CENTRAL STATISTICAL AGENCY

BUSINESS STATISTICS

Revised

Report on

The 3rd Quarter of the 2004 E.F.Y.

Manufacturing Business Survey

ADDIS ABABA
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Report on

The 3rd Quarter of the 2004 E.F.Y Manufacturing Business Survey

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

3.1 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.

3.2 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.

3.3 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, starting from the 4th Quarter of 2008/09 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
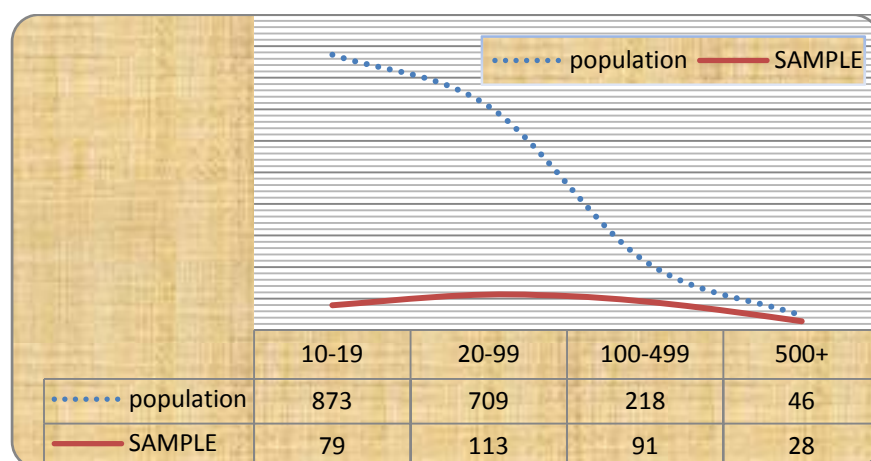
As regards to the ultimate coverage, the survey was not carried out for 45 establishments out of the sampled 310 establishments; 11 establishments were due to non-response and 34 establishments due to closure. As a result, the survey succeeded to cover 265 (85 percent) establishments throughout the country.

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 third quarter of 2004 E.F.Y., a total of 191,918 workers were engaged in the manufacturing industry, of which 130,427 (71 percent) were permanent while the remaining 52,421 (29 percent) persons were seasonal or temporary employees. Among the industrial groupings, manufacturing of food products contains the highest number of employs, employing around 35 percent of the total work force in the sector accompanied by Manufacture of other non-metallic products which took around 11.8 percent. On the other hand, Manufacture of motor vehicles, trailers and semi-trailers contributed 0.7 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	894	44,879	23,199	68,073
Manufacture of beverage	51	10,280	1,412	21,293
Manufacture of tobacco products	1	2,425	1085	3,510
Manufacture of textiles	45	11,261	1,283	12,544
Manufacture of wearing apparel, except fur apparel	53	9,087	588	9,674
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	149	11,004	2,595	13,599
Manufacture of wood and of products and cork, except furniture	-	-	-	-
Manufacture of paper & paper products.	132	8,241	1290	9,532
Manufacture of chemicals and chemical products	112	5,161	3,151	8,312
Manufacture of rubber products	67	3,988	567	4,556
Manufacture of other non-metallic products	584	11,106	11,980	22,661
Manufacture of basic iron and steel	82	2,629	1369	3,999
Manufacture of fabricated metal products except machinery and equipment	57	5,236	622	5,758
Manufacture of motor vehicles, trailers and semi-trailers	6	905	471	1,377
Manufacture of furniture	273	4,224	2,808	7,032
Total	2,507	130,427	52,421	191,918

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, 806 establishments responded that they would expect a change (upward or downward) in the number of employs due to different reasons. Out of these establishments, 12.82 percent of them forecasted there will be an increase in the number of employs, while 19.38 percent of them expect that the number of employs will decline in the next quarter. The remaining 67.79 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	62	140	693
Manufacture of beverage	15	2	34
Manufacture of tobacco products	-	-	1
Manufacture of textiles	-	13	31
Manufacture of wearing apparel, except fur apparel	-	1	52
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	42	3	105
Manufacture of wood and of products and cork, except furniture	-	-	-
Manufacture of paper & paper products.	29	5	98
Manufacture of chemicals and chemical products	23	2	87
Manufacture of rubber products	58	1	4
Manufacture of other non-metallic products	20	282	283
Manufacture of basic iron and steel	13	16	53
Manufacture of fabricated metal products except machinery and equipment	17	11	29
Manufacture of motor vehicles, trailers and semi-trailers	-	-	6
Manufacture of furniture	44	9	220
Total of Manufacturing	321	485	1,697
Total %	12.82	19.38	67.79

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 17.4 billon birr. Among the industries, the largest share of production value is contributed by manufacturing of food products accompanied by beverage processing and manufacture of basic iron and steel contributing 29.59 %, 17.03 % and 9.28 % of the total value, respectively. The smallest values of production were registered by manufacturers of furniture and tobacco manufacturing which are 0.97 and 0.59 % 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	5,157,822,776	29.59
Manufacture of beverage	2,968,720,908	17.03
Manufacture of tobacco products	103,486,089	0.59
Manufacture of textiles	1,252,210,711	7.18
Manufacture of wearing apparel ,except fur apparel	423,512,873	2.43
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	907,984,297	5.21
Manufacture of wood and of products and cork, except furniture	-	-
Manufacture of paper & paper products.	428,770,671	2.46
Manufacture of chemicals and chemical products	1,063,199,152	6.10
Manufacture of rubber products	630,073,495	3.62
Manufacture of other non-metallic products	1,058,948,924	6.08
Manufacture of basic iron and steel	1,617,332,723	9.28
Manufacture of fabricated metal products except machinery and equipment	1,121,794,347	6.44
Manufacture of motor vehicles, trailers and semi-trailers	527,075,311	3.02
Manufacture of furniture	168,202,072	0.97
Total	**17,429,134,350**	100.00

Revenue Generation and Prospects

A total of 18.6 billion birr was earned as revenue in the manufacturing sector during the third quarter of 2004 E.F.Y, of which 98.2 percent was generated from local sales while the remaining 1.8 percent was generated from exports. Manufacturers of food products, beverage and Tanning and dressing of leather, manufacture of footwear, luggage and hand bags products contributed the largest share of the total revenue generated during the quarter, amounting to 24.6, 20.0, and 10.0 percent of the total revenue, respectively, whereas, revenue from Manufacture of wearing apparel, except fur apparel were the lowest, amounting only 1.13 percent of the total revenue. Almost all of the establishments supplied their products to local markets, as shown in Table 4 below.

Manufacturing industries of tanning has earned about 10.93 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 13.9 billon birr was spent as cost of production in manufacturing industries in this quarter. This is equal to 75 percent of their revenue. Relative to revenue from sales, the highest expense for production related activities were registered in the quarter in the manufacture of textile products, manufacture of wood and of products and cork except furniture and Manufacture of fabricated metal products except machinery and equipment amounting to 1.5 billion, 679 million and 654 million birr, respectively.

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	4,485,168,584	98.06	78,274,586	1.71	4,574,116,377	100.00	6,638,366,142	3,985,106,348
Manufacture of beverage	3,718,533,426	99.82	6,828,410	0.18	3,725,361,836	100.00	1,182,226,893	1,935,230,874
Manufacture of tobacco products	320,359,137	100.00	-	-	320,359,137	100.00	66,566,639	130,766,691
Manufacture of textiles	1,108,706,809	100.00	-	-	1,108,706,809	100.00	49,444,883,788	1,526,504,762
Manufacture of wearing apparel, except fur apparel	200,436,988	95.70	9,009,455	4.30	209,446,442	100.00	412,960,186	199,974,717
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	1,655,255,424	89.07	203,146,458	10.93	1,858,401,882	100.00	9,191,751,171	749,936,694
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	591,280,392	100.00	-	-	591,280,392	100.00	2,204,914,563	679,860,846
Manufacture of chemicals and chemical products	1,400,104,737	98.66	19,019,258	1.34	1,419,123,995	100.00	3,418,843,208	1,352,830,572
Manufacture of rubber products	711,188,754	99.59	2,934,387	0.41	714,123,141	100.00	144,306,147	519,206,193
Manufacture of other non-metallic products	1,031,737,178	100.00	-	-	1,031,737,178	100.00	137,576,019	424,112,572
Manufacture of basic iron and steel	1,650,263,097	100.00	-	-	1,650,263,097	100.00	4,378,241,784	1,472,675,620
Manufacture of fabricated metal products except machinery and equipment	567,173,506	100.00	-	-	567,173,506	100.00	554,720,929	654,073,149
Manufacture of motor vehicles, trailers and semi-trailers	562,483,111	100.00	-	-	562,483,111	100.00	-	179,765,473
Manufacture of furniture	273,315,104	97.87	5,943,409	2.13	279,258,513	100.00	207,954,631	153,019,895
Total	**18,276,006,247**	**98.20**	**325,155,963**	**1.75**	**18,611,835,417**	**100.00**	**77,983,312,101**	**13,963,064,405**

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, 882 of them (41.3 percent) would expect a future change in their total revenue due to a growing local demand for their products. On the other hand, 415 respondents (19.4 percent) and 158 respondents (7.4 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 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	256	161	-	-	-	86	-	-	268	771
Manufacture of beverage	36	1	-	-	-	6	-	-	6	48
Manufacture of tobacco products	-	-	-	-	-	-	-	-	1	1
Manufacture of textiles	23	7	-	-	-	7	-	-	6	43
Manufacture of wearing apparel, except fur apparel	4	-	-	1	-	-	-	-	48	53
Tanning and dressing of leather manufacture of footwear, luggage and hand bags	43	27	2	-	-	-	13	-	14	99
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	117	3	-	-	-	1	-	-	6	127
Manufacture of chemicals and chemical products	55	1	4	-	-	11	-	-	40	110
Manufacture of rubber products	50	-	4	-	-	-	-	-	2	56
Manufacture of other non-metallic products	237	122	-	72	-	17	-	-	79	527
Manufacture of basic iron and steel	18	41	-	-	-	16	-	-	-	75
Manufacture of fabricated metal products except machinery and equipment	8	28	-	-	-	13	-	-	5	54
Manufacture of motor vehicles, trailers and semi-trailers	-	6	-	-	-	-	-	-	-	6
Manufacture of furniture	36	19	-	-	-	2	-	-	111	167
Total	882	415	9	73	-	158	13	-	586	2,136

As compared to the previous quarter, the number of establishments which would expect a change in their revenue in the next quarter due to different reasons has decreased.

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, 1,057 establishments, constituting 67 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 281 establishment's i.e.18 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										
	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	154	27	395	70	-	-	15	3	2	0	566
Manufacture of beverage	5	11	35	84	-	-	2	6	-	-	42
Manufacture of tobacco products	1	100	-	-	-	-	-	-	-	-	1
Manufacture of textiles	-	-	16	41	-	-	23	59	-	-	39
Manufacture of wearing apparel, except fur apparel	4	8	1	2	-	-	-	-	48	90	53
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	10	7	114	77	-	-	25	17	-	-	149
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-	-	-	-	-	-	-
Manufacture of paper & paper products.	41	31	89	68	1	1	-	-	-	-	132
Manufacture of chemicals and chemical products	4	3	107	97	-	-	-	-	-	-	110
Manufacture of rubber products	4	7	51	77	11	17	-	-	-	-	67
Manufacture of other non-metallic products	2	10	10	44	-	-	-	-	11	46	23
Manufacture of basic iron and steel	1	1	80	98	-	-	-	-	1	1	82
Manufacture of fabricated metal products except machinery and equipment	16	36	26	57	-	-	-	-	3	7	45
Manufacture of motor vehicles, trailers and semi-trailers	-	-	6	100	-	-	-	-	-	-	6
Manufacture of furniture	38	15	126	49	40	15	54	21	-	-	258
Total	281	18	1,057	67	52	3	120	8	64	4	1,574

New Capital Expenditure

New capital formation by the existing establishments in the quarter amounted to birr 627.2 million. Of this amount, the share of food products ,beverage manufacturing and Tanning and dressing of leather, manufacture of footwear, luggage and hand bags manufacturing industries was 174 million birr (27.8 percent), 122 million (19.6 percent), and 118 million (18.9 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 298.7 million (47.6 percent) of the total new capital expenditure was spent on vehicles, while birr 195.9 million (31.2 percent) and 155.3 million (24.8 percent) of the total capital expenditure was spent for machinery and equipment and buildings respectively.

Total new capital expenditure in the sector has decreased by 164.6 million birr as compared to the previous quarter in absolute terms. Regarding industrial groupings high investment in fixed capital was registered in manufacturing of beverage and food products for vehicles and building 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	80,847,427	47,577,651	37,421,561	8,780,597	174,627,236
Manufacture of beverage	12,479,041	41,527,377	126,714,769	37,801,285	122,675,396
Manufacture of tobacco products	-	-	-	-	-
Manufacture of textiles	29,943	4,870,561	5,796,049	597,948	11,294,511
Manufacture of wearing apparel, except fur apparel	-	2,975,206	7,727,893	17,527,627	28,230,726
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	26,282,244	42,881,570	48,858,560	460,187	118,482,652
Manufacture of wood and of products and cork, except furniture	-	-	-	-	-
Manufacture of paper & paper products.	3,089,952	650,059	153,303	1,061,171	4,954,286
Manufacture of chemicals and chemical products	4,213,273	7,781,538	3,325,661	1,919,229	17,239,701
Manufacture of rubber products	-	16,464	-	879,520	895,984
Manufacture of other non-metallic products	2,138,543	31,509,267	64,726,690	697,034	100,095,284
Manufacture of basic iron and steel	18,729,278	7,238,976	-	353,000	26,321,254
Manufacture of fabricated metal products except machinery and equipment	2,069,635	6,445,491	1,633,840	739,987	10,888,953
Manufacture of motor vehicles, trailers and semi-trailers	289,026	877,194	-	493,525	1,659,744
Manufacture of furniture	5,130,966	1,592,831	2,350,967	1,089,582	9,895,240
Total	**155,299,327**	**195,944,185**	**298,709,293**	**72,393,692**	**627,261,167**

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 54.49 percent of the capacity of the manufacturing industries was being utilized. A relatively high degree of capacity utilization was observed in the manufacture of rubber products and Manufacture of wearing apparel, except fur apparel paper amounting to 88.05 and 85.41 percent, respectively, while low level of capacity utilization was observed in manufacturing of textiles, manufacture of tobacco products and tanning exhibiting 35.57, 40.0 and 41.52 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	187	226	312	170	**54.78**
Manufacture of beverage	16	15	6	12	**44.98**
Manufacture of tobacco products	-	1	-	-	**40.00**
Manufacture of textiles	23	6	16	-	**35.57**
Manufacture of wearing apparel, except fur apparel	-	1	-	52	**85.41**
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags	28	87	14	20	**41.52**
Manufacture of wood and of products and cork, except furniture	-	-	-	-	**-**
Manufacture of paper & paper products.	-	18	87	27	**72.98**
Manufacture of chemicals and chemical products	40	13	14	45	**55.42**
Manufacture of rubber products	-	12	4	50	**88.05**
Manufacture of other non-metallic products	151	146	132	156	**48.62**
Manufacture of basic iron and steel	-	22	47	14	**60.28**
Manufacture of fabricated metal products except machinery and equipment	3	29	17	8	**53.48**
Manufacture of motor vehicles, trailers and semi-trailers	-	2	-	3	**68.38**
Manufacture of furniture	56	127	58	33	**52.77**
Total	**503**	**705**	**709**	**589**	**54.49**

As shown in Table 8 among the total manufacturing establishments included in this survey, 20.07 percent of them were operating below or equal to 25 percent of their capacity, while around 23.5 percent of the establishments have been operating above 75 percent of their full capacity during the survey period. Most of the establishments (28.3 percent) have been utilizing between 51 and 75 percent of their full capacity, whereas 28.1 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 a slight increment as compared to the previous quarters which was 53.82 percent. On the other hand, the number of establishments which operated between 76 to 100 percent of their full capacity has 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 indicates that 38 percent of them reported shortage of raw materials as the major reason for not operating at their full capacity. On the other hand 27 percent of them reported lack of demand/market 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	119	201	156	391	867	38
Shortage of spare parts	-	2	-	21	23	1
Shortage of foreign exchange	1	-	-	-	1	*
Lack of demand/market	42	200	94	238	575	25
Shortage of working capital	46	65	88	32	231	10
Shortage of electricity and water supply	43	91	32	117	283	12
Repeated breakage of machinery	17	-	4	88	109	5
Lack of skilled man power	-	-	-	54	54	2
Government rules and regulations	-	-	11	-	11	1
Others	-	-	-	134	134	6
Total	269	559	384	1,077	2,289	100
Second Major reason for not working at full capacity						
Shortage of raw materials	6	48	44	114	212	11
Shortage of spare parts	9	16	40	66	131	7
Shortage of foreign exchange	3	8	2	17	30	2
Lack of demand/market	85	169	17	272	543	27
Shortage of working capital	2	-	17	93	112	6
Shortage of electricity and water supply	45	30	94	145	314	16
Repeated breakage of machinery	12	84	55	85	236	12
Lack of skilled man power	46	-	-	5	52	3
Government rules and regulations	15	78	-	57	149	8
Others	40	83	69	34	225	11
Total	264	514	337	887	2,002	100
Third Major reason for not working at full capacity						
Shortage of raw materials	-	-	46	97	143	12
Shortage of spare parts	-	7	8	11	26	2
Shortage of foreign exchange	6	-	-	-	6	1
Lack of demand/market	3	15	58	31	107	9
Shortage of working capital	52	80	4	56	192	16
Shortage of electricity and water supply	23	28	30	112	194	16
Repeated breakage of machinery	8	131	57	41	237	19
Lack of skilled man power	22	-	4	85	111	9
Government rules and regulations	18	-	12	4	34	3
Others	51	34	21	82	187	15
Total	**182**	**294**	**240**	**520**	**1,236**	**100**

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, and also those which reported 'shortage of foreign exchange 'has shown a decline in this quarter is not found to be a major reason. Besides to this 2% of the establishments reported 'luck of skilled man

power' as their major reason and only 11 establishments reported 'government rules and regulations 'as a 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:

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

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.

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

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

3. Sampling variance of the estimates:

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

The variance of domain or reporting total estimate is:

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

Where,

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

Other notations are as defined above.

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

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

4. Coefficient of variation and confidence interval

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

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

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

And

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

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

5. Ratio estimates:

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

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

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

In which

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

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.