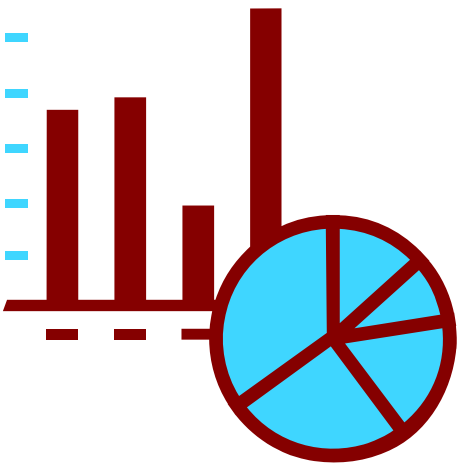
Central Statistical Agency

Quarterly Manufacturing Industry Business Survey, Fourth Quarter 1999 E.F.Y



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I. Introduction

Business Surveys are carried out to obtain information for use in monitoring the current business situation and forecasting short-term developments. Information from these surveys has proved of particular value in forecasting turning points in the business cycle. The range of information covered by business tendency surveys goes beyond variables that can easily be captured in conventional quantitative statistics. Qualitative information may be collected for variables that are difficult or impossible to measure by conventional methods. Examples include: capacity utilization, production bottlenecks, plans and expectations for the immediate future and managers' views on overall economic situation.

Hence the Central Statistics Agency (CSA) as the responsible body for statistical information on almost all socio-economic aspects in the country has a significant role to play in meeting the need for short term statistics, mainly current business survey, which is considered as bridging the gap between information demanded by users and information, held by respondents. *A 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.*

Thus to meet the demand of short term statistics the CSA has for the twelvth time, conducted quarterly Manufacturing Industry Business survey on the Large and Medium Scale Manufacturing Industries.

This Short Term Statistics (Manufacturing Industry Business Survey) tries to answer the following type of questions:-

- In which phase of the economic cycle the manufacturing industry is at present?
- What will be the probable development in the future?
- Is the manufacturing industry in the continuation of a movement already started (upward or downward) or is it at a turning or reversal point?

Short term statistics are also used to produce monthly or quarterly indicators, and provide statistical information that is necessary to improve the competitiveness and performance of the business community in the country.

II. Objectives of the Survey

The main objectives of the quarterly medium and large scale manufacturing business survey are to:

- compile and produce up-to-date, reliable and comparable information on the activity, competitiveness and performance of the industry,
- assist in economic analysis and forecast the future trend of the sector,
- be used in compiling the various components of quarterly national accounts, which in turn are needed in the calculation of GDP, and
- show the cyclical movement of the sector in terms of major indicators.

Therefore conducting current business survey on dynamic economic sectors like that of the manufacturing sector 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 to examine the nature of the sequence of evolution and future expectations in order to ensure that adequate decisions can be taken today.

Structure of this report

Section II deals with the objectives of the survey. Section III provides an overview of the survey methodology. Section IV presents the background on training of field staff for data collection. Section V discusses concepts and definitions applied in the survey. Section VI describes the steps covered in data entry, editing, cleaning and tabulation of the results. Section VII explores the findings of the survey. Finally Annex I, which describes the estimation procedure and Annex II Coefficient of Variation (CV) for selected variables, are attached at the end of this report.

Dear reader, as we are striving to improve our work and try to satisfy the needs of our users, we would like to hear from you. If you have any comments or suggestions to make, please feel free to do so. Our address is:-

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III. SURVEY METHODOLOGY

3.1 Scope and Coverage

The Quarterly Large and Medium Scale Manufacturing Business Sample Survey was conducted by CSA, covering only those establishments, which engaged 10 persons and above and are using power driven machines to produce their goods. Both public and private holding industries of all regions were covered by this quarterly sample survey.

3.2 Sampling Frame

The list of basic values of each and every establishment was obtained from the 2002/3 Large and Medium Scale Manufacturing Industries Census and was used as a frame in order to conduct this quarterly Large and Medium Scale Manufacturing Business Sample Survey.

3.3 Sample Design

A single stage stratified sample design has been implemented in order to select sample establishments. Each establishment was first grouped into a four-digit level International Standard Industrial Classification (ISIC). Each four-digit ISIC was then considered to be a stratum. However, in doing so, the total number of the four-digit level ISICs was found to be too many and the contribution of some of the ISICs to the total basic value was also very low. Hence, a cut-off strategy was adopted for the ISICs that have a contribution of less than 0.6 percent to the overall basic value. Therefore, a total of 33 out of 47 ISICs were finally taken into consideration. Fifteen domain 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, 130 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 130 sample establishments among the 33 ISICs since it increases the precision of small strata by slightly decreasing the precision of large strata.

A combination of systematic sampling and probability proportional to size (PPS) selection, size being basic value obtained from the frame, was used in order to select sample establishments from each of the 33 ISIC.

As regards to the ultimate coverage, the survey was not carried out in 11 establishments out of the sampled 130 establishments; 6 establishments due to non-response and 5 establishments due to closure after the end of the third quarter. As a result, the survey succeeded to cover 119 (91.5 percent) establishments through out the entire regions.

Estimation procedure of totals, ratios, sampling error and the measurement of precision of estimates (CV) are given in Appendix I and II respectively.

IV. Training of Field Staff and Data Collection

The training was conducted in one phase using staff members of the Industry Statistics Team (professionals and statistical technicians) and experienced branch statistical office staff in establishment surveys. Enumerator's manual was prepared for the survey to introduce the participants with the detailed explanations of the basic concepts and how to handle each and every part of the questionnaire.

Since the coverage of the sample is based on industrial groups rather than area coverage, only 15 out of the 25 branch offices of CSA have participated in this survey. 35 field staff participated in the training, of which 15 were assigned for Addis Ababa, while the remaining were drawn from other branch statistical offices. The refreshment training took two days and another ten working days were needed for data collection.

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 unlimited period of time. These workers are usually found regularly on the payroll of the establishment. Basically, this classification 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 a limited 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 at the factory, which includes the purchase 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 source and is the cost at the factory which includes the purchase 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, Quarters 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 manual 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 professional 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 one senior programmer from the Data Processing Department with technical assistance from the staff of Industry Statistics Team.

VII. Summary of Survey Findings

Employment

Survey results shown in Table 1 below indicate that, in the fourth quarter of 1999 E.F.Y., a total of 88,946 persons were engaged in the manufacturing industry, of which 77,297 (86.9 percent) of the workers were permanent , while the remaining 11,649 (13.1 percent) were seasonal or temporary employees. Among the industrial groups, manufacture of food products were found to be the major employers like in the previous quarters, where by they employed around 21.2 percent of the total work force in the sector followed by textile industries which constitute around 13.6 percent. On the other hand, tobacco manufacturing establishments were at the bottom in terms of offering employment opportunities as they offered a job opportunity only for 774 persons, which accounts near to 1 percent of the total employment in the manufacturing industry.

Table 1: Number of Persons Engaged by Major Industrial Groups, Fourth Quarter 1999 E.F.Y (2006/07)

Major Industrial Groups	Persons engaged			
	Number of establishments	Permanent	Seasonal	Total
Manufacture of food products.....	169	14,983	3,821	18,804
Manufacture of beverage.....	31	9,537	481	10,018
Manufacture of tobacco products...	1	774	-	774
Manufacture of textiles	15	10,956	1,119	12,075
Manufacture of wearing apparel, except fur apparel.....	104	5,105	1,119	6,224
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags…….	69	6,667	637	7,304
Manufacture of wood and wood products and cork, except furniture……	11	1,609	75	1,684
Manufacture of paper & paper products.	29	5,589	594	6,183
Manufacture of chemicals and chemical products……	37	3,394	651	4,045
Manufacture of rubber products…….	40	3,040	430	3,470
Manufacture of other non-metallic products……	59	7,694	1,380	9,074
Manufacture of basic iron and steel……	9	1,236	25	1,261
Manufacture of fabricated metal products except machinery and equipment……	98	2,709	236	2,945
Manufacture of motor vehicles, trailers and semi-trailers……...	4	986	425	1,411
Manufacture of furniture…….	234	3,018	656	3,674
Total Manufacturing	**910**	**77,297**	**11,649**	**88,946**

Compared with the previous year's same quarter, total employment has shown a slight decline and manufacture of food products continued to be the leading industry in terms of offering the largest employment in the sector.

As a follow-up, respondents were also asked regarding their expectations on the number of employees in the next quarter. As presented in Table 2 below, 87 establishments responded that they expect a change (upward or downward) in the number of the work force due to different reasons. Out of these establishments, 68 establishments (78.2 percent) forecasted an increase in the number of workers due to a growing demand for their products, while 15 establishments (17.2 percent) expected a decrease /increase in the number of workers in the next quarter due to different reasons.

Table 2: Number of Reporting Establishments by Reason for Change In the Next Quarter's Number of Persons Engaged, Fourth Quarter 1999 E.F.Y (2006/07)

Reasons for change (from the previous quarter)	Number of establishments	Percentage
High /increasing demand for the products…	68	78.16
Decreasing/low demand for products ……..	2	2.3
Shortage of working capital……..	-	-
Shortage of raw materials…….	2	2.3
Others……	15	17.24
Total	**87**	**100.00**

In this quarter the ratio of the establishments which expected an increase in their employment in the coming quarter have increased as compared to the same period in 1998 E.F.Y. and on the other hand shortage of capital reported by any of the establishments unlike the previous quarter.

Revenue Generation and Prospects

A total of 4.3 billion birr was earned as revenue by the manufacturing industry during the fourth quarter of 1999 E.F.Y, of which 94.0 percent was generated from local sales, while the remaining 6.0 percent was generated from exports. Manufacture of other non-metallic products and Manufacture of food product establishments take the largest share in terms of total revenue generation during the quarter as they generate 17.0 and 16.7 percent of the total revenue of the sector, where as wearing apparel industries were at the bottom with revenue amounting to only 0.7 percent of the total. Similar to previous quarters, most of the

establishments supplied their products to local markets, except tanning and leather industries which generated 74.8 percent of their revenue from export, as shown in Table 3 below. This trend indicates still the export performance of Ethiopian manufacturing industries is very low and it is also an affair of very few manufacturing industries.

Table 3: Revenue from Sales by Major Industrial Groups, Fourth Quarter 1999 E.F.Y (2006/07)

in 000' Birr

Major Industrial Groups	Revenue from sales					
	Local	%	Export	%	Total	%
Manufacture of food products.....	708,016	98.35	11,846	1.65	719,862	100.00
Manufacture of beverage.....	606,815	99.83	1,029	.17	607,844	100.00
Manufacture of tobacco products...	103,341	100.00	-	-	103,341	100.00
Manufacture of textiles.....	398,037	95.88	17,096	4.12	415,133	100.00
Manufacture of wearing apparel, except fur apparel.....	31,130	100.00	-	-	31,130	100.00
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags…….	90,850	25.20	269,601	74.80	360,451	100.00
Manufacture of wood and of products and cork except furniture ……	31,833	100.00	-	-	31,833	100.00
Manufacture of paper & paper products..	166,128	100.00	-	-	166,128	100.00
Manufacture of chemicals and chemical products……	216,878	100.00	-	-	216,878	100.00
Manufacture of rubber products…….	168,704	98.04	3,365	1.96	172,069	100.00
Manufacture of other non-metallic products……	733,154	100.00	-	-	733,154	100.00
Manufacture of basic iron and steel……	136,975	100.00	-	-	136,975	100.00
Manufacture of fabricated metal products except machinery and equipment……	265,134	100.00	-	-	265,134	100.00
Manufacture of motor vehicles, trailers and semi-trailers……...	293,384	100.00	-	-	293,384	100.00
Manufacture of furniture…….	54,960	100.00	-	-	54,960	100.00
Total Manufacturing	**4,005,338**	**94.03**	**302,937**	**5.97**	**4,308,275**	**100.00**

Moreover compared to the previous quarter, total revenue generated in this quarter increased by 19.0 percent. The significant increase in the total revenue is observed in the manufacture of other non-metallic products (cement and cement products). On the same note, the total revenue in manufacture of fabricated metal products except machinery and equipment has also increased by 141.1 percent against the previous quarter which was mainly due to high demand for their products.

The manufacturing establishments were also asked about the likely direction of their sales revenue in the next quarter. Among the establishments that responded to this question,

404 of them (65.9 percent) expect a future increase in their total revenue due to a growing local and international demand for their products, even though the international demand was found to be insignificant as shown in Table 4 below. On the other hand, around 207 establishments (33.8 percent) expect a future decline in their total revenue for reasons such as a decreasing demand for their products both locally and internationally and high cost of inputs. However, inability to compete with either local products or imported items has not been mentioned as a reason by any of the establishments for a decline in the revenue to be generated in the next quarter.

Table 4: Number of Establishment by Reason for Change in Next Quarter's Revenue from Sales, Fourth quarter 1999 E.F.Y (2006/07)

Reasons for Change (from the previous quarter)	Number of establishments	Percentage
Increasing demand for products	404	65.91
Locally…….	398	64.93
Internationally…….	6	.98
Decreasing demand for products	188	30.67
Locally…….	188	30.67
Internationally……	-	-
Cost of inputs……..	19	3.10
Unable to compete with:	-	-
Local manufactures ……..…….	-	-
Imported items……	-	-
Others……..	2	.33
Total	**469**	**100.00**

Compare to the previous year's same quarter, the number of establishments which expect increase in their revenue were increased by 40.3 percent. On the same note the number of establishments which expect a decrease in their revenue in the next quarter due to a decrease in demand for their product has shown an increase in the quarter under consideration.

Raw Materials

The majority of the Ethiopian manufacturing establishments are known for their high dependence on imported raw materials in their production activities and this urges one to ask the reason for such huge dependence. Among the total respondents, 399 establishments, which make up 70.9 percent, reported that unavailability of raw materials locally is the major reason for relying on imported raw materials as depicted in Table 5 below. Lack of sufficient local supply was reported a major reason by 92 establishments (16.3) percent where as unreliable local supply and quality and other reason constitute 0.2, 10.7 and 2.0 percents, respectively as major reasons for relying on imported raw materials. 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 this calls for the government and other stakeholders to look into the issue in order to reduce the outflow of the scarce foreign currency and to minimize the impact on domestically produced raw materials.

Compared to previous year's same period, the number of establishments, which reported 'not available locally' as a major reason for not using locally produced raw materials have shown a decline in this quarter whereas the number of establishments which reported unreliable quality of locally produced raw materials have significantly increased in this quarter.

Table 5: Distribution of Reporting Establishments by Reason for Using Imported Raw Materials, Fourth Quarter 1999 E.F.Y (2006/07)

Major Industrial Groups	Lack of Sufficient Supply locally		Not available locally		Local supply Is not reliable		Quality of locally available raw material is not reliable		Others reasons		Total	
	No	%	No	%	No	%	No	%	No	%	No	%
Manufacture of food products.....	9	5.70	138	87.34	-	-	-	-	11	6.96	158	100.00
Manufacture of beverage.....	1	6.25	14	87.50	1	6.25	-	-	-	-	16	100.00
Manufacture of tobacco products…….	-	-	1	100.00	-	-	-	-	-	-	1	100.00
Manufacture of textiles.....	-	-	14	93.33	-	-	1	6.67	-	-	15	100.00
Manufacture of wearing apparel, except fur apparel.....	-	-	9	100.00	-	-	-	-	-	-	9	100.00
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags……	12	17.39	57	82.61	-	-	-	-	-	-	69	100.00
Manufacture of Wood and of wood products and cork, except furniture..	-	-	11	100.00	-	-	-	-	-	-	11	100.00
Manufacture of paper & paper products……..	6	40.00	9	60.00	-	-	-	-	-	-	15	100.00
Manufacture of chemicals and chemical products……	2	9.09	20	90.91	-	-	-	-	-	-	22	100.00
Manufacture of rubber products….	-	-	48	100.00	-		-	-	-	-	48	100.00
Manufacture of other non metallic Products…….	1	11.11	8	88.89	-	-	-	-	-	-	9	100.00
Manufacture of basic iron and steel	-	-	9	100.00	-	-	-	-	-	-	9	100.00
Manufacture of fabricated metal products except machinery and equipment……	-	-	25	29.76	-	-	59	70.24	-	-	84	100.00
Manufacture of motor vehicles, trailers and semi-trailers…….	-	-	3	100.00	-	-	-	-	-	-	3	100.00
Manufacture of furniture……	61	64.89	33	35.11	-	-	-	9.68	-	-	94	100.00
Total Manufacturing	**92**	**16.34**	**399**	**70.87**	**1**	**.18**	**60**	**10.66**	**11**	**1.95**	**563**	**100.00**

New Capital Expenditure

New capital expenditure by the existing establishments in the quarter amounted to birr 135.7 million. Of this, the lion's share (i.e., birr 31.5 million or 23.2 percent) was spent by manufacture of fabricated metal products except machinery and equipment followed by beverage industries which invested birr 25.7 million (18.9 percent) as shown in Table 6 below. The establishments have been investing their capital for acquisition of various fixed assets such that around birr 64.2 million (47.3 percent) of the total new capital expenditure was spent on acquiring new machinery and equipment while birr 46.9 million (34.6 percent) of the total capital expenditure was spent on vehicles in the quarter under review.

Total new capital expenditure in the sector has increased by more than birr 15.9 million birr (13.3 percent) as compared to the same period last year. Out of the total new capital expenditure most of the expenditure went to machinery and equipment in both periods. The probable reason why new capital expenditure on machinery and equipment takes the lion's share from the total in both quarters is that, production of goods is closely linked to machineries which in turn makes them to depreciate quickly, and this entails a continuous demand for machineries and equipment.

Table 6: Value of New Capital Expenditure on Fixed Assets of the Existing Establishments by Type of Fixed Asset and Major Industrial Group, Fourth Quarter 1999 E.F.Y (2006/07)

Major Industrial Groups	Building	Machinery & equipment	Vehicles	Others	Total
Manufacture of food products.....…….	1,852,525	4,415,181	4,805,807	592,063	11,665,576
Manufacture of beverage.....……	5,391,780	4,611,185	14,381,525	1,296,318	25,680,808
Manufacture of tobacco products.……	-	-	-	-	-
Manufacture of textiles .....……	2,239	5,617,866	2,258,399	329,399	8,207,903
Manufacture of wearing apparel, except fur apparel.....	-	-	630,000	-	630,000
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags…….	1,733,036	1,867,077	-	-	3,600,113
Manufacture of wood and of wood products and Cork, except furniture……..	29,476	268,433	-	79,024	376,933
Manufacture of paper & paper products…	936,700	336,580	983,000	1,723,171	3,979,451
Manufacture of chemicals and chemical products…….	3,088,734	8,620,388	4,380,173	524,277	16,613,572
Manufacture of rubber products …….	-	1,313,789	662,029	109,356	2,085,174
Manufacture of other non-metallic products…….	-	7,810,996	679,956	674,977	9,165,929
Manufacture of basic iron and steel ……	-	-	17,200,000	36,739	17236739
Manufacture of fabricated metal products except machinery and equipment……..	1,945,695	29,190,848	295,006	57,800	31,489,349
Manufacture of motor vehicles, trailers and semi-trailers……..	1,587,913	12,921	650,000	150,230	2,401,064
Manufacture of furniture……	2,283,000	157,605	-	124,792	2,565,397
Total Manufacturing	**18,851,098**	**64,222,869**	**46,925,895**	**5,698,146**	**135,689,008**

Capacity Utilization

In almost all short-term business surveys, capacity utilization is 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 was regarding the existing level of capacity utilization by the establishments in the different industrial groups, whereas the second question was about the reasons for operating under their full capacity. As shown in Table 7 below, during the quarter only 54.6 percent of the total capacity is being utilized by the manufacturing establishments, while around 45.4

percent of the total capacity remains unexploited. A relatively high degree of capacity utilization was observed in manufacture of wood products (85.8 percent) while a low level of capacity utilization was observed in manufacture of furniture (40.8 percent).

Table 7: Distribution of Establishments by Percentage of Capacity Utilization, Fourth Quarter 1999 E.F.Y (2006/07)

Major Industrial Groups	Number of establishments				
	≤ 25 %	26-50%	51-75%	76-100%	Average
Manufacture of food products.....	8	62	78	21	59.09
Manufacture of beverage.....	-	15	1	15	64.99
Manufacture of tobacco products...	-	-	1	-	62.00
Manufacture of textiles	-	10	4	1	53.52
Manufacture of wearing apparel, except fur apparel.....	2	93	7	2	47.16
Tanning and dressing of leather, manufacture of footwear, luggage and hand bags…….	-	50	15	4	50.90
Manufacture of wood and wood products and cork, except furniture……	-	-	-	11	85.79
Manufacture of paper & paper products.	-	5	3	21	85.33
Manufacture of chemicals and chemical products……	5	1	12	7	62.77
Manufacture of rubber products……	-	3	45	1	60.60
Manufacture of other non-metallic products…….	25	2	21	9	45.51
Manufacture of basic iron and steel……	-	-	4	5	82.24
Manufacture of fabricated metal products except machinery and equipment……	-	59	2	23	51.70
Manufacture of motor vehicles, trailers and semi-trailers……...	1	-	-	3	61.68
Manufacture of furniture…….	-	77	17	1	40.76
Total Manufacturing	**41**	**377**	**210**	**124**	**54.56**

As shown in Table 7, among the total manufacturing establishments included in this survey, 5.5 percent of them were operating below 25 percent of their capacity while around 16.5 percent of the establishments have been operating above 75 percent of their full capacities. Most of the establishments (50.1 percent) have been utilizing between 26 and 50 percent of their full capacities, whereas 27.9 percent of them were operating between 51 and 75 percent capacity utilization category. In general, the survey results indicate the low level of capacity utilization in Ethiopian manufacturing industry.

The average level of capacity utilization in this quarter has slightly increased as compared to the pervious year's same quarter. Meanwhile, the number of establishments which operated below 25 percent of their full capacities has shown a decrease in this 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 from the establishments which are presented in Table 8 show that 317 of the establishments (around 45.4 percent), reported lack of demand as a major cause for not operating at their full capacity. On the other hand, 114 establishments (i.e., 16.3 percent) reported problems related with electricity and water as major reasons for not operating at full capacity. None of the establishments reported problems with workers, government rules and regulations, lack of skilled manpower and shortage of foreign exchange as obstacles to produce under full capacity.

Table 8: Number of Establishments by Reason for not working at Full Capacity, Fourth Quarter 1999 E.F.Y (2006/07)

Reasons for not working at full capacity	Number of Establishments by age of Establishments (years)				Total number of Establishments	Percentage
	< 3yrs	3 -5 yrs	6 - 8 yrs	8 + yrs		
Shortage of raw materials……	-	-	16	91	107	15.31
Shortage of spare parts……	-	-	6	-	6	.86
Shortage of foreign exchange……	-	-	-	-	-	-
Lack of demand/market……	-	8	68	241	317	45.35
Shortage of working capital……..	2	-	14	25	41	5.87
Problem with electricity and water …….	-	-	31	83	114	16.31
Repeated breakage of machinery……..	-	-	-	23	23	3.29
Problem with workers……..	-	-	-	-	-	-
Lack of skilled manpower……	-	-	-	-	-	-
Government rules and regulations……	-	-	-	-	-	-
Other reasons……	1	-	25	65	91	13.02
Total	**3**	**8**	**160**	**528**	**699**	**100.00**

The number of establishments which reported 'lack of market demand' as a reason has risen in this quarter as compared to previous year's same period whereas those which reported 'shortage of raw material' has shown a decline in this quarter.

Establishments' Assessment of the General Business Policy Environment

In this survey establishments were asked to evaluate the impact of the general business and policy environment on their activities and respondents were also expected to range the effects into five scales depending on the influence of the effects. Regarding the general business environment, proximity to the domestic market had no effect on the working environment of majority of the establishments (i.e., 43.2 percent) and absence of the required amount of raw materials was reported to have a negative effect on the business environment of 78.1 percent of the establishments as shown in Table 9. Corruption was not mentioned as an obstacle for the majority of the establishments (69.5 percent) whereas 25.0 percent of the establishments claimed that smuggling has a strong negative effect on their business environment.

The trading environment of the establishments could affect businesses either positively or negatively depending on the issues under consideration. In line with this, competition with imported items was found to have a negative effect on around 38.2 percent of the establishments though this factor doesn't have any effect on 46.7 percent of the establishments. Around 57.8 percent of the establishments reported that issues related with accessibility of international markets don't have any effect on their trading environment while its absence affected negatively 17.3 percent of the establishments.

The third group of policy environment is fiscal policy which includes the tax system, customs and loans from banks. The existing tax policy had a negative effect on the working environment of 45.5 percent of the establishments while 50.5 percent of the establishments reported that the existing tax system is not bringing any challenge to their working environment. Majority of the establishments revealed that the customs duty has no effect even though some of them (30.1 percent) are claiming that it has a negative effect on their activities. Regarding loans from banks nearly 62.0 percent of the establishments reported that loans from banks do not affect their business environment, while 15.2 percent and 14.9 percent claimed that they have positive and negative effects, respectively.

Table 9: Percentage Distribution of Establishments' Judgment on General Business and Policy Environment Affecting the Manufacturing Establishment, Fourth Quarter 1999 E.F.Y (2006/ 07)

Business Environment	Strong positive effect	Limited positive effect	No effect	Strong negative effect	Limited negative effect	Not applicable	Total
General Business Environment							
Proximity to the domestic market.. ……	17.55	23.94	21.81	9.84	3.72	23.14	100.00
Availability of raw materials ……..……	2.39	15.27	19.79	19.39	20.05	23.11	100.00
Corruption…… ……..……	-	.4	53.46	2.66	9.97	33.51	100.00
Smuggling……..…… .	.27	1.99	37.63	15.16	9.18	35.77	100.00
Trading Environment							
Competition with imports……..……..	.40	2.39	19.92	11.55	30.28	35.46	100.00
Access to international market…..……..	.66	3.59	44.68	5.59	5.72	39.76	100.00
Fiscal Policy							
Tax…… ….	.53	6.65	30.72	23.14	15.69	23.27	100.00
Customs Duty……	.93	2.66	40.16	4.52	16.09	35.64	100.00
Loans from banks……..……..	2.93	15.43	38.03	7.58	3.32	32.71	100.00
Infrastructure							
Inland transport efficiency……..…… …	2.13	29.79	30.45	3.19	9. 71	24.73	100.00
Inland transport cost ……..……	.40	13.64	29.14	10.73	14.44	31.66	100.00
Electric supply ……..……	8.37	11.29	27.49	6.77	22.97	23.11	100.00
Cost of electricity……..……	.53	8.24	34.57	19.55	13.96	23.14	100.00
Water supply ……..……	9.56	7.84	42.50	5.18	11.69	23.24	100.00
Cost of water……..……	5.72	9.57	42.69	7.85	10.90	23.27	100.00
Telephone, fax and internet……..	12.88	8.37	37.85	4.91	5.98	30.01	100.00
Labour Factors							
Availability of skilled labour……..…… …	23.54	25.27	14.63	6.25	7.18	23.14	100.00
Cost of skilled labour…… ….	3.19	24.04	36.92	4.25	8.50	23.11	100.00
Productivity of skilled labour…… …	28.69	15.67	23.64	1.73	6.91	23.37	100.00
Ease of hiring and firing of workers……..……	3.45	.53	52.46	3.85	15.94	23.77	100.00
HIV/AIDS							
Absenteeism…… …….	.27	-	34.31	5.19	19.95	40.29	100.00
Medical expenses…… …….	.27	.40	39.84	3.98	15.27	40.24	100.00
Others Factors							
Environmental legislation and controls…… ……	9.71	2.13	42.82	.13	9.44	35.77	100.00

The other business environment assessed is infrastructure, which includes inland transport (its cost and efficiency), electric supply, cost of electricity, water supply, and cost of water and telecom services. The results in Table 9 show that the current transportation facility is considered to be efficient for 31.9 percent of the establishments, while 12.9 percent of them reported that the inefficient transport services are negatively affecting the exiting business environment. On the other hand, the prevailing cost of inland transport is adversely affecting near to 25.2 percent of the establishments.

The existing supply of electricity was found to affect negatively 29.7 percent of the establishments where as 19.7 percent of them have reported uninterrupted supply of electric power has a positive influence on their business environment. Similarly, the cost of electricity has been bringing challenges to the working environment of 33.5 percent of the establishments, while majority of the industries are not affected by the prevailing cost of electricity. Regarding water supply 16.9 percent of the establishments are negatively affected by the unreliable water supply and 42.5 percent of the establishments, on the other hand, reported that they don't have problems related with water supply. 18.9 percent of the establishments are unhappy with the cost of water whereas 42.7 percent of them are not facing problems with regard to existing cost of water supply.

Availability of skilled manpower has been positively influencing the working environment of 48.8 percent of the establishments whereas its absence has negatively affected around 13.4 percent of the establishments. On the other hand, near to 13 percent of the establishments reported that they are adversely affected by the existing cost of skilled labour, though majority of them didn't mention it as a problem. With regard to productivity of employees, which is an important concern in the manufacturing sector, 44.4 percent of the establishments witnessed that they are satisfied with the productivity of their employees which in turn influenced their working environment positively. The survey result also indicated that issues related with hiring and firing of workers has not introduced any challenge on the working environment to most of the establishments.

Now a days manufacturing industries in developing nations are highly affected by the prevalence of HIV/AIDS pandemic through claiming the lives of productive and skilled labour force and this has been influencing the performance of the industries and the economies of the nations in general. However, 34.3 percent of the Ethiopian manufacturing establishments responded that they are not affected by absenteeism as a result of HIV/AIDS and the medical expenses due to the disease has been affecting only 19 percent of the establishments. Furthermore, around 40 percent of the establishments are unaware of the effects of absenteeism and the extra medical expense due the disease. This might indicate the lower attention offered to the issue by the establishments and this entails further efforts and interventions to minimize the ill effects of the disease.

Finally, establishments were asked regarding the effect environmental legislations and controls and the results indicated that 43 percent of the establishments were not found to be influenced either positively or negatively while around 9.6 percent of them reported that such issues are influencing the working environment negatively.

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:

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

Where,

$W_{hi} = \dfrac{M_h}{n_h M_{hi}}$ is the basic sampling weight

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

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

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

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

Note:

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

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

- 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:

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

and

Ninety five percent confidence interval (CI) of domain total is:

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

5. Ratio estimates:

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

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.