general, the results show that the raw material demand by local manufacturing industries couldn't be satisfied from domestic sources due to these major reasons mentioned above. Therefore, the respective government bodies and stakeholders must strive to build the capacity, interdependence and performance of manufacturing industries as a whole.

**Table 6 Distribution of Establishments by Reason for Dependency on imported Raw Materials**

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	249	43	269	46	19	3	12	2	33	6	581
Manufacture of beverage	4	8	41	87	-	-	2	5	-	-	47
Manufacture of tobacco products	-	-	1	100	-	-	-	-	-	-	1
Manufacture of textiles	-	-	30	100	-	-	-	-	-	-	30
Manufacture of wearing apparel, except fur apparel	25	29	12	14	-	-	-	-	48	56	85
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	15	9	134	77	-	-	25	14	-	-	174
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	84	34	150	60	8	3	7	3	1	1	250
Manufacture of chemicals and chemical products	8	9	73	91	-	-	-	-	-	-	80
Manufacture of rubber products	30	23	100	77	-	-	-	-	-	-	130
Manufacture of other non-metallic products	6	23	21	77	-	-	-	-	-	-	27
Manufacture of basic iron and steel	-	-	67	99	-	-	-	-	1	1	68
Manufacture of fabricated metal products except machinery and equipment	3	5	55	77	1	1	13	17	-	-	72
Manufacture of motor vehicles, trailers and semi-trailers	4	45	4	55	-	-	-	-	-	-	8
Manufacture of furniture	44	21	133	63	-	-	35	16	-	-	212
<b>Total</b>	<b>472</b>	<b>27</b>	<b>1,091</b>	<b>62</b>	<b>27</b>	<b>2</b>	<b>93</b>	<b>5</b>	<b>83</b>	<b>5</b>	<b>1,767</b>

***New Capital Expenditure***

New capital formation by the existing establishments in the quarter amounted to birr 1.34 billion. Of this amount, the share of other non metallic products, beverage manufacturing and manufacturing of rubber products were 406.9 million birr (30 percent), 199.8 million (14.9 percent), and 194.3 million (14.5 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 731.6 million (54.6 percent) of the total new capital expenditure was spent on new machinery and equipment, while birr 298.5 million (22.3 percent) and 192.3 million (14.3 percent) of the total capital expenditure was spent for buildings and vehicles respectively.

Total new capital expenditure in the sector has increased by more than 460 million birr as compared to the previous quarter in absolute terms. Regarding industrial groupings high investment in fixed capital was registered in manufacturing of other non-metallic and beverage products for Machinery & Equipment and Vehicles respectively.

**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	21,253,345	70,739,412	12,550,428	2,837,494	107,380,679
Manufacture of beverage	41,093,948	3,357,543	54,086,567	101,336,776	199,874,834
Manufacture of tobacco products	275,113	1,732,080	1,099,672	263,323	3,370,188
Manufacture of textiles	44,303,348	43,452,874	11,710,171	456,971	99,923,364
Manufacture of wearing apparel, except fur apparel	121,450	292,761	1,340,393	2,983,030	4,737,634
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	2,281,824	73,898	119,355	872,573	3,347,650
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products	7,089,570	50,144,580	4,665,854	1,610,341	63,510,345
Manufacture of chemicals and chemical products	19,695,533	32,311,735	44,753,548	4,543,203	91,004,019
Manufacture of rubber products	1,006,678	187,281,728	3,732,827	2,258,260	194,279,494
Manufacture of other non-metallic products	31,338,871	323,260,448	46,081,623	6,266,164	406,947,105
Manufacture of basic iron and steel	57,247,302	-	2,172,135	690,068	60,109,505
Manufacture of fabricated metal products except machinery and equipment	66,591,284	11,280,408	2,672,185	568,494	81,112,370
Manufacture of motor vehicles, trailers and semi-trailers	3,418,166	1,385,954	-	2,860,978	7,665,097
Manufacture of furniture	2,819,068	6,242,665	7,380,000	793,846	17,235,579
<b>Total</b>	<b>298,535,500</b>	<b>731,556,086</b>	<b>192,364,756</b>	<b>128,341,520</b>	<b>1,340,497,862</b>

**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 57.8 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 vehicle, trailers and semi-trailers and wearing apparel, except fur apparel amounting to 98.7 and 80.98 percent, respectively, while low level of capacity utilization was observed in manufacturing of chemical and chemical products, Manufacture of furniture and Manufacture of rubber products exhibiting 26.9, 43.7 and 45.7 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	101	193	355	216	<b>59.98</b>
Manufacture of beverage	6	29	7	11	<b>47.00</b>
Manufacture of tobacco products	-	-	1	-	<b>54.00</b>
Manufacture of textiles	-	27	5	5	<b>46.77</b>
Manufacture of wearing apparel, except fur apparel	-	1	52	32	<b>80.98</b>
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	55	12	93	18	<b>49.13</b>
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products .	5	9	110	131	<b>75.54</b>
Manufacture of chemicals and chemical products	40	12	13	15	<b>26.88</b>
Manufacture of rubber products	81	11	33	54	<b>45.69</b>
Manufacture of other non-metallic products	31	170	133	214	<b>64.33</b>
Manufacture of basic iron and steel	1	7	62	14	<b>62.55</b>
Manufacture of fabricated metal products except machinery and equipment	9	35	16	22	<b>48.67</b>
Manufacture of motor vehicles, trailers and semi-trailers	-	-	-	8	<b>98.73</b>
Manufacture of furniture	85	75	86	32	<b>43.72</b>
<b>Total</b>	<b>414</b>	<b>580</b>	<b>964</b>	<b>772</b>	<b>57.82</b>

As shown in Table 8 among the total manufacturing establishments included in this survey, 15.2 percent of them were operating below or equal to 25 percent of their capacity, while around 28.3 percent of the establishments have been operating above 75 percent of their full capacity during the survey period. 35.3 percent of the establishments have been utilizing between 51 and 75 percent of their full capacity, whereas 21.2 percent of them were operating between 26 and 50 percent. In general, the survey results indicate Ethiopian manufacturing industries are operating at a low level of capacity.

The average level of capacity utilization in the survey quarter has shown declining as compared to the previous quarters. On the other hand, the number of establishments which operated between 76 to 100 percent of their full capacity has 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 35 percent of them reported Lack of demand/market as the major reason for not operating at their full capacity. On the other hand 25 percent of them reported shortage of electricity and 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	%
<b>First Major reason for not working at full capacity</b>						
Shortage of raw materials	316	162	52	244	<b>775</b>	<b>34</b>
Shortage of spare parts	15	11	13	2	<b>41</b>	<b>2</b>
Shortage of foreign exchange	28	-	-	4	<b>31</b>	<b>1</b>
Lack of demand/market	440	101	7	258	<b>805</b>	<b>35</b>
Shortage of working capital	5	3	4	16	<b>29</b>	<b>1</b>
Shortage of electricity and water supply	63	44	40	31	<b>178</b>	<b>8</b>
Repeated breakage of machinery	50	79	57	34	<b>219</b>	<b>10</b>
Lack of skilled man power	-	-	1	26	<b>27</b>	<b>1</b>
Government rules and regulations	8	-	-	-	<b>8</b>	<b>0</b>
Others	151	-	8	16	<b>176</b>	<b>8</b>
<b>Total</b>	<b>1,075</b>	<b>400</b>	<b>183</b>	<b>632</b>	<b>2,289</b>	<b>100</b>
<b>Second Major reason for not working at full capacity</b>						
Shortage of raw materials	96	4	69	105	<b>274</b>	<b>17</b>
Shortage of spare parts	40	-	32	12	<b>84</b>	<b>5</b>
Shortage of foreign exchange	21	34	19	-	<b>74</b>	<b>5</b>
Lack of demand/market	114	27	19	164	<b>324</b>	<b>20</b>
Shortage of working capital	106	7	8	11	<b>132</b>	<b>8</b>
Shortage of electricity and water supply	206	60	15	123	<b>404</b>	<b>25</b>
Repeated breakage of machinery	70	14	-	33	<b>117</b>	<b>7</b>
Lack of skilled man power	1	-	-	54	<b>55</b>	<b>3</b>
Government rules and regulations	41	-	-	13	<b>55</b>	<b>3</b>
Others	61	24	14	-	<b>99</b>	<b>6</b>
<b>Total</b>	<b>758</b>	<b>170</b>	<b>176</b>	<b>515</b>	<b>1,618</b>	<b>100</b>
<b>Third Major reason for not working at full capacity</b>						
Shortage of raw materials	30	-	-	2	<b>32</b>	<b>3</b>
Shortage of spare parts	37	4	5	11	<b>56</b>	<b>6</b>
Shortage of foreign exchange	11	-	-	-	<b>11</b>	<b>1</b>
Lack of demand/market	4	-	-	6	<b>10</b>	<b>1</b>
Shortage of working capital	13	11	-	34	<b>58</b>	<b>6</b>
Shortage of electricity and water supply	111	27	-	46	<b>183</b>	<b>18</b>
Repeated breakage of machinery	55	43	21	93	<b>212</b>	<b>21</b>
Lack of skilled man power	29	-	9	35	<b>74</b>	<b>7</b>
Government rules and regulations	136	25	-	43	<b>205</b>	<b>21</b>
Others	61	3	11	85	<b>159</b>	<b>16</b>
<b>Total</b>	<b>487</b>	<b>113</b>	<b>46</b>	<b>354</b>	<b>1,000</b>	<b>100</b>

The number of establishments which reported “Lack of market demand ” as a major reason has increased significantly in this quarter as compared to the previous quarter which decreases in to 35 from 36 percent, Whereas those which reported ‘shortage of working capital’ as a major reason has shown a decline in this quarter. Besides 8 establishments reported government rules and regulation as a major problem for not operating at their full capacity.

**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:**

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

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  $i^{\text{th}}$  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:

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

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:

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

**5. Ratio estimates:**

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

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.