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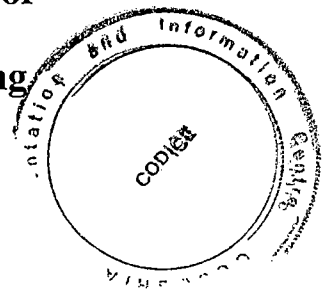
ANALYSIS OF EMPLOYMENT IN SMALL SCALE INDUSTRIES OF ETHIOPIA

A Thesis
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ADDIS ABABA UNIVERSITY
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ANALYSIS OF EMPLOYMENT
IN
SMALL-SCALE INDUSTRIES OF ETHIOPIA

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ABSTRACT

Emphasis is often placed on the promotion of small scale industries in developing countries, including Ethiopia, as a means of creating large employment possibilities. This focus raises questions about the role of small scale industries in alleviating the employment problem of developing countries. Do flexible capital-labour substitution possibilities exist in small scale industries so as to allow small scale industries to employ a growing number of persons? Are small scale industries efficient utilizers of resources? More specifically, do small scale industries generate productive and remunerative jobs?

This study goes someway towards answering the above questions.

The variants of the Constant Elasticity of Substitution (CES) production function are fitted in order to examine the labour absorptive capacity of small scale industry. The results tend to show the existence of limited scope for factor substitution possibilities in small scale industry.

The Cobb-Douglas production function is also fitted in order to test whether employment in small scale industry was productive or not. The results indicate the existence of disguised unemployment, that is, a situation where workers appear to be employed but in fact are not contributing to the net social output.

In order to have insights into the remunerative capacity of small scale industries, the average payments made to different categories of persons engaged in small scale industries is compared with the official minimum wage rate as well as with the poverty line estimated for Ethiopia. According to the estimates, a significant proportion of the labour force has been earning inadequate income.

CHAPTER ONE

1. INTRODUCTION

1.1. Defining the Small-Scale Industry

For many years a 3 way classification of manufacturing activities was commonly used in industrial studies in Ethiopia: (i) large and medium scale industries, (ii) rural cottage and handicraft industries, and (iii) urban modern small scale manufacturing enterprises [Teshome, 1994:5]

Medium and large scale industries [MLSIS] are all manufacturing establishments covered by Central Statistical Office surveys [ILO, 1983]. Central Statistical Authority's Annual Survey of Manufacturing and Electricity Industries covers those establishments which engage 10 persons and above and use power driven machines [Teshome, 1994]. Prior to 1975, most of MLSIs were owned by foreigners [UNIDO, 1991]. Since 1975, following a vigorous nationalization drive and the adoption of a development strategy that impinged on the expansion and development of the "public economy", most of the large and a few of the medium scale enterprises were owned and managed by the state, mainly by the Ministry of Industry [Teshome, 1994].

In Ethiopia, until the issuance by the government of Proclamation No. 124 of 1977 (which provides a legal definition) terms such as small scale industry, cottage industry and handicrafts were used interchangeably or in an undifferentiated fashion [ILO, 1983:27].

Per the definitions provided in the proclamation that established Handicrafts and Small Scale Industries Development Agency (HASIDA),

> "Small Scale Industry" shall mean any manufacturing activity which normally uses motive power and machines and which has fixed assets the value of which does not exceed 200,000 Birr excluding buildings and land improvements, whereas "handicrafts" shall mean any manufacturing activity which predominantly uses manual skills and hand tools. [Negarit Gazeta, 1977:209]

As stated by Teshome [1994], the factor that differentiates SSIs from handicrafts is the "use of motive power and machines". The other basic factor used in the definition of an SSI is the "capital ceiling". However, this ceiling is at variance with "capital ceiling" provided for private industry generally in proclamation No. 76/1975 which sets it at "not exceeding 500,000 Birr" [Negarit Gazeta 1975]. The difference between the two limits presumably maps out the investment range for private medium or large scale manufacturing units [Teshome, 1994]. Following a government

policy switch from "Socialism" to a "Mixed economy", Decree No. 9/1989 was issued which raised the capital ceiling to a new high.

> "Small scale industry" means any manufacturing, formulation, alteration, prefabrication and preparation activity organized with a capital ceiling (... of 2 million Birr in the case of an individual entrepreneur, of 4 million Birr in the case of ownership by a cooperative or business organization, and a <u>total capital ceiling</u> established by an individual or by an organization of 4 million Birr and 8 million Birr respectively...) and carried using mainly motive power driven machinery and equipment with a view to selling produce and includes engineering services [Teshome, 1994:9].

Defining SSIs by the size of investment poses problems since, with capital accumulation, the capital ceiling would have to be continually revised upwards. Indeed, Teshome [1994] argued, during a survey in 1984, HASIDA discovered that many small scale manufacturing enterprises had accumulated capital stock in excess of the "legal" limits.

The definition of SSI adopted in this and subsequent HASIDA Survey reports was the following:

> "A small scale manufacturing and engineering service establishment" is any manufacturing establishment except handicrafts which is, (a) in a fixed location within an urban center, (b) uses either manually operated machinery and equipment or motive-power-driven machinery and equipment and engaged in the mechanical or chemical transformation of substance into new product and in the fabrication, assembly, reconstruction, renovation, alteration and repair, (c) which employs at least one person other than the owner/owners, unpaid family workers and/or apprentices and (d) which has fixed assets not exceeding 1 million Birr for sole proprietorship and 2 million Birr for partnership, excluding investment on improvements made on land and building [Teshome, 1994:10].

Another concept which frequently appears in the literature is the term formal and informal sector. The boundary line between these two has always been vague ever since Keith Hart coined the words and the ILO employment mission to Kenya Popularized them [ILO, 1990]. An international conference called, among other things, to consider this matter failed to reach a consensus over the differentiation between the "formal" and "informal" sectors of a labour market in a developing economy [Teshome, 1976]. For more details one may consult Teshome's (1991) work on Promotion of Informal Sector Development in Africa: A review Study.

In connection with this, a distinction is usually made between "formal" and "informal" manufacturing industries. For example, ILO (1990) report on Ethiopia considered as informal manufacturing enterprises, "small scale and handicraft industries" which are privately owned and operate with or without "proper" HASIDA license and has a some what fixed location. Moreover, practical surveys undertaken by HASIDA do not only include modern small scale industries but also small cottage industries [Teshome, 1994; Solomon, 1992].

As could be observed from the above analysis, different criteria, such as number of employees, value of fixed capital, use of power driven machines were used to define the size of industrial establishments in Ethiopia. Measures used to define SSIs are also inconsistent from period to period. Consequently it is difficult, if not impossible, to draw a precise boundary among MLSIs, SSIs and handicrafts. In spite of the conceptual

difficulties in defining small scale industries, for the
purpose of this study, small scale industries represent
manufacturing establishments surveyed and reported by HASIDA as
small scale manufacturing industry.

1.2   Statement of the Problem

Manufacturing activities in the Ethiopian economy are
carried out by enterprises of varying sizes and scales: the
modern manufacturing enterprises, the small scale manufacturing
enterprises and the handicraft activities [Teshome, 1984].

The argument often heard in support of small scale
industries is that they offer a cost effective means of
tackling urban unemployment, one of the Ethiopia's most
pressing social problems [See for example, UNIDO, 1991:56]
Moreover, UNIDO [1991:56] stated that 'HASIDA regards
employment generation as one of the principal benefits to be
won by providing a more conducive environment for SSIs, arguing
that the cost of creating a new job opportunity is between 1
and 10 per cent of that in the public sector.' In government
action documents also, as pointed out by Teshome (1984), small
scale manufacturing enterprises are emphasized as a means of
alleviating the pressures of urban unemployment and
underemployment.

Such argument stems mainly from the assumption that small
scale industries are labour intensive (that is, they use less
capital per jobs created) and can therefore be said to generate

more employment for a fixed stock of capital as compared to
their larger scale counterparts.   As a result, most of the
studies made in developing countries including Ethiopia were
explicitly or implicitly concerned with employment generating
capacity of SSIs as compared to large scale ones.

For example, ILO (1983) study found a high capital labour
ratios and a high average wage rates in manufacturing
activities [i.e. MLSIs] as compared to small scale industries
and suggested higher cost of employment creation in the former
and argued well for the employment generating capacity of SSIs.
This suggests a concern for unemployment and hence for job
creation.   Of course, much theorizing and empirical evidences
have been done on the reasons for the low level of labour
absorption in the industrial sector [Morawetz, 1974, White,
1978; Teshome 1980; ILO 1983; Eshetu, 1986].

However, it is   generally recognized in the literature
dealing with developing countries [Turnham, 1971; ILO, 1972;
Edwards, 1974] that open unemployment must be viewed as only
one aspect and not necessarily the most serious one, of the
wider problem of employment in developing countries.   In this
regard, Sen [1975] identified three main aspects of the
employment problems - the production aspect, the income aspect
and the recognition aspect.   According to the production
criteria- the
problem is one of underutilization of labour, that is,
disguised unemployment in which an individual's contribution to
output is negative, zero or negligible, despite apparent

activity. According to an income criteria [ILO, 1972], the problem is one of inadequate income, and according to the recognition criteria, the problem is one of dissatisfaction with one's own job.

On the basis of these concepts, one can question the role of SSIs in alleviating the employment problems of Ethiopia. More specifically, what are the nature of employment problems in LDCs in general and in Ethiopia in particular? Have SSIs contributed to the reduction of employment problems through generating productive employment and adequately remunerative jobs or do they simply represent a form of "disguised unemployment" (production aspect) and underemployment or "working poor" (the income aspect)? What are the likely factors affecting the productivity and income generating capacity of small scale industries?

Viewed from the three aspects of employment problem, the role of SSIs has been more advocated than studied. This study is a modest attempt towards filling such an important knowledge gap.

1.3. Objectives of the Study

The thrust of this paper is that more job creation can only help to alleviate part of the employment problems in LDCs, so that increasing labour productivity and income have at least the same and probably more importance.

This paper has, therefore, the following specific objectives:

1.   To describe and analyze the concept of employment and the nature of employment problems in LDCs including Ethiopia.

2.   To assess whether small-scale industries in Ethiopia productively employed and adequately remunerated the available labour force or whether they represent a form of disguised unemployment and underemployment.

3.   To describe and analyze some of the factors affecting the employment creation and productive capacity of SSIs.

4.   On the basis of the above findings, to make relevant policy recommendations that will enhance the growth of employment, productivity and income in SSIs.

1.4. Methods of the Study

In order to achieve the objectives of the research, both qualitative and quantitative techniques were used.

Simple analytical tools such as percentage and averages were employed to describe and analyze the nature of employment problems and the relative importance of different categories of SSIS.

In order to have insights about the extent of underemployment or ("working poor") in SSIS, the average wage rates of the persons engaged (grouped according to occupational category) in SSIs were compared with the official minimum wage rate. As an alternative methodology, the average wage rate of persons engaged in SSIs is compared with the poverty line estimated by ILO (1982) for Ethiopia for the year 1982. Then, the percentage of underemployed persons is estimated.

The CES production function is fitted in order to determine the labour absorptive capacity of SSIs. The Cobb-Douglas production function is also fitted in order to test whether there has been a disguised unemployment or not in SSIS. Ordinary least squares single equation method is used to estimate the parameters of the CES and the Cobb-Douglas production functions. The importance of OLS single equation method is simplicity of computations, the small standard errors of the coefficients and the high level of efficiency [Walters, 1963]. Details of the functions and variables used are given in the body of the paper.

1.5 Source of Data

The data inputs for this study are obtained from both published and unpublished materials of the Handicrafts and Small Scale Industry Development Agency (HASIDA), Central

Statistical Office, Agricultural and Industrial Development Bank (AIDB), and Ministry of Labour and Social Affairs.

The 1981/82, 1984/85, 1985/86 and 1986/87 sample surveys of HASIDA are extensively utilized for the analysis of the structure of employment and output in SSIs and for evaluating the performance of SSIs in terms of generating productive and remunerative jobs. In 1983/84 there was no HASIDA survey and as a result, in this study, the year 1983/84 is not included in the analysis.

1.6 Significance of the Study

Employment policy is of interest not only to governments but also to citizens.

This study by describing and analyzing the role of SSIs in alleviating the employment problems of Ethiopia from different perspectives, will heighten public awareness of the nature of employment problems.

Consequently, it is hoped that the results of this study will exert widespread and beneficial influence on government policy markers in guiding the direction of future actions in order to increase the contribution of small scale industry's towards reducing the employment problems of the country.

CHAPTER TWO

2. BACKGROUND TO THE STUDY

2.1 The Arguments for and Against Small Scale Industries

2.1.1 The Case for the Development of Small Scale Industries

The case for the development of small scale industries in Ethiopia was summarised in the Ministry of Commerce and Industry draft proposal for the development of handicrafts and small scale industries in May 1976. Referring to the role of handicrafts and small scale industries, the proposal stated as follows:

> Convinced that the sector of handicrafts and small scale industries has an important role to play in the over all development of the national economy, especially with respect to:
>
> 1) large employment possibilities in both rural and urban areas through the use of labour intensive, capital saving production methods,
>
> 2) Providing agriculture with the basic implements necessary for its development and the broad masses with the bulk of their commodities, thus being complementary to both agriculture and large scale industries,

3) Mobilising indigenous capital and skill resources through the demolishing of the fetters which arrested the creativity and productivity of the masses;

4) Offering a basis for further industrialization and a more equitable distribution of employment and income through balanced rural urban dispersal of industries. Concerned at the past neglect of the development of handicrafts and small scale industries and the encouragement of often inefficient large scale industries, the Provisional Military Government of Ethiopia has decided to launch a special development programme for the sector of handcrafts and small scale industries in Ethiopia [Ministry of Commerce and Industry,1976:D-2 and D-3].

Other sources also indicated additional advantages that could be obtained from a programme of expansion of small scale industries. These include the utilization of "Waste products" from large scale industry, the use of abundantly available local resources, the possible linkages that could be created with large scale manufacturing on a subcontracting basis, use of adaptive technology and flexibility, and relatively efficient utilization of resources [ILO, 1983; Teshome 1984].[1]

The arguments most commonly advanced for encouraging the development of small scale industries in Ethiopia are similar to the arguments made in developing countries. Broadly speaking, they are: the employment argument, the decentralization argument, the equitable distribution of income argument, the latent resource argument and the efficient utilization of resources argument [Dhar and Lydall, 1961; Staley, 1967; Page and Steel, 1984; Nanjunadan, 1987].

2.1.2   Arguments Against Small-Scale Industries

As could be observed from the arguments advanced in support of small-scale industries in the literature, small-scale industries are explicitly or implicitly supposed to have advantages over large scale industries. However, there is still a considerable disagreement about the extent to which small scale firms are capable of fulfilling the previously mentioned expectations [for reviews see for example, Uribe-Echevarria, 1991].

In this section we will attempt to review some of the arguments made against small scale industries as related to employment generating capacity.

As pointed out earlier, the most frequent argument advanced in support of small-scale industries promotion is based on small industry's allegedly greater labour intensity. That is, small-scale manufacturing uses less capital per jobs created and can therefore be said to generate more employment for a fixed stock of capital. For example, the World Bank [1978:18] stated this argument as follows:

> One way to foster the creation of more urban or non farm jobs per unit of capital invested is by encouraging development of small-scale enterprises, which is generally more labour intensive than larger units.

The argument is that small firms have adopted this greater labour intensity in response to the different factor prices that they face compared with large firms: cheaper labour and more expensive capital. This amounts to a belief in flexible factor substitution in small-scale industries [White, 1978]. Similarly, ILO (1985:43-44) stated that the informal sector is able to employ a growing number of persons because it uses, according to the report, variable proportion technology which induces the informal sector to substitute labour for capital as the price of labour [wages] decline in the labour markets.

A counter argument would run as follows: the small firms may have a lower capital labour ratio but they are inefficient in the sense that they use more labour and more capital per unit of out put than do large firms. Hence, goes the argument, the greater labour intensity of the small firms is not necessarily an efficient adaptation [White, 1978]. This kind of argument could also be characterised as a belief in fixed factor proportions. Some consider the informal sector, in which small-scale industries are a part and parcel of it, as employing the resources available to it at the wrong factor intensities. More specifically, they consider the informal sector as the family oriented one, accommodating kith and kin up to the point where the marginal product of labour may be zero or even negative - or very nearly so. Thus, goes the argument, the informal sector increased the absorption of

labour at the sametime by increasing underemployment [ILO, 1985]. Little, et al [1987:304] Stated that:

> Labour intensity of small-scale industries alone can not be a criterion of social desirability. The output produced should not be neglected. If capital were the only scarce factor, high capital productivity would be the desideratum, and this may or may not go together with labour intensity. In fact labour is not a free good, and more complicated criteria... are needed, for example, total factor productivity or social cost benefit analysis.

Likewise, page and Steel [1984] argued that the objective of expanding the small scale enterprises should not be simply to provide employment but increased productive employment in such a way as to improve the utilization of resources and the distribution of income. Whether small-scale enterprises represent an efficient mechanism for job creation, according to them, depends crucially on their economic efficiency in production.

Another stand of argument made against small scale industries was that even though efficient, labour intensive techniques might exist, large scale capital intensive techniques should be chosen because they generate more profits and help accumulation of capital through a high rate of reinvestment of profits which promote growth of employment and output over time [Sutcliff, 1971]. While higher output means greater potential for saving, Power (1962) argued, the relation of this potential depends, in part, on how the additional out put is distributed. One of the counter arguments against the

claim that small enterprise saves capital is that it reduces saving by increasing labour's share of income. If this is true, Power [1962] pointed out, even a lower capital-output ratio may in the long run imply slower growth and higher unemployment because of the lower saving propensity of labourers.

We will sum-up the arguments of this section with what Khurso had said long ago and Jhingan had cited as follows:-

> If you attempt to create only employment without regard to efficiency, output, and surplus, you will soon end up with neither employment nor output, nor surplus. Many labour intensive schemes which seems to be giving a lot of employment per unit of capital is in fact an optical illusion. It gives only employment in the first round; but because it does not generate, owning to inefficiencies, much surplus for plough-back, it fails to generate more employment in the second rounds. Then, as it probably peters out slowly, it throws back into unemployment or underemployment all or many of the initially employed [Jhingan, 1975:270].

The above argument against small scale industries (or labour intensive technologies) may be pointed out in the literature as a conflict between employment now and employment in the long run or as a conflict between employment and saving (or investment) [Thirlwal, 1978;]. The underlying assumptions for the potential conflict between employment and savings are:

1. that the wage is given and does not vary positively with the degree of capital intensity;

2.   that there is a wide difference between the propensity to
      save of capitalists and the propensity to save of workers;

3.   that the unemployed do not reduce community saving; and

4.   that consumption has no investment component.

In developing countries, however, there are reasons for
doubting the validity of each of these assumptions.

Concerning the first assumption, there are considerable
variations in wage rates according to scale of production. In
technical terms, Thirlwal [1978], has shown that there is no
necessary conflict between employment and savings up to the
point where the marginal product of labour equals the wage
rate, even assuming all wages are consumed and all profits are
saved.

The alleged conflict between employment and saving also
depends on the assumption that the propensity to save out of
profits is higher than the propensity to save out of wages.
The evidence on this argument is some what mixed, and White
[1978:45] argued that given the possibility of government
taxation as a form of saving, the income distribution, saving,
and reinvestment argument appears to be a weak reed on which
the case for capital intensity might rest. Others argue that,
higher savings (more abstention from consumption) need not lead
to greater capital formation in an open economy - or given the
possibility of investing in abroad.[2] Moreover, given the idle

capacity which is a common place in LDCs, even greater capacity for output and employment through saving do not automatically translate into greater output and employment [Herrick and Kindleberger, 1983].

Regarding the third assumption, Thirlwal [1978:206] Stated three main ways in which the unemployed may reduce the investible surplus. If the unemployed remain in the agricultural sector they may depress average product and consume more than they produce thus reducing the agricultural surplus. If the unemployed remain in the industrial sector, they will absorb family savings in supporting themselves. Third, there may be public sector for the unemployed through unemployment insurance programmes, in which case public savings will be reduced below what it other wise might be. If 'compensation' to the unemployed in any of the forms outlined above exceeds the difference between the industrial wage and the marginal product using more labour intensive techniques, it would pay to create extra employment because the difference between consumption and production as a result of expanding employment would be less than the reduction in savings caused by the unemployment. In the limit, if the unemployed 'consumed' resources equal to the value of the industrial wage, it would make no difference if labour was employed upto the point where the marginal product of labour is zero. Clearly, argued Thirlwal [1978:206] there is no difference from the point of view of saving between an unemployed man consuming the equivalent of industrial wage and an employed man with zero marginal product receiving an industrial wage. However, if the

social cost of idle labour was not zero (that is, if labour is paid whether employed or not), employment at any positive marginal product becomes an economic, social and political consideration [Edwards, 1974].

Concerning the fourth assumption, there are two views. One is those who argue for capital intensive techniques to maximize the investible surplus at the expense of employment. They place no value on extra consumption at the margin. The other is those who argue for labour intensive techniques to maximize employment and they are indifferent at the margin between extra units of consumption and saving (investment). To the extent that lack of consumption impairs efficiency and output, an increase in present consumption may be as valuable at the margin as an extra unit of saving from the point of view of future welfare. That is, as far as consumption is 'productive' consumption - consumption which improves the productive efficiency of labour there by raising the level of income in the same way as normal addition to capital, there is no conflict between employment and saving [Thirlwal, 1978].

Bearing in mind, the above arguments made for and against small-scale industries in connection with employment, it is necessary to evaluate the role of SSIs in alleviating the employment problems of Ethiopia. But, before that it deemed necessary to have an idea about the concept of employment and the nature of employment problems in LDCs, including Ethiopia.

2.2 The Concept of Employment and The Nature of Employment Problems in Less Developed Countries

Employment normally means working for an employer for wages, while unemployment is defined as active seeking of employment, at the ruling wage rate [Stewart, 1977]. This concept of employment and unemployment makes sense for an advanced capitalist economy since in such an economy it is fairly straight forward to decide whether people are employed or not, thanks to the developed system of wage employment. In an economy where a wage system dominates, unemployment implies a 'loss of output for the society as a whole, a loss of income, and a loss of status or sense of personal usefulness for the unemployed' [Herrick and Kindleberger, 1983:203]. However, the concepts of employment and unemployment are notoriously vague in an economy in which the wage system is weak and in which self employment and unpaid family labour are common. For one thing, since self employed and unpaid family workers are by definition considered as employed, the measured unemployment rates are low in less developed countries. For another thing, the condition of unemployed persons in developing countries who are supported by the extended family system is no more worse than that of a fully or partially employed workers working for a meager subsistence.

The implication is that the nature of employment problems in developing countries differs from that of developed countries.

For example, the ILO (1972) report described the problem as one of employment rather than unemployment. According to the report, in addition to people who are not earning incomes at all, there is another [in Kenya] more numerous group of people called by the report, the "working poor". These people are working, and possibly working very hard and strenuously, but their employment is not productive in the sense of earning them an income which is up to a modest minimum [ILO, 1972:9]. Moreover, the report identified three types of employment problems: first, the frustration of job seekers unable to obtain the type of work or the remuneration which they think is reasonable, or which their education has led them to expect; Second, the low level- in fact the poverty level,-of incomes obtained by many producers and their families as a return of their work, whether on itself or family employment or in wage employment, and Third, the under-utilization and low productivity of the labour force, which reflects inefficiency in the way labour is trained, deployed or supported with other resources [ILO, 1972:1]

Edwards [1974] described the employment problem in less developed countries as follows:

> ...the most visible dimensions of the under utilization of labour in developing countries, namely open unemployment..., is but the tip of an iceberg resting on a stratum of under employed..., obscuring large numbers of others who are visibly active... but really under utilized [Edwards, 1974:10]

Edwards argued that in addition to the numbers of people unemployed, many of whom may receive minimal incomes through the extended family systems and, therefore, not rightly classified with the very poor, it is also necessary to consider the dimensions of (1) time (many of those employed who would like to work more hours per day, per week or per years), (2) intensity of work (which brings into consideration matters of health and nutrition), and (3) productivity (lack of which can often be attributed to inadequate complementary resources with which to work).

Frances Stewart [1974: 84-85] discussed the employment (unemployment) problem in developing countries as follows:

> The employment problem can not be simply identified as one of insufficient employment opportunities, and measured by the rate of unemployment. For one thing only the (relative) rich can afford to be unemployed in societies without systematic provision for the unemployed, where those who are seeking work have to rely on support from their relatives or their past savings. For another thing, in many societies which are clearly exhibiting employment problems, there is work to be done... High level of open unemployment, massive rural-urban migration, the very high ratios of applications to modern sector jobs, the main symptoms of the employment problem can all be seen as the consequence of the large differences in productivity and earning opportunities between the modern and the rest of the economy. Thus, the employment problem is not a matter of an absolute lack of useful things that might be done, but a shortage of modern sector jobs in relation to the number of people who would like them. The employment opportunities that exist are in the informal sector or traditional sector and offer only relatively low incomes.

The above reviews and the one which we are going to discuss indicate the importance of improvement in the concept of employment and unemployment during the application of these terms to developing countries.

Sen [1975] in this respect has presented three aspects of employment and correspondingly at least three aspects of employment problems. These are the production aspect, the income aspect and the recognition aspect. Let us consider each of these aspects one by one.

2.2.1   Disguised Unemployment and The Production Approach

From the production point of view, a person is considered as employed if he/she contributes to output. But the literature on developing countries emphasizes the existence of disguised or concealed unemployment as a notable feature of developing countries than open unemployment. In the Production sense, Sen (1975) argued that disguised unemployment implies a situation in which the withdrawal of a labour force from a certain activity would leave total output unchanged. In technical terms, this will happen under the following conditions: (a) when the marginal physical product of labour is zero. Under such circumstances labour can be withdrawn without any reduction in output and without introducing any change either in the quantity or quality of cooperating inputs, or (b) when the marginal physical product of labour is actually positive in the strict static sense and the removal of labour would reduce total outputs, but this fall in output would be

small and could be offset by a modest increase in the quantity of cooperating inputs or a modest improvement in the quality of the labour input [Uppal, 1973:20]

In order to prove or disprove the thesis of disguised unemployment, the usual procedure is to construct a production function using data on output, labour and other inputs and to test whether the marginal product of labour is negative, zero, or positive but less than the wage rate. [Thirlwal, 1978]

The conditions under which disguised unemployment might exist are not easily related to testable propositions. However, Uppal [1973] argued that excess aggregate labour supply relative to the aggregate supplies of cooperating inputs (factors) are the primary causes of disguised unemployment. The argument goes as follows: In most underdeveloped economies, labour abundance and capital shortage describe the factor endowment position. If the production function has limited opportunities for factor substitution, then beyond a certain point, employment of more labour may not add to the total output... . The excess labour will not be hired if the employer were a profit maximizing entrepreneur. Fortunately, institutions like the joint family system, where the family shares its work and income with needy relatives permit these workers to be employed irrespective of their contribution to total products.

2.2.2   The Income Approach to Unemployment

In developing countries, the indispensable 'ticket' to a share in the national income, for most people, is a job. Employment is, thus, an important means of generating and distributing income.

The criterion for income approach to unemployment as developed by Sen [1975] is to question whether the income is conditional on work or not. If an individual's emoluments cease when he/she stopped working, he/she is considered to be employed. Thus, even though the departure of this man (women) might leave the total output unchanged, so that from the production point of view he/she would have been part of disguised unemployment, nevertheless from the income point of view the man/women has been employed. On the other hand, if he/she continuous to receive economic support even if he/she did not work, he/she is considered to be unemployed.

However, other studies [Turnham, 1971; ILO, 1972; Squire 1979] used the criterion of whether the income is high or low- to decide whether a person is employed or underemployed. According to this criterion a person is considered underemployed if his/her earnings from wage or self employment lie below a given cut-off level. In many cases the official minimum wage has been used as the cut-off point [Squire, 1979]. The assumption is that the floor level determined on the basis

of official minimum wage is reasonable in the sense of being apparently attainable as a minimum income level within the potential resources available to the country, and reasonable too in the sense of representing a standard of living which would generally be considered (by most people in the country) to correspond to the minimum standard needed to avoid real poverty and deprivation [ILO, 1972]. Even though the assessment of need used in fixing minimum wages is not a particularly "objective" view of need or that need is not the only consideration, it is at least a standard of need legitimized by statute as a minimum standard. A problem encountered in estimation of underemployment on the income basis is that it is difficult to relate individual earnings to household living standards. Clearly, families with two wage earners earning say, Birr 150 each will be better off than families of the same size but with only one wage earner earning Birr 225.

The concern for income approach to unemployment of this form can be regarded as appropriate and desirable at least for two reasons. First, it emphasizes on improvements in real earnings in the lower rungs of the income distribution rather than on the creation of jobs as such. Second, it enables one to hypothesize the causes of such low earnings - for example inappropriate government policies etc., - and to make policy prescriptions accordingly.

2.2.3   Unemployment and The Recognition Aspect

Employment can be a factor in self esteem and indeed in esteem by others. For those who have to work for a living, lack of employment is not only a denial of income, it can also be a source of shame. In the same way, if a person is forced by unemployment to take a job that he/she thinks is not adequate for his/her purpose, or not commensurate with his/her training, he/she may continue to feel unfulfilled and indeed may not even regard himself/herself as employed. The phenomenon of people having a job but nevertheless regarding themselves as unemployed is a common one and had been observed in many countries [Sen, 1975]. In assessing whether a person is employed or not, therefore, his/her own views on the subject have to be given weight, and the question of employment is one of having not only a gainful occupation, but one which also satisfies some of minimal expectations of the job seekers.

The question of recognition can influence one's choices of jobs, if such a choice would arise. For example, a marked preference for working for one self rather than for others may partly relate to this problem of recognition in terms of both status and of 'one's reaction to being ordered around. The person who is in disguised unemployment in both the production and the income approach may not view himself/herself as unemployed and due to such a perception may not offer himself/herself as a wage labourer in the market.

In addition to the productivity, income and recognition aspect of employment (or unemployment), some authors (for reviews see for example, Squire 1979) have used the time criterion to consider a person as unemployed (under employed). According to this criterion, a person may be called unemployed (or underemployed) if he/she was gainfully occupied during the year for a number of hours or days less than some normal hours or days. Of course, the time criterion corresponds closely to the income criterion used by Sen [1975] since the time in question is that spent in 'gainful' work. However, the people may be occupied for long hours but their return from their work provide no more than a poverty standard of living. Thus in order to focus on employment problem of those employed, the income criterion based on some cut-off level, and the productivity criterion seem more revealing.

Squire (1979) classified estimates of underemployment made so far in to two: visible and invisible estimation of underemployment. The visible estimation of underemployment considers the persons working less than some specified hours and seeking more work as underemployed. While the invisible estimation of underemployment considers persons earning less than the minimum wage, or those employed part time or unpaid family workers or those employed and whose productivity is particularly low as underemployed.

2.3   Employment and Unemployment in Ethiopia

When we look at the case of Ethiopia, it is disappointing that no comprehensive and reliable information has so far been produced about the magnitude and structure of employment and unemployment. The 1984 population and housing census and the employment exchange center figures probably give usable data.

According to the 1984 population and housing census, the number of employed and unemployed was 14,572,920 and 169,621 respectively. Of the employed population 8,498,427 or 58.7 percent were males and 6,074,496 or 41.3 percent were females. The majority of the employed were located in rural areas amounting to more than 13 million people or 90.8 percent of the employed population.

Of the unemployed population, 51 percent were males and 49 percent were females. Location wise, 32.7 percent were located in rural areas while 67.3 percent in urban areas [See Table 1 below].

Table-1

Number of Employment and Unemployment

In Ethiopia, By Area and Sex, 1984

Area	Sex	Employed	Unemployed	Unemployment Rate
Rural	Male	7,677,763	22,843	0.3
	Female	5,599,409	32,611	0.6
	Total	13,237,172	55,454	0.4
Urban	Male	820,661	60,245	6.8
	Female	515,087	53,922	9.5
	Total	1,335,920	114,167	7.9
Total	Male	8,498,424	83,088	1.0
	Female	6,074,496	86,533	1.4
	Total	14,572,920	196,621	1.2

SOURCE: Office of the Population and Housing Census Commission, The 1984 Population and Housing Census of Ethiopia: Analytical Report at National Level, Addis Ababa, December, 1991, p.170.

Table-1 also indicated that for the Country as a whole, less than 2 (i.e 1.2) percent of the labour force was unemployed. However, the open unemployment rate was higher in urban areas than in rural areas amounting to 7.9 and 0.4 percent of the labour force respectively.

Moreover, the employment status of the economically active population (excluding unemployed workers with no job experience) show the predominance of self-employment and unpaid family workers- in Ethiopia [See Table 2 below].

Table-2

Distribution of Economically Active Population

By Employment Status and Location, 1984.

Employment Status	Location				Total	%
	Rural	%	Urban	%		
Employer	110,764	0.8	23,836	1.7	134,600	0.9
Government Employee	133,911	1.0	447,977	32.8	581,888	4.0
Own Account workers	7,791,680	58.8	557,516	40.8	8,349,196	57.1
Unpaid Family Worker	4,965,685	37.5	32,087	2.5	4,997,772	34.2
Producer and Service Cooperative Employee and Members	111,814	0.8	23,784	1.7	135,598	0.9
Others*	139,546	1.1	279,761	20.5	419,307	2.9
Total	13,253,400	100.0	1,364,961	100.0	14,618,361	100.0

*   Includes Private Organization Employee and International Organization Employee.

SOURCE   Same as Table-1, P. 179

As could be observed from Table-2, in Ethiopia the own account workers and the unpaid family workers together constitute almost 91 percent of the economically active population. In rural and urban areas, own account workers and unpaid family workers together constitute 96 and 43 percent of economically active population respectively. It is, therefore, advisable to consider the output and income aspects of employment in order to have an insight into the nature of employment problems in this country.

Another source of data indicating the magnitude of unemployment in Ethiopia could be obtained from the Ministry of Labour and Social Affairs. According to this source, during the years 1978-1986 total registered unemployees were 715,065 out of which 384,876 were males and 330,189 were females. The occupational and educational structure of the unemployed persons are shown in Tables-3 and 4 below.

From Table-3, one can observe that the incidence of unemployment was high among labourers followed by clerical workers and industrial workers. And Table-4 indicates that educational wise, the illiterate job seekers were predominant, constituting almost 29 percent of the unemployed followed by elementary school and secondary school leavers. The least affected groups were those with university graduates, drop-outs and technical school graduates. Tables-3 and 4 may reflect the process of labour allocation in Ethiopia during those periods, where the Office of National Committee for Central Planning [ONCCP] used to automatically allocate graduates from University and technical colleges to various government departments, or modern sector jobs.

Table - 3

The Occupational Distribution of

the Unemployed, 1978-1986

Occupation	Unemployed	%
Professional and Related	104,33	1.46
Works	519	0.07
Administrative and Managerial	237,749	33.25
Clerical Workers	1,700	0.24
Sales Workers	16,454	2.30
Service Workers	8,797	1.23
Agricultural Workers	62,197	8.70
Industrial Workers		51.06
Labourers	365,139	1.69
Not Specified	12,077	
TOTAL	715,065	100,00

SOURCE: Ministry of Labour and Social Affairs, 1987. "A Research Report to Alleviate the Unemployment Problem," November, (Amharic Version), p.7

Table - 4

The Educational Distribution of
the Unemployed Persons, 1978-1986

Educational Qualification	Total	%
Illiterate	207,938	29.08
Elementary School /1-6/	195,297	27.31
Junior School /7-8/	61,599	8.62
Secondary School /9-12/	174,720	24.43
Technical School	28,589	4.00
University Incomplete	6,033	0.84
University Graduate	474	0.06
Not Specified	40,406	5.66
TOTAL	715,065	100,00

SOURCE: Same as Table-3, p.8

On the basis of the concept of employment discussed earlier, let us consider how the categorization of a person into employed and unemployed was made in the Census and the Ministry of Labour and Social Affairs data.

According to the 1984 Population and Housing Census, all persons aged ten and above were classified as employed (1) if they were engaged in productive activities during most of the main agricultural season(s) in the twelve months preceding the census in the rural areas, and one day out of the seven days preceding the census day in the Urban areas, and (2) if they have had regular jobs but did not work during the reference period because of poor health, social reason, seasonality of work, annual leave or due to temporary closure of establishments. The census defined productive activities as 'Work which involves the production of goods and services that can be sold for cash or can be exchanged for other commodities. Such a work can be performed for a family enterprise, a private person, or an establishment of the government. The remuneration may be on daily, monthly, or yearly basis. Farmers who are involved in the production of cereals, livestock, poultry, hunting and fishing are considered to be engaged in productive activity, eventhough, part of the product or the entire product may be consumed by the household. Household chores such as preparing food, cleaning the house, taking care of children, or collecting fire wood were not considered to be productive activities. However, they were considered to be so if they were performed for pay.

A person aged ten and above is considered as unemployed if he/she did not work during most of the main agricultural season(s) in the twelve months preceding the Census in the rural areas, and if he/she did not work at least one day out of the seven days preceding the 'Census day' in the urban areas; and was actively looking for work or was discouraged job seeker, but was ready and willing to take up a job if one was available.

Obviously, the person was considered as employed not on the basis of the production aspect of employment, since many people considered as employed probably move to else where without affecting output. In other words, the marginal productivity of labour may be "zero" or "close to zero". Similarly, the Census ignored the recognition aspect of employment in categorization of an individual as employed. If an individual recognizes him self or her self as unemployed and "seeks work", but works during most of the agricultural season(s) in rural areas and one day out of seven days in urban areas, he/she does not qualify as not working and therefore has no chance of being taken as unemployed.

The 1984 Census, however, was based on the income aspect of employment. This was so, because given the social system in Ethiopia, in which participation in work mostly implied, receiving emoluments either in the form of wages and salaries, or as profits of one's own enterprises, or as part of the income of a family engaged in some family enterprises or in which the sharing of income usually involves an obligation to

help with the work. However, the interpretation of the income aspect is narrow in some respect and wide in other respect. It is narrow because individuals engaged in some activities (For example, in house hold chores) and receiving an income were not considered as employed. It was wider in the sense that if an individual participates in a work and probably receives an income, irrespective of the level of his/her income, he/she was considered as employed.

The classification of a person as unemployed by the Census, of course, was based on the production, income and recognition aspect of employment.   Of course, in the classification of individuals into employed and unemployed, the time criteria was the one which explicitly expressed in the census.

Therefore, given the stringent nature of the test by which a person was classified as employed and unemployed, the low figures for unemployment on the basis of 1984 census was not surprising.   It is, in fact, a bit amazing that people qualifying in the census as unemployed (i.e not working and seeking work) managed to get a living, particularly in rural areas. Had the census taken into account the production and recognition aspect of the employed persons, the incidence of unemployment would have probably been high.

The Unemployment data obtained from the Ministry of Labour and Social Affairs simply reflects the recognition aspect of employment. It was based on the live register of dissatisfied

workers, whether they do have a "job" or not. However, seeking work involves a recognition not only of one's own status but also of the state of the labour market as well as one's chances of obtaining job through the employment exchange centers. Moreover, the chances of registering those unemployed workers who were too far away from an exchange office was very rare.

Regarding the nature of employment problems in Ethiopia, the (then) Planning commission Office described the problem as rising levels of open unemployment or significantly increased under employment or both, and the ILO Mission described the problem as the inability of the modern sector (particularly the industrial sector) to absorb the growing labour force which manifests itself as a possible lag of industrial employment growth rate behind industrial output growth rates [Cited by ILO, 1983; Eshetu, 1986]. The Ten year Perspective Plan argued, on the basis of the number of job seekers registered with the Ministry of Labour and Social Affairs, that the number of urban unemployed was close to 500,000 or 32 percent of the urban labour force. It considered this, 'Overt Unemployment' as one of the major problems facing the country and envisaged the creation of 784,000 jobs in the modern sector of the economy and the encouragement of the expansion of handicrafts and small-scale industries, among others, as a further source of employment generation.

UNIDO (1991) reported the situation of the labour force in Ethiopia as follows:

> The economy has proved unable to accommodate the rapid growth of the labour force. ... Unemployment is already a serious problem in Urban areas. ... Ethiopia's Social Security does not cover the unemployed. They subsist in a twilight economy of small scale trading, occasional employment and dependence on employed relatives. .... Unemployment related urban poverty and the frustration of unemployed youths presents the government with one its most pressing social problems [UNIDO, 1991: 123].

The ILO (1986) report stated the employment problem in Ethiopia clearly. It pointed out that in contrast with the situation conventionally depicted of rural-urban migration from a lower income agricultural sector to a high wage urban formal sector, that in Ethiopia is certainly of migration, but from a poor, periodically crisis-ridden rural sector to an urban sector which is not dominated by high wage formal employment but it self embraces substantial poverty and low income informal activity. The report also noted that as in other developing countries where state social security is not offered it is difficult to identify a number of people who are categorically unemployed and the problem is rather of a substantial number of people, rural and urban, who are only able to earn minimal incomes from limited or marginal economic activity. Further, ILO [1986 :10] indicated that in 16 towns, in 1978, more than 50 percent of males employed obtained a monthly income of less than 75 Birr, while 86 percent of females earned less than 75 Birr. Moreover, the report also indicated the source of means of subsistence of the registered

unemployed [i.e 154,608 persons] in 31 towns in 1978. Accordingly, almost 32, 30, 11, 0.3 and 26 percent of the registered unemployed get their means of subsistence ["Metedaderia"] as dependent on relatives and friends; as daily labourers; as small traders, street vendors, etc; as broker; and from other sources such as working in bars, respectively [ILO, 1986, Table 6 : 11].

Clearly, the problem in Ethiopia is, therefore, not only the overt unemployment in which most of the unemployed have access to some form of income or means of subsistence but, as stated in ILO (1986) report also, it is one of low income. Thus, the efforts to clear away the visible portion of the iceberg (despite low productivity and low income in the economy) may simply motivate other layers to emerge. In such circumstances an improvement in the productivity and remunerative capacity of the employed persons, perhaps, is an appropriate solution to the employment problem in Ethiopia. In this regard, ILO [1986:8] stated that the policy priority must be to raise productivity in agriculture in order to increase its capacity for labour absorption and reduce the strength of the "push" factors.

CHAPTER THREE

3. STRUCTURE OF SMALL-SCALE INDUSTIRES

3.1 Relative Importance of Different Categories of Small Scale Industries

On the basis of HASIDA Surveys at different periods of time, it becomes evident that in Ethiopia small-scale industrial activities tend to be concentrated in the production of consumer goods [See Tables 5,6 and 7]

Table-5

Number of Small Scale Manufacturing Establishments by Industrial Group and Year (Percentage Distribution)

Industrial Group	1979/80	1981/82	1984/85	1985/86	1986/87
Food	63.7	39.40	51.00	51.00	51.00
Beverage	0.9	1.58	0.15	0.20	0.20
Textile	6.5	5.60	28.20	28.30	28.30
Leather	2.3	2.30	3.60	3.60	4.00
Wood	10.4	24.60	5.40	5.80	6.20
Paper and Printing	1.8	4.30	0.50	0.50	0.50
Chemicals, Plastic and Rubber	0.8	3.40	1.00	1.00	0.10
Non-Metallic Mineral Products	1.7	4.00	1.17	1.20	1.20
Fabricated Metal Products	11.4	14.60	4.75	4.40	4.30
Other Manufacturing Establishments	0.3	0.22	4.12	4.00	4.20
TOTAL	100.0 (=1587)	100.0 (=822)	100.0 (=7684)	100.0 (=7706)	100.0 (=7600)

Source: ILO, 1983, Patterns of industrialization and Impact on Employment and Incomes in African counteries: The case of Ethiopia. JASPA, Addis Ababa, P.29 for 1979/80 data; and HASIDA (1985), HASIDA (1988), HASIDA (1989) and MOI (1991) for 1981/82, 1984/85, 1985/86 and 1986/87 respectively.

Note:-   1.   The 1979/80 figure was calculated on the basis of HASIDA Surveys of 23 towns, while the 1981/82 survey covers all administrative regions except Gamu Gofa and Illubabor, and The 1986/87 Survey excludes Tigray and Assab.
           2.   Differences in definitions of small-scale industry must also be borne in mind.

Table-6
Structure of Output in Small Scale Industries
(Percentage Distribution)

Industrial Branch	1979/80	1981/82	1984/85	1985/86	1986/87
Food	62.7	39.1	50.5	47.7	44.2
Beverage	5.0	5.7	1.8	2.5	2.3
Textile	3.9	8.0	12.1	11.8	12.6
Leather	6.3	3.6	3.7	6.9	8.1
Wood	5.6	10.5	4.6	7.7	4.9
Paper and Printing	4.9	5.0	10.8	2.1	1.9
Chemicals, Plastic and Rubber	5.1	15.6	4.7	9.4	10.0
Non-Metalic Mineral Products	1.7	3.8	3.0	3.2	6.6
Fabricated Metal Products	3.7	8.6	7.6	7.6	8.5
Other Manufacturing Establishments	0.3	0.1	1.2	1.1	0.9
TOTAL	100.0 (124,163,504)	100.0 (133,617,00)	100.0 (409,622,000)	100.0 (441,065,000)	100.0 (456,903,000)

Source: Same as Tables-5

Table-7

Structure of Employment in Small Scale
Industries of Ethiopia

Industrial Branch	1979/80	1981/82	1984/85	1985/86	1986/87
Food	51.1	41.6	48.2	45.8	46.3
Beverage	2.5	2.9	1.0	0.8	1.0
Textile	9.4	10.7	21.4	27.6	25.0
Leather	5.9	3.4	3.8	4.4	5.4
Wood	10.4	16.3	8.2	7.3	5.1
Paper and Printing	4.9	5.4	1.9	1.6	1.3
Chemicals, Plastic and Rubber	3.0	5.3	2.3	2.8	3.4
Non-Metallic Mineral Products	4.8	6.0	2.7	2.6	2.6
Fabricated Metal Products	6.6	8.3	6.2	5.2	8.1
Other Manufacturing Establishments	0.3	0.1	4.3	1.9	1.8
TOTAL	100.0 (16,314)	100.0 (12,113)	100.0 (36,846)	100.0 (44,399)	100.0 (38,678)

Source: Same as Table-5

Food, Textile and wood Products accounted for over 68 percent of the establishments, 67 percent of employment and 60 percent of the manufacuring out put in small-scale industrial sector. Grain mills, oil mills and bakaries tend to dominate within the food branch; knitting and wearing apparel tend to dominate within the textile category while furniture and fixtures and sawmills are frequently important within the wood branch. This finding is consistent with studies of smallscale industries in other developing countries [HO, 1980; Page 1979; Liedholm and Mead, 1987; Nanjundan, 1987].

Following the methodology employed by Staley and Morse [Cited by HO, 1980], Various factors can be mentioned for the dominance of some types of industrial groups in SSIs. These factors are broadly grouped into locational influences, process influences and market influences. Another possible explanation for the more prominant position of some groups of industries [e.g. food, textile] is that the Ethiopian Government's attention and policy have generally focused on these industries. For example, per Proclamation No. 26 of 1975: providing for Government ownership and control of the means of production proclamation, Art.4, industrial activities to be undertaken by the private sector are: food processing, canning and marketing; small-scale grain milling and pressing of oil seeds; bread baking; production of wood and wood products; fabrication of metal products; medium and small scale weaving, knitting, spinning, sewing and tailoring; cottage industries and handicrafts, among others.

In many instances, therefore, it is a combination of several of these factors that affect the position of a particular type of SSIs. For example, given the inadequate road and other transport facilities [Locational factors], factor endowments (low level of savings and hence capital, and technical know-how) and government regulations of the scope of economic activities undertaken by different sectors in Ethiopia, the predominance of disperssed resource processors (e.g. food industries and wood industries), and simple assembly, mixing and finishing activities (e.g. Textiles) is understandable. In such types of industries, perhaps, small-scale industries exist by "filling the cracks" not occupaied by the medium and large scale industries.

According to UNIDO (1991) Chemicals, Metals and Non-Metallic mineral products branches require substantial investments, depend heavily on imported inputs, demand new skills and tend to produce goods with relatively low levels of value added. All these factors, goes the argument, discourage diversification within the small-scale industrial sector.

An observation of the performance of small scale industrial activities over time show that the structure of employment, establishments and out put, have stayed relativelly unchnged during the 1980s. Of course some variations may occur, but it probably reflects the nature of the survey coverages and criteria used than the changes in activities of SSIs. For example, for the periods 1984/85 to 1986/87 in which similar criteria have been used in the definition of SSIs, one

can observe almost constant patterns in the structure of small scale industrial activities. Moreover, the periods under considerations were so short (less than a decade) to expect significant changes in the structure of small scale industries.

3.2   Spatial Distribution of Small Scale Industries

One of the arguments advanced in support of small-scale industries in Ethiopia was that it 'Offers a more equitable distribution of employment and income through balanced rural/urban dispersal of industries'. The location of SSIs, therefore, has important implications for population movement to the extent that migration occurs on account of interregional and rural-urban differentials in employment opportunities and incomes.

Table 8 below shows the distribution of establishments, employment, output and payment levels in small-scale industries by regions.

Table 8 indicates that SSIs are unevenly distributed geographically. The three regions, namely, Showa, (including Addis Ababa), Eritrea, and Hararghe accounted for over 76 percent of SSI establishments, 88 percent of employment and 90 percent of the gross value of production in 1981/82; while in 1985/86 they accounted for about 68 percent of establishments, 75 percent of employment, 82 percent of the gross value of production and 85 percent of payments.

Of the three regions, Showa (particularly Addis Ababa) would take the lion's share. Another study, ILO (1990) also found uneven distribution of informal manufacturing and related services even within a given town [Addis Ababa, Dire Dawa and Harar]. For example, most of the informal enterprises in Addis Ababa are located in the "Markato" or (central market place) area, with the manufacturing enterprises spreading into the northern "kefitegnas" and the related service enterprises into the southern "kefitegnas". The reasons for uneven distribution of informal manufacturing in the three towns, stated the ILO [1990:6] report, are the pull created by similar lines of activity, marketing advantages and relatively easy access to services including transport, banking, etc. Similar arguments could be made for the regional concentration of small scale industries in Ethiopia.

Table-8

Regional Distribution of Establishments, Employment, Gross Output and Payments

(In Percentages)

Region	1981/82			1985/86			
	Establishments	Employment	Production	Establishments	Employment	Output	Payments
Addis Ababa	-	-	-	33.1	43.6	55.1	50.7
Showa	44.8*	48.8*	64.7*	11.4	8.3	8.13	7.4
Eritrea	24.8	30.0	22.8	17.3	15.5	13.10	19.2
Hararghe	6.8	9.5	3.5	6.6	7.0	6.0	8.0
Other regions	23.6	11.7	9.5	31.6	25.0	17.5	14.7
TOTAL	100.0 (=822)	100.0 (=12,113)	100.0 (=133,617,000)	100.0 (=7,706)	100.0 (=4,4399)	100.0 (=441,065,000)	100.0 (=44,034,000)

Source: Computed from HASIDA (1985) and HASIDA (1989).

* Includes Addis Ababa as well.

3.3   The Pattern of Employment in Small Scale Industries of Ethiopia

An analysis of the composition of employment in SSIs represent the demand side of the labour market. Moreover, the disaggregation of employment on the basis of occupational category or status permits for indepth analysis of the nature of employment problems in SSIs; and it may also throw some light on the nature of production organization in SSIs. It is often hypothesized that in economic activities where family employment predominates, average earnings or average productivity is very low and large volume of disquised unemployment are typical [Teshome, 1979; ILO, 1985]. Other studies [e.g Herrick and Kindleberger, 1983] also used the occupational distribution of the labour force as one of indicators of the conditions of employment. If the numbers in low paid activities increase faster than others or if the occupational distribution of the labour force remained constant, for example, it implies the worsening of employment conditions.

Tables   9, 10, 11 and   12, respectively, present the occupational pattern of employment by industrial groups for the years 1981/82, 1984/85, 1985/86 and 1986/87.

Table-9

Distribution of Total Persons Engaged by Occupational Category and Industrial Group, 1981/82
[Figures in Parenthesis are Row Percentages]

Industrial Group	Proprietors and Unpaid Family Workers		Production Workers		Administrative, Technical and Clerical Workers		Temporary workers		Apprentices	Total Persons Engaged
Food	545	(10.8)	2350	(46.7)	445	(8.8)	1699	(33.7)	-	5039
Beverages	21	(6.0)	230	(65.3)	88	(25.0)	13	(3.7)	-	325
Textiles	82	(6.3)	1081	(83.6)	114	(25.0)	16	(3.7)	-	1293
Leather	20	(5.0)	327	(80.4)	39	(9.6)	20	(5.0)	-	406
Wood	295	(14.9)	1166	(59.1)	203	(10.3)	310	(15.7)	-	1974
Paper	41	(6.3)	477	(73.3)	101	(15.5)	32	(4.9)	-	651
Chemicals	44	(6.8)	388	(60.2)	131	(20.3)	82	(12.7)	-	645
Non-metals	44	(6.0)	411	(56.5)	93	(12.8)	180	(24.7)	-	728
Metals	170	(16.7)	673	(66.3)	89	(8.8)	83	(8.2)	-	1015
Others	3	(30.0)	5	(50.0)	-	-	2	(20.0)	-	10
TOTAL	1265	(10.4)	7108	(58.7)	1303	(10.8)	2437	(20.1)	-	12,113

Source: HASIDA (1985)

Table-10

Distribution of Total Persons Engaged by Occupational Category
and Industrial Group, 1984/85
[Figures in Parenthesis are Row Columns]

Industrial Group	Proprietors and Unpaid Family Workers		Production Workers		Administrative, Technical and Clerical Workers		Temporary workers		Apprentices		Total Persons Engaged
Food	6431	(36.2)	10214	(57.6)	770	(4.3)	296	(1.7)	296	(1.7)	17752
Beverages	97	(25.8)	197	(52.4)	43	(11.4	39	(10.4)	39	(10.4)	376
Textiles	3905	(49.5)	3391	(43.0)	140	(1.8)	332	(4.2)	332	(4.2)	7886
Leather	486	(34.6)	707	(50.0)	76	(5.4)	108	(7.7)	108	(7.7)	1405
Wood	707	(23.5)	1122	(37.3)	139	(4.6)	984	(32.7)	984	(32.7)	3008
Paper	69	(10.0)	425	(61.4)	131	(18.9)	64	(9.2)	64	(9.2)	692
Chemicals	134	(15.6)	508	(59.1)	199	(23.2)	16	(1.9)	16	(1.9)	859
Non-metals	216	(21.4)	480	(47.5)	90	(8.9)	220	(21.8)	220	(21.8)	1010
Metals	658	(29.1)	1195	(52.8)	166	(7.3)	120	(5.3)	120	(5.3)	2264
Others	509	(31.9)	10135	(63.5)	15	(1.0)	37	(2.3)	37	(2.3)	1594
TOTAL	13,212	(35.8)	19252	(52.2)	1769	(4.8)	2216	(6.0)	2216	(6.0)	36,846

Source: HASIDA (1988)

Table-11

Distribution of Total Persons Engaged by Occupational Category and Industrial Group, 1985/86
[Figures in Parenthesis are Row Columns]

Industrial Group	Proprietors and Unpaid Family Workers		Production Workers		Administrative, Technical and Clerical Workers		Temporary workers		Apprentices		Total Persons Engaged
Food	6883	(33.8)	10657	(52.4)	1212	(6.0)	1415	(7.0)	164	(0.8)	20331
Beverages	27	(7.6)	221	(62.5)	79	(22.3	27	(7.6)	-	-	354
Textiles	5301	(43.2)	4914	(40.0)	381	(3.1)	1291	(10.5)	386	(3.2)	12273
Leather	561	(28.8)	1213	(61.6)	64	(3.2)	59	(3.0)	73	(3.7)	1970
Wood	931	(28.8)	1352	(41.7)	191	(6.0)	588	(18.2)	172	(5.3)	3234
Paper	55	(7.8)	498	(70.3)	99	(14.0)	48	(6.8)	8	(1.1)	708
Chemicals	152	(12.1)	825	(66.0)	210	(16.8)	63	(5.0)	1	(0.1)	1251
Non-metals	182	(15.8)	466	(40.4)	65	(5.6)	441	(32.8)	-	-	1154
Metals	607	(26.1)	1301	(56.1)	180	(7.7)	102	(4.4)	132	(5.7)	2322
Others	466	(58.1)	200	(25.0)	55	(6.8)	66	(8.2)	15	(1.9)	802
TOTAL	15,165	(34.1)	21647	(48.8)	2536	(5.7)	4100	(9.2)	951	(2.2)	44,399

SOURCE: HASIDA (1989)

Table-12

**Distribution of Total Persons Engaged by Occupational Category
and Industrial Group, 1986/87
[Figures in Parenthesis are Row Columns]**

Industrial Group	Proprietors and Unpaid Family Workers		Production Workers		Administrative, Technical and Clerical Workers		Temporary workers		Apprentices		Total Persons Engaged
Food	5953	(33.3)	9262	(51.8)	1510	(8.4)	1115	(6.2)	52	(0.3)	17892
Beverages	11	(3.0)	246	(65.2)	86	(22.8	34	(9.0)	-	-	377
Textiles	3787	(39.3)	4331	(45.0)	227	(2.3)	1129	(11.7)	157	(1.7)	9631
Leather	500	(23.8)	1356	(64.5)	60	(2.9)	108	(5.1)	77	(3.7)	2101
Wood	814	(41.1)	735	(37.1)	74	(3.7)	235	(11.9)	124	(6.2)	1982
Paper	57	(11.1)	282	(55.0)	117	(22.8)	28	(5.5)	29	(5.6)	513
Chemicals	120	(9.1)	931	(71.0)	134	(10.2)	116	(8.8)	12	(0.9)	1313
Non-metals	182	(17.8)	452	(44.1)	86	(8.4)	304	(29.7)	-	-	1024
Metals	1183	(37.7)	1384	(44.2)	231	(7.4)	175	(5.6)	161	(5.1)	3134
Others	485	(68.2)	158	(22.2)	-	-	59	(8.3)	9	(1.3)	711
TOTAL	130,92	(33.8)	19137	(49.5)	2525	(6.6)	3303	(8.5)	621	(1.6)	38,678

Source: MOI   (1991)

The tables reveal that, the vast majority of workers, constituting about 58, 52, 48 and 49 percent were production workers for the years 1981/82, 1984/85, 1985/86 and 1986/87 respectively. It was followed by proprietors and unpaid family workers constituting about 10.4, 35.3, 34.1 and 33.8 percent of the labour force employed in SSIs during 1981/82, 1984/85, 1985/86 and 1986/87 respectively. Apprentices labour has been found to constitute a very small proportion of SSI employment followed by Administrative, Technical and Clerical workers.

However, it should be noted that there were considerable variations in the composition of different categories of workers among different industrial activities. For example, the incidence of wage employment (production and Administrative, technical and clerical workers) was in general high in Beverages, paper and printing, and chemicals; while proprietors and unpaid family workers tend to comprise the significant part of employment (almost above 30 percent) in food and textile industries.

Similarly, the practice of keeping apprentices has been found important among industrial activities such as Fabricated Metals, Wood and Leather Industries.

3.4   Wage Structures in Small Scale Industries

As pointed out earlier, one of the pressing problems of employment in less developed countries was a low level of remuneration. Thus a worker may be considered as employed on the basis of the quantity of labour, but the wage rate may be so low that he/she does not earn a subsistence living.

For employment creation in SSIs to succeed in eliminating employment problems (viewed from the income aspects of employment), it must be adequately remunerative. Considering employment from the income approach, people prefer to be employed because they earn an income that way; and no one would want to work if he was not compensated for it. For were it not so, it would be easy to find solutions to the unemployment problem by way of creation of employment opportunities on an honorary basis [Sen, 1975].

Expansion of employment, there fore, is an effective means of income distribution; often people prefer to receive an income for work rather than on doles and a productive employment adds to national output.

One way of viewing the remunerative capacity of SSIs and the state of income distribution in SSIs would be the analysis of the wage structure in SSIs.

Tables 13, 14, 15 and 16, respectively, report the wage structure in SSIs by industrial groups and occupational patterns for the years 1981/82, 1984/85, 1985/86 and 1986/87.

Table-13

Payments Made to Persons Engaged, by
Occupational Category and Industrial Groups, 1981/82
[Birr Per Annum Per Person]

Industrial Group	Proprietors and Unpaid Family Workers	Production Workers	Administrative, Technical and Clerical Workers	Temporary Workers	Apprentices	Total
Food	419	1455	1838	127	-	933
Beverage	3610	2208	4425	500	-	2784
Textile	1119	1451	2914	608	-	1615
Leather	452	1873	2514	352	-	1791
Wood	834	2093	2202	1029	-	1749
Paper and Printing	3157	2960	4292	553	-	3061
Chemical Plastic and Rubber	8256	2551	4983	990	-	3234
Non-Metallic Mineral products	1467	1381	1885	1274	-	1424
Fabricated Metal Products	567	2813	5418	701	-	2538
Other Manufacturing	-	600	-	500	-	400
TOTAL	975	1228	2983	327	-	1622

Source: Computed from HASIDA (1985)

Table-14

Payments Made to Persons Engaged, by
Occupational Category and Industrial Groups, 1984/85
[Birr Per Annum Per Person]

Industrial Group	Proprietors and Unpaid Family Workers	Production Workers	Administrative, Technical and Clerical Workers	Temporary Workers	Apprentices	Total
Food	154	1176	320	-	97	746
Beverag	1000	2436	1093	5179	-	2196
Textile	51	1251	242	443	59	587
Leather	-	1790	526	2083	142	1092
Wood	206	1865	266	114	54	795
Paper and Printing	8376	3294	923	1015	-	3127
Chemical Plastic and Rubber	5798	2817	769	1062	500	2947
Non-Metallic Mineral products	787	4198	811	473	-	2339
Fabricated Metal Products	1255	2030	488	20008	160	2601
Other Manufacturing	33	401	-	-	150	268
TOTAL	289	1443	470	1600	106	977

Source: Computed from HASIDA (1988)

Table-15

Payments Made to Persons Engaged, by
Occupational Category and Industrial Groups, 1985/86
[Birr Per Annum Per Person]

Industrial Group	Proprietors and Unpaid Family Workers	Production Workers	Administrative, Technical and Clerical Workers	Temporary Workers	Apprentices	Total
Food	27	878	1357	524	55	587
Beverag	667	1868	2873	778	-	1918
Textile	45	1393	2396	672	96	725
Leather	16	1686	3468	881	301	1193
Wood	505	2388	2811	536	255	1420
Paper and Printing	1163	4255	2232	792	-	3449
Chemical Plastic and Rubber	1888	3019	7171	619	-	3455
Non-Metallic Mineral products	148	1963	2523	798	-	1263
Fabricated Metal Products	55	4561	9988	723	121	2919
Other Manufacturing	30	2425	545	515	66	703
TOTAL	87	1563	2427	632	136	991

Source: Computed from HASIDA (1989)

Table-16

Payments Made to Ppersons engaged, by
Occupational Category and Industrial Groups, 1986/87
[Birr Per Annum Per Person]

Industrial Group	Proprietors and Unpaid Family Workers	Production Workers	Administrative, Technical and Clerical Workers	Temporary Workers	Apprentices	Total
Food	27	1077	1335	443	77	707
Beverag	818	2512	3930	1117	-	2748
Textile	36	1460	4242	1034	140	895
Leather	2	1795	2817	1157	675	1324
Wood	66	1989	1743	1119	838	1015
Paper and Printing	1982	2478	4284	928	1068	2667
Chemical Plastic and Rubber	500	2722	9067	914	83	2982
Non-Metallic Mineral products	170	1436	3313	940	-	1222
Fabricated Metal Products	159	6846	3039	1257	397	3398
Other Manufacturing	8	1626	-	864	222	441
TOTAL	60	1799	2502	840	450	1153

Source: Computed from MOI (1991)

There are some interesting general patterns emerging from the tables. First, it would appear that industrial category wise, the food, textile and other manufacturing establishments consistently pay below average wage rates per annum; while beverages, paper and printing, chemicals and fabricated metallic minerals tend to pay a relatively higher wages to their workers than other industries. Second, Occupational wise, propritors and unpaid family workers, apprentices and temporary workers frequently earn below average wage rates. However, even the better paid workers, for example, production workers, on average, did not earn more than Birr 102, 120, 130 and 149 per month for the years 1981/82, 1984/85, 1985/86 and 1986/87 respectively.

Third, a considerable variation has been found in the wages paid to various categories of employment in different industrial activities. Generally, the food and textile industries, for instance, pay lower than average wages to different categories of their workers. For example, the food industry paid Birr 1,455 per year per person for its production workers while the paper and printing industry paid Birr 2,960 per year per person during the year 1981/82. Similar analysis could be made for different categories of workers and different years.
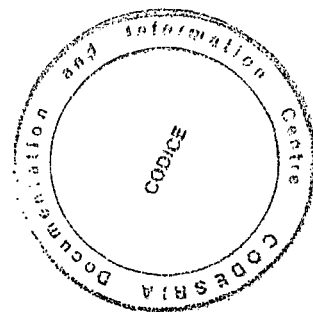
3.4.1   The Income Approach to Estimation of Under-Employment

An opperational procedure which offers knowledge about employment situation in SSI, from the income point of view, as pointed out previously, is to specify an income floor and consider those persons earned below the cut-off level as underemployed in income sense.

If we consider those persons whose earnings lie below the official minimum wage, that is, below Birr 50 per month or Birr 600 per year, as under employed in the income sense, nearly 20, 44, 42 and 37 percent of those persons engaged in SSIs in 1981/82, 1984/85, 1985/86 and 1986/87 respectively, were under employed.

Table-17

Estimates of Underemployment-Income Approach, 1981-1986/87

Year	Number of Persons Earning Less than the Official Minimum	Persons Earned Less Than the Official Minimum Wage (Percent of Total employed)
1981/82	2,501	20.6
1984/85	16,437	44.6
1985/86	18,770	42.3
1986/87	14,530	37.6

Source: Computed from Tables 9, 10, 11, 12, 13, 14, 15, and 16

On the other hand, ILO/JASPA (1982) estimated a poverty line for Ethiopia equal to 173.36 Birr per household [constituting 4-5 members) per month for the year 1982.

On the basis of such estimate, if we consider the poverty line estimated by ILO/JASPA (1982) as a cut-off point, the figures for underemployment are much more appalling.

Table-18

Estimates of Underemployment-Income Approach

Year	Number of Persons Earning Less Than the Poverty line	As percent of Total Persons Engaged
1981/82	8,511	70.3
1984/85	34,888	94.7
1985/86	38,954	87.7
1986/87	34,894	90.2

source: Same as Table-17

According to Table 18, during the years 1981/82, 1984/85, 1985/86 and 1986/87, almost 70, 95, 88 and 90 percent of persons engaged in SSIs earned an income below a poverty line. However, the results must be interpreted with caution. First, it assumes the same level of poverty line for different periods. Second, it also assumes an individual engaged in SSIs constitutes on average 4 members of household.

Third, in our estimation of underemployment in terms of inadequate income in Table 17 and 18 above, we considered the proprietors and unpaid family workers as well as temporary and apprentice workers as a regular wage earners. But in survey of HASIDA they were classified as follows: Proprietors and unpaid family workers include all proprietors, active partners and members in their household who actively participate in the operation of the establishment without payment; whereas temporary workers include workers who are employed for a whole part or a part of the year, and apprentices include persons who are getting training in the establishment and they may or may not be paid wages, salaries or any other benefits [See for example, HASIDA, 1988].

Thus, the proprietors do not only rely on wages but also on entrepreneurial returns or profits. Likewise, unpaid family workers are likely to share part of the income of their family enterprises. Temporary workers may also get additional income from other sources. Apprentices main objective of participation in small scale activities is also not to get income but to get training. As a result, if we allowed for such variations, clearly the above estimated underemployment is an overstated one. Moreover, following the Sen's (1975) classification of employment in income sense, it is likely that the majority of proprietors and unpaid family workers as well as temporary workers considered as underemployed above, are obviously employed persons.

CHAPTER-FOUR

4. LABOUR ABSORPTION AND FACTOR UTILIZATION IN SMALL SCALE INDUSTRIES

4.1 Methodologies Used in Previous Studies and Empirical Results

As pointed out in chapter two, the underlying assumption of public policy in promoting small scale industries in developing countries seems to be that such units generate more employment and use resources more efficiently as compared to their large scale counter parts. However, the employment generating capacity and efficiency of small versus larger scale enterprises have been at the forefront of the small enterprise debate. More specifically, the question usually raised are the following: Are claims about the employment generating capacity of SSIS realistic? Are small scale producers efficient users of resources?

In order to provide empirical evidences to the above questions, most researchers in developing countries, including Ethiopia, used capital labour ratios as the measure of labour intensity or as an indication of the creation of more jobs per unit of capital invested. If small scale industries are found to be more labour intensive than their larger scale counter parts, goes the argument, then the encouragement of small scale

industry will generate more employment. However, the comparison of capital labour ratio for different size groups is usually fraught with pitfalls. First such factors as excess capacity, heterogeneity of capital and labour, stock versus flow issues, heterogeneity of products and the different degrees of vertical and horizontal integrations, and differences in reporting, limit the validity of such measures [HO, 1980].

Secondly, there is the contention that capital labour ratio only approximate the direct effect on demand for labour per units of capital invested, that is, it ignores the indirect employment effects [Sutcliffe, 1971; Eshetu, 1986].

Empirical works in developing countries used partial and/or comprehensive efficiency measures [to use the words of Liedholm and Mead (1987)] to compare the efficiency of different sizes of enterprises. Partial efficiency measures usually relate output or value added to one input only. Examples of these types of efficiency measures are labour productivity (output-labour ratio) and capital productivity (output-capital ratio).

The measurement of labour productivity or capital productivity is also not with out problems. First, there are the usual problems of excess capacity, capital and labour heterogeneity, stock versus flow issues, heterogeneity of products, different degrees of integration, and differences in reporting. If, for example, small scale industries are more

likely to underreport their value added, use lower quality labour, have a lower rate of capacity utilization, and operate in a more competitive conditions, then efficiency measures are likely to be biased against small scale industries. Secondly, labour productivity or capital productivity measures assume that there is only one scarce factor of production. For example, since in most developing countries it is argued that labour (particularly unskilled labour) is relatively abundant and capital is relatively scarce, output capital ratio is the partial efficiency (productivity) measure most often used. However, such type of measurement: (1) depends upon subjective assessment of resource scarcity and (2) attributes all of the outcome to a single resource; that is, it excludes other important "causes" of the desired outcome. As a result, the consensus emerging from the literature is that all resources are scarce to some extent and should, therefore, be included in the ratio [Kinsey, 1987].

The comprehensive measures of economic efficiency are measures designed to overcome the limitations of partial efficiency measures. Ideally, all scarce resources are included in the analysis. Examples of comprehensive efficiency measures are the benefit cost ratios and the measurement of technical and allocative efficiency.

The benefit cost ratios are also not without their weaknesses, as their very comprehensiveness implies a loss of detail. For example, the benefit cost ratio is interpreted as follows: if the resulting figure is positive, then it implies

that the activity's benefits exceed its costs implying that the activity is economically desirable for the country. If the resulting figure is negative, the opposite conclusion holds. Clearly in such kind of analysis, the analyst cannot see the influence of one factor of production-labour, for example separate from that of others - for example capital... or of different categories of the same factor - skilled and unskilled labour for instance. This loss of detail can obscure important interactions.

While the disadvantage of the benefit cost is, therefore, that it obscures the contribution of each separate resource to the outcome, the parallel weakness of the single resource ratio is that it attributes all of the outcome to a single resource. Unless carefully used, either ratios can be misleading. Two solutions to this quandary have been used with varying degrees of success. The first is to compute both single productivity ratio and benefit cost ratio and use them together, accepting the limitations of each. The second technique is to calculate a production function for assigning or attributing a proportionate share of production to each major resource [Kinsey, 1987]. The determination of the allocative efficiency of an enterprise is part of such an exercise.

It is against this back ground that we will attempt to review some of the empirical evidences in developing countries.

Sandesara (1966) undertook a study of the relationship between size and various important ratios like the capital-labour ratio and the output-capital ratio. In his work, a positive association was observed between size and the output capital ratio, and no positive association between size and capital labour ratios. On the basis of this findings, he suggested that for a given volume of investment, small scale units neither produce more output nor generate more employment compared to large scale units. On the other hand, Liedholm and Chuta [1976] found that small size is associated with less capital per worker and more output or value added per unit of capital. On the basis of this result, they suggested that 'small firms in Sierra Leone generate not only more employment, but also more out put per unit of scarce capital than their larger counter parts; thus, goes the argument, Sierra Leon does not have to sacrifice output to generate employment when small scale industries are expanded' [Liedholm and Chuta, 1976:106].

In the work of HO [1980] small scale industries are found to be labour intensive and capital productive, but with many exceptions to this generalizations. Moreover, HO's study of the Korean Census of manufacturing was one of the first attempts to examine the efficiency of large and small scale enterprises by means of a comprehensive measures of efficiency [total factor productivity index-similar to benefit cost ratios]. A key finding from his study was that small establishments are found to be efficient in only a few industries, and the few industries where small establishments

are efficient do not absorb a large number of workers. His conclusion was that:

> ...establishments with fewer than 50 workers can not be relied up on to generate a large amount of employment efficiently... From the view point of efficient employment creation, small may not necessarily be beautiful. [HO, 1980:67].

The available empirical evidence compiled from twelve different countries by Liedholm and Mead [1987] indicate that in the aggregate small manufacturing enterprises are labour intensive than the large scale ones. This observed relationships do not necessarily always hold, however, when the figures are disaggregated into additional size categories or separate industries. The same source shows a mixed picture of the relationship between capital productivity and size of an enterprise. The results of a comparison of the efficiency of large and small enterprises using a social benefit-cost analysis in three countries, namely, Sierra Leon, Honduras, and Jamaica, indicate that the small scale enterprises are found to be more efficient than their larger scale counter parts in the majority of the industry groups considered. The social benefit cost ratios are higher for small scale enterprises in 10 of the 12 industries examined [Liedholm and Mead, 1987].

A World Bank study conducted by Little et. al (1987) based on the census material from Japan, India, Columbia, Korea and Taiwan among the less developed countries, shows that the hypothesized relationship between factor productivities and intensities and the size of the firm, (the larger the size, the

greater is the capital intensity and labour productivity and the lower the capital productivity) by and large holds for the manufacturing in the aggregate. When the analysis is undertaken at the disaggregated level, the hypothesized relationship fails. The greater the disaggregation, that is the more narrowly defined are the industries, the more frequently do they fail. The findings suggest that medium size enterprises are likely to be the most efficient. Moreover, estimates of frontiers translog production function indicate that technical efficiency (and hence total factor productivity) does not vary systematically or significantly with firm size, except in the machine tools industry where the inefficiency of the small size group is significant compared to larger establishments.

When we look at the case of Ethiopia, there were evidences comparing small scale industries [SSIs] and medium and large scale industries [MLSIs] in order to assess the role of small scale industries.

To begin with, in Duri's (1980) study, the comparison was for broad categories of large versus small, and the results were such that according to him, capital, the scarce factor was being more efficiently used by small scale industries than by large scale ones. Furthermore, in contrast to large scale industries, small scale enterprises appear to employ more than seven times as many workers with the same amount of capital. This finding leads him to conclude that irrespective of whether

the society wants to maximize growth or employment, the small scale industries would appear to have a definite advantage over large scale.

Other studies [ILO, 1983: Teshome, 1984; Eshetu, 1986] found a lower capital labour ratio and a lower average wage rates in SSIs as compared to MLSIs and suggested that SSIs exhibit a lower cost of employment creation implying the employment generating capacity of SSIs. For example, Teshome [1984: 141] stated this idea as follows:

> ...If these observations can be assumed to hold true, generally speaking, then the employment potentials of small scale industry should be exploited with a view to easing the problems of urban unemployment and underemployment in Ethiopia. A lower wage rate would make it possible for a given wage bill to employ a relatively more persons; and a lower capital labour ratio in the small scale industry points to the possibility of expanding employment with a smaller capital outlays per production unit than in large scale manufacturing .

The same study also indicated the relatively higher average labour productivity in small scale than in large scale manufacturing and argued that 'if this observation holds true under full (or equal) capacity utilization levels in both cases, then the encouragement to be given to small-scale industry can be justified on grounds of relative efficiency' [Teshome, 1984: 141].

On the other hand, the study by Ahmed and Hayyalu [1986] found labour intensive SSIs per unit of capital and output, and fixed asset intensive SSIs per unit of output as compared to

MLSIs. However, these relationship did not hold at the disaggregated or at the industrial sub-branch level particularly, for chemicals, paper and paper products, and wood and wood products. Despite the variations, on the basis of their findings at the aggregate level, they suggested that 'small scale enterprises are not operating efficiently' [Ahmed and Hayyalu, 1986: 366].

Another study compared the labour intensity and capital productivity of SSIs and MLSIs and found that small scale industries are both labour intensive and capital productive [Simme, 1987]. On the basis of this finding, he concluded that:

> Small scale industries are capital saving and labour using...For the future too, as far as they are labour intensive or capital saving in character, they can lead to an increase in production ... and also possess good potential with simple techniques of production for the employment of large number of unemployed and underemployed Ethiopians [Simme, 1987:46].

From our review of the above studies the following observations would emerge:

1. Earlier studies provided empirical evidences to some of the built-in prejudgments about some aspects of small scale industries as compared to medium and large scale ones-particularly employment creation and efficient utilization of resource virtues. However, the empirical evidences show a mixed results.

2. Despite the empirical significance of the previous studies, viewed from our discussions of the concept of employment, they provide evidences of whether the small scale industries contributed to the alleviation of employment problems or not as compared to large scale ones. For example, consider the output aspect. The previous studies provided evidences of efficient utilization of resources by using average values (partial efficiency measures); that is by comparing either labour productivity or capital productivity of small scale industries as compared to large scale ones. Consequently, they do not provide evidences of the contribution of, say, labour, capital, raw materials, etc... to the total output; that is the marginal contribution of these resources and the idea about the efficient utilization of these resources have not been studied seriously. More specifically, one can not judge from previous studies whether labour is productively employed or is a form of disguised unemployment in small scale industries. The usual proposition is that where family employment and self employment characterize the labour field, large volumes of disguised unemployment are typical [Teshome, 1979; ILO, 1985].

Similarly, in previous studies, the employment generating capacity of SSIs have been emphasized by comparing the labour intensity of SSIs with that of large scale industries. But as pointed out succinctly by ILO (1985) report:

> ...attention has mostly focused on capital intensity to explain the greater employment capacity of the informal sector. We would suggest that it provides only a partial answer. What the capital intensity argument shows is that at any given level of capital, employment would be higher in the less capital intensive sector... But this does not explain why one sector is able to employ growing numbers and the other not ... We have a situation where one sector [formal] is locked in fixed factor proportions while the other [informal] uses technology that allows substitution between capital and labour. The informal sector is not affected by minimum wages but it uses variable proportion technology and hence can employ more labour to take an advantage of a decline in its wages [ILO, 1985,: 43-44].

The ILO (1985) remark indicates the importance of estimating the elasticity of substitution. Of course, the existence of fixed technological relationships between capital and labour and the employment inelasticity of modern industry with respect to output were among the alternative explanations suggested for the failure of modern industry in the employment field [Eshetu, 1986; ILO, 1983; Teshome, 1980].

In this study, therefore, an attempt will be made to measure the labour absorptive capacity of small scale industries and the nature of their resource utilization by using sophisticated analytical procedures.

4.2. Factor Substitution Possibilities in Small Scale Industries

In order to measure the labour absorptive capacity of SSIs, we will employ an econometric method of estimating factor substitution possibilities in SSIs.

4.2.1 Concept and Methodology

Teshome (1980 b) presented the concept of elasticity of substitution (σ) and the estimation models briefly. This section is drawn from his paper and interested individuals may consult his work.

4.2.1.1 The Concept of Elasticity of Substitution (σ)

The elasticity of substitution (one of the parametric measurements characterizing a production function) measures the ease with which one factor input is substituted for another in production.

Consider movements along a normally sloped isoquant involving two inputs, Capital (k) and Labour (L). The ratio of the inputs (L/K) varies with the ratio of the marginal productivities of the inputs (i.e with the rate of technical substitution, Ms)

$$\frac{L}{K} = g(Ms) \quad \dotfill \quad (1)$$

Taking derivatives and computing corresponding elasticity in (1) we obtain the elasticity of substitution (designated σ)

$$\sigma \quad = \quad \frac{a(L/K)}{aMs} \quad . \quad \frac{Ms}{(L/K)} \quad \ldots\ldots\ldots\ldots\ldots \quad (2)$$

Thus σ measures the proportionate changes in factor ratios for proportionate changes in the rate of technical substitution. Assuming factors are paid the values of their marginal productivity, we may reformulate (σ) thus

$$\sigma \quad = \quad \frac{a(L/K)}{a(r/w)} \quad . \quad \frac{r/w}{(L/K)} \quad \ldots\ldots\ldots\ldots\ldots \quad (3)$$

Where W is the wage rate and r is the unit price of capital. Definition (3) is significant in that σ now measures the substitution between the factor inputs (factor ratios) that obtains in response to changes in relative factor prices.

4.2.1.2   The Estimation Models

The basic assumption of the Leontief model is that factor inputs are combined in fixed proportions in production. The isoquant in such production functions are L - shaped and the elasticity value for this function is zero. Another estimation model would be the Cobb-Douglas production function. But the σ value for this function is unity. In applying this model, one is in effect forcing data into a mould which automatically yields σ value of unity. Other estimation models would be of the variable elasticity of substitution (VES) types. In

general, the VES function is difficult to generalize to more than two inputs and would have non-linear parameters that are difficult to estimate. The generalized production function most widely used in the estimation of σ is the CES production function developed by Arrow, Chenery, Minhas and Solow [for short ACMS). This function makes σ an empirically determinable parameter. It also allows the identification of production situations governed by the factor substitution rules of the Leontief and Cobb-Douglas production functions. ACMS's CES production function is written as,

$$Y = \theta [\delta K^{-\beta} + (1-\delta) L^{-\beta}]^{-V/\beta} \dots\dots\dots\dots (4)$$

Where Y is output, θ, δ, β and V are non-negative constants representing respectively, the efficiency, distributive, substitution and scale parameters. With V=1 (i.e. assuming constant returns to scale) the application of definition (2) to the function in (4) yields

$$\sigma = \frac{1}{1+\beta} \dots\dots\dots\dots\dots\dots\dots\dots (5)$$

The marginal productivities of labour (L) and capital (K) can be derived from the CES function.

$$\frac{aY}{aL} = \frac{1-\delta}{\theta^{\beta}} \left(\frac{Y}{L}\right)^{1+\beta}$$

$$\frac{aY}{aK} = \frac{\delta}{\theta^{\beta}} \left(\frac{Y}{K}\right)^{1+\beta} \dots\dots\dots\dots\dots (6)$$

Assuming the competitive factor and product market equibrium, the value of factor productivity equals factor price, i.e

$$P\left(\frac{aY}{aL}\right) = \frac{1+\delta}{\theta^{\beta}}\left(\frac{Y}{L}\right)^{1+\beta} = W \quad \ldots\ldots\ldots\ldots \quad (7)$$

$$P\left(\frac{aY}{aK}\right) = \frac{\delta}{\theta^{\beta}}\left(\frac{Y}{K}\right)^{1+\beta} = r \quad \ldots\ldots\ldots\ldots \quad (8)$$

Where W and r are as defined before and where P is the unit commodity price. Taking logs and rearranging (7) we have,

$$\log\left(\frac{Y}{L}\right) = \frac{1}{1+\beta}\log\frac{\theta^{\beta}}{1-\delta} + \frac{1}{1+\beta}\log W,$$

Or simply,

$$\log\left(\frac{Y}{L}\right) = a_0 + a_1 \log W \quad \ldots\ldots\ldots\ldots \quad (9)$$

Similarly from (8),

$$\log\left(\frac{Y}{K}\right) = -\frac{1}{\beta}\log\frac{\delta}{\theta^{\beta}} + \frac{1}{1+\beta}\log r,$$

Or simply,

$$\log\left(\frac{Y}{K}\right) = b_0 + b_1\log r \quad \ldots\ldots\ldots\ldots\ldots \quad (10)$$

Model (9) is what in ACMS's CES function is called the indirect method of estimating the elasticity of substitution and note that in this case it is given by the coefficient of log W in (9). Model (9) can be estimated by LSE method and requires data only on output (value added), labour input, and

wage rate to compute. Where reliable data on capital and capital pricing can be obtained, formulation (10) can be used instead. In that case $\sigma = b_1$.

Jacob Paroush, generalized the CES function to permit estimation of the degree of homogeneity. Instead of limiting the estimation of σ to a homogeneous production function of degree one, his model makes the degree of homogeneity an empirically determinable quantity. His estimating model is derived as,

$$\log Y = d_0 + d_1 \log W + d2 \log L \ldots\ldots\ldots (14)$$

Where d_o, d_1, and d_2 are constants, $\sigma = d_1/d_2$ and where the degree of homogeneity (h) is given by $(d_0 - d_1)/(1-d_2)$. The CES function of ACMS then becomes a special case where $d_1 = 1$ (we then have $h = 1$ and $\sigma = 1$). A major problem with estimation model (14) is that it would be difficult to test the significance of σ since it is derived as a ratio of two coefficients.

P. Dhrymes reformulated the ACMS Model and derived under some what less restrictive assumptions the following estimation model:

$$\log L = E_0 + E_1 \log W + E_2 \log Y \ldots\ldots (15)$$

Where E_0, E_1 and E_2 are constants and where $E_1 = \sigma$. This model is widely used in a number of studies aiming at the estimation of the static elasticity of substitution parameters.

Model (15) is also termed in the literature as the wage employment function or simply as an employment function [Teshome 1979]. The coefficient E_1 also gives the wage elasticity of demand for labour when output is held constant. Some writings about the manufacturing in LDCs emphasize the negative employment effects of relatively high wage levels and wage increases. Some of these studies base their case on the familiar competitive labour market models with normally sloped labour supply and demand curves which show that wage rates above equilibrium rates directly reduce the level of employment [Teshome, 1979: 118]. Using models of this sort the suggestion has been made that high wages and wage increases (above equilibrium levels) have seriously impeded employment growth in the developing world [Teshome, 1991 b]. Another explanation for negative employment effects of modern sector wages lies in the argument that relative factor costs in LDCs encourage shifts in factor use - away from labour. As interest payments are lower than wages, a firm aiming at cost minimization would substitute capital for labour subject to the limits of technology. Thus, we have the importance attached in recent literature to "factor price distortions." [Teshome, 1979: 118]. For a recent review of the important postulates developed to highlight the relationship between changes in the level of employment and the level of wages see Teshome (1991 b).

The Coefficient E_2 measures the responsiveness of labour employment to variations in output. Clearly, given the usual assumption that the demand for labour derives from the demand

for output, reliable quantitative evidence on the impact of output on employment demanded in SSIs is necessary if informed policies are to be adopted.

4.2.1.3 Importance of Estimating Elasticity of Substitution

A key property of CES' production function is that the elasticity of substitution parameter (σ) can range from zero to infinity and thus it can reflect the potentially differing extent to which capital and labour can be substituted for one another in production. If $\sigma = 0$ it implies the existence of limited scope for substituting capital for labour through relative price changes. If $\sigma = \infty$ (if capital and labour are perfect substitutes) an arbitrarily small change in relative factor prices would lead to an infinitely large change in factor proportions. And if $0 < \sigma < \infty$ an increase in the price of labour relative to capital, of say 10 per cent will cause an increase in the ratio of capital to labour by less than, exactly or more than 10 percent, depending on whether $\sigma < 1$, $\sigma = 1$ or $\sigma > 1$

Information about the elasticity of substitution between capital and labour is very important in developing countries. First, development policies in many less developed countries pursue both rapid industrialization and widespread of its benefits by expanding employment opportunities. If the elasticity of substitution is high, it is relatively easy to expand employment opportunities without sacrificing output growth by manipulating relative prices properly.

If the elasticity of substitution is large, it is easy to substitute one factor for another and it is also possible to get increased output by increasing only one factor of production because diminishing returns to the one factor of production set in weakly and gradually. Thus, the greater the elasticity of factor substitution, the smaller the drag on growth due to relative scarcity of just one or two factors of production, other things remaining equal.

If in a given system measured substitution possibilities exist in fact and are of considerable scope, then the policy parameters are to blame for the slow growth rates in employment. On the other hand if factor substitution possibilities are shown to be null (or nearly so), the empirical bases for the policy recommendations usually accompanying expert missions to poor countries (which include removal of capital subsidy, a rise in capital interest, maintenance of low and rigid wage policies, and other approaches aimed at distortions of factor prices to stimulate employment growth) would be shown to be rather shaky [Teshome, 1980 b).

4.2.1.4 Data and Results

The data used in this study are taken from the HASIDA Sample Surveys of small scale industries. The variables used in the estimation of the variants of the CES models are the following:

Y= Value of output

L= Number of persons engaged

W= Payments made to persons engaged

W/L= Average wage rate

Y/L= Average labour productivity

Because of the paucity of time series data, the estimation of the elasticity of substitution (σ) are based on cross - section data for the four years, 1981/82, 1984/85, 1985/86 and 1986/87. Moreover due to the insufficiency of data or number of observations to determine the elasticity of substitution (σ) for each industrial groups, it was decided to determine the elasticity of substitution for the small scale industrial sector as a whole.

The estimates of σ from the cross - sectional data are reported in Table 19.[3]

Table-19

Estimates of σ From Models (9), (14) and (15)

| Year and R^2 | Model and Estimate of σ | | |
	(9)	(14)	(15)
1981/82	0.14 (0.27)	0.49	- 0.30 (0.34)
R^2	0.03	0.93	0.92
1984/85	0.87 * (0.12)	0.86	-0.85 * (0.17)
R^2	0.75	0.85	0.89
1985/86	0.67 * (0.24)	1.17	-1.14* (0.39)
R^2	0.50	0.57	0.71
1986/87	0.62* (0.23)	0.61	-0.62 * (0.24)
R^2	0.42	0.84	0.86

Note: Figures in Parenthesis are Standard Errors.

   *   Significant at Least at 5 Per cent Level.

Models (14) and (15) fit the Ethiopian data reasonably well, while model (9) is not the best fit on the basis of R^2. For the year 1981/82 models (9) and (15) yield statistically insignificant results. The (statistically significant) values of σ coefficients obtained for a years 1984/85, 1985/86 and 1986/87 by the various estimating models are also about the same in many cases, which suggests the existence of stable elasticity measures for SSIs.

The traditional tests of values that σ may take are related to values of 0(fixed proportion) and 1(Cobb-Douglas function). The hypothesis $\sigma = 0$ is rejected for 3 years out of 4 years considered. The null hypothesis $\sigma = 1$ is also tested and the result is that the null hypothesis (the production function is not Cobb-Douglas) is rejected only for the year 1981/82 at a significance level of 5 percent. As a result one can use the Cobb-Douglas function for analysis of production technologies in SSIs.

4.2.1.5   Comparisons of σ Estimates

The comparison of σ estimates must be made with great care and on selective basis [Teshome, 1980 b]. The problem is that some estimates of σ are obtained from cross sectional while others are obtained from time series data.

In this regard, Gaude (1975) indicated that cross section estimates are generally tend to be higher than time series estimates. Estimates of σ from real value measurements are not comparable to those estimated from "Monetary" measurements since in the latter case the effects of inflation on σ values are included. Like wise differences in industry groupings (levels of aggregation) also render the coefficients uncomparable. Similarly estimates of σ obtained from different estimation models are not easily comparable unless it is believed that the coefficients so obtained are invariant with respect to model specification [Teshome, 1980 b].

It is against this background that we are going to compare the elasticity estimates obtained in this study with other estimates.

Table-20

Comparison of σ for MLSIs and SSIs

(Monetary Values)

Model	MLSIs [*]		SSIs [**]	
	Year	σ	Year	σ
(9)	1964-65	0.59	1984/85	0.87
	1969-70	0.49	1985/86	0.67
	1974-75	0.73	1986/87	0.62
(14)	1964-65	0.61	1984/85	0.86
	1969-70	0.53	1985/86	1.17
	1974-75	0.59	1986/87	0.61
(15)	1964-65	-0.36	1984/85	-0.85
	1969-70	-0.32	1985/86	-1.14
	1974-75	-0.19	1986/87	-0.62

Source: [*]   Teshome Mulat. 1980. "Capital – Labour Substitution in the Ethiopian Manufacturing Industries, " The Developing Economies, Vol. XVIII, No. 3 (Sept.).

[**]   Table 19 above.

Eventhough the comparison was made for different periods of time, the table clearly indicates that the estimated σ in MLSIs and SSIs [except for 1985/86] fall in the interval $0 < \sigma < 1$. This study, thus supports the previous suggestion made by Teshome (1980 b) that 'factor substitution possibilities in production may have been technologically constrained and of a limited scope for the substitution of labour for capital in the Ethiopian industries through policy reforms'.

Similarly, Fassil (1980) also estimated σ for SSIs on the basis of census of small scale industrial establishments, which were collected for eleven Ethiopian towns in 1976/77. By using Model (9), he estimated the value of $\sigma = 0.57$ again indicating the existence of very little possibilities of substitution between labour and capital in SSIs.

As pointed out earlier, Model (15) shows the responsiveness of employment to wages and level of output.

As examination of the sign of the coefficients of E_1 in model (15) both for MLSIs and SSIs suggest the existence of negative wage - employment relationship in the manufacturing sectors of Ethiopia. Clearly, then wage increases can reduce the rate of growth of employment - the extent to which this happens depending on the wage change (relative to capital price) and on the size of the elasticity of substitution.

Moreover, as pointed out earlier, the coefficient E_2 in Model (15) measures the responsiveness of labour employment to variations in output.

An application of Model (15) to the cross sectional data for SSIs yields the following results.

Table-21

Employment Elasticity of Output for SSIs

Year	Coefficient of log Q	R^2
1981/82	1.12 (0.15)*	0.92
1984/85	0.82 (0.13)*	0.89
1985/86	0.57 (0.19)*	0.71
1986/87	0.95 (0.15)*	0.86

Note: Figures in Parenthesis are Standard Errors.

* Significant at least at 5 Percent Level.

Our result show that employment is responsive to the level of output, that is, employment rises (falls) by 1.12, 0.82, 0.57 and 0.95 percent respectively, for each 1 percent rise (fall) in the level of output for the years 1981/82, 1984/85, 1985/86 and 1986/87.

To sum up, our results of regression of employment on both wages and output permits us the examination of the important role played by factor prices and output expansion in the determination of the level of labour absorption in the small scale industries.

Teshome (1980 a) also estimated the responses of industry employment to some assumed explanatory factors and obtained the following results.

Table-22

Elasticity of Industry Employment

(1955 - 1975)

	Bivariate Linear	Arithmetic Average
Output Elasticity of Industry employment	0.379 (6.193)	0.525
Investment Elasticity of Employment	0.448 (5.173)	0.283
Elasticity of Employment with Respect to Changes in Capital Stock	0.608 (9.219)	0.662
Wage Elasticity of Employment	0.510 (8.761)	0.592

Note: Values in Parentheses are Computed t-Statistics for the Slope.   In all Cases the t-values are Significant at the 0.01 Level.

source: Teshome Mulat. 1980 "Industry employment in Ethiopia.", Ethiopian Journal of Development Research, Vol.4, No.1: P.40".

On the basis of this finding, Teshome [1980a: 40] stated that another [i.e, in addition to low level of employment and unchanging employment structure] characteristic of industry employment in Ethiopia is that it has not been very responsive to changes in output, capital stock or to the level of investment. Unlike the assumptions of competitive labour market theory, the Ethiopian data also show that industry employment has remained wage-employment inelastic. He further noted that a possible cause for the unsatisfactory performance in the employment field is the low level of investment in industry and the generally limited (or restricted) scope for industrial expansions exhibited by the system. Then goes the argument, to make a difference in the industry employment field sizable investments would be needed and that since these were not forthcoming, the level of industry employment has remained low on both counts [Teshome, 1980a: 41].

On the basis of our finding that the level of output affects the level of labour absorption positively and significantly, it seems that the above conclusions made mainly for large- and medium-scale industries by Teshome (1980a) also equally well apply to SSIs.

4.3   Resource Utilization in Small Scale Industries

As pointed out earlier, of the arguments made for and against small scale industries, the efficiency of SSIs in the utilization of resources and their capacity to generate and

augment investible surplus were at the center of the debate. It is often hypothesized that employment in SSIs is a form of disguised unemployment or SSIs are inefficient ways of employment generation [ILO, 1985; HO, 1980]. By employing the unrestricted form of the Cobb-Douglas production function, in this section we attempt to test the hypothesis of disguised unemployment and efficient utilization of resources in SSIs.

The general form of Cobb-Douglas production function is given by:

$$Y = bo\ X_1^{b1}X_2^{b2}\ldots\ldots\ldots Xn^{bn}\ e^{u}\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where,

Y= Quantity of output

Xi= Quantity of input i (i= 1,2,....., n)

bi= Output elasticity of input i (i=1,....,n)

bo= Constant term

u= Error term

The general functional form of (1) is empirically estimated by transforming it into the log linear form as follows:

$$Log\ Y=\quad Log\ bo + b1\ log\ X_1\ldots + bnln\ X_{n+u}\ldots\ldots(2)$$

The variables used in this study are:

Y= Gross Value of output

x_1= Number of proprietors and unpaid family workers

x_2= Number of production, Administrative, Technical and clerical workers

x_3= Number of Temporary workers

x_4= Number of Apprentices

$$L = \text{Total number of persons engaged}$$
$$x_5 = \text{Value of fixed capital}$$
$$x_6 = \text{Value of raw materials}$$

The Cobb-Douglas production function is preferred in this study because of its computational attractiveness and its ease of interpretation. Some of the examples, are:-

1. Output elasticity of an inputs (bi's) can be obtained directly as parameters of the first order. The bi's measure the percentage change in output for a 1 per cent change in any input (holding other inputs constant).

2. One can easily obtain estimates of the marginal productivity of a factor, xi as:

$$\frac{aY}{ax_i} = bi \left(\frac{Y}{xi} \right) \dots\dots\dots\dots\dots\dots\dots (3)$$

The marginal productivity of the factor x_i, represents the change in output that results from a (small) change in input x_i, when all other inputs are held constant.

More specifically, the estimation of the marginal product of labour can be used to test the hypothesis of disguised unemployment. Broadly speaking, disguised unemployment occurs under three cases. First, when the marginal productivity of labour is negative. Second, when the marginal productivity of labour is zero and thirdly, when the marginal productivity of labour is positive but less than the wage rate [Thrilwal, 1978]. According to the marginal productivity theory, the marginal product of

labour is equal to the wage rate. In Cobb-Douglas model, for example, we have:

$$P_L = ß\frac{Y}{L} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4)$$

Where P_L is an average wage rate, Y is output, L is quantity of labour, and ß is the labour coefficient in the production function. Given an estimate of ß, we can solve for L interms of ß, Y, and P_L. This would give us the quantity of labour that equates the marginal product to the wage rate. By comparing this estimate with the quantity of labour actually used, we can measure the extent of surplus labour [disguised unemployment].

3. Indexes of efficiency in the use of resources - particularly labour and capital can easily be obtained by comparing the value of the marginal product of the resources to its opportunity cost. Maximum efficiency takes place when the value of the marginal product of a resource is equal to the opportunity cost of that resource. If the ratio of marginal product to opportunity cost is more than one, it means that too little of that resource is being used at a given price level. If the ratio is less than one, it means that too much of that resource is being utilized.

Cross section data for the years 1981/82, 1984/85, 1985/86 and 1986/87 were fitted to the log linear functional form of (2) in order to estimate the coefficients of the parameters. The estimated coefficients of the parameters are summarized in Tables 23, 24, 25 and 26.

Table-23

Estimated Coefficients, 1981/82

Regression Type	Constant	Independent Variables Used in Estimation							R^2
		X_1	X_2	X_3	X_4	X_5	X_6	L	
MR_1	1.290	-	-	-	-	0.2912 (0.0993)*	0.5545 (0.1147)*	0.0466 (0.1536)	0.987
MR_2	1.2897	-0.2166 (0.1466)	0.1702 (0.1911)	0.09758 (0.07757)	-	0.23 (0.1239)	0.5965 (0.1147)*	-	0.992
MR_3	1.1922	-0.1006 (0.1204)	0.1371 (0.2000)	-	-	0.2496 (0.1299)	0.6008 (0.1211)*	-	0.988
MR_4	1.7944	-0.3008 (0.1700)	0.4669 (0.1278)*	0.1157 (0.0939)	-	-	0.63924 (0.12710)*	-	0.985

Note: 1.   -Implies Independent Variables not Used in Regression.
2.   Figures in Parenthesis are standard error.
3.   *   Significant at 5 Percent Level.
4.   F Test is significant for all regressions at least at 5 Percent level.

Table-24

Estimated Coefficients, 1984/85

Regression Type	Constant	Independent Variables Used in Estimation							R^2
		X_1	X_2	X_3	X_4	X_5	X_6	L	
MR_1	0.8795	-	-	-	-	0.0809 (0.3181)	0.8841 (0.5647)	-0.0603 (0.3245)	0.796
MR_2	-0.0335	-0.991 (0.4713)	1.2201 (0.5326)**	0.032 (0.2015)	0.1908 (0.1648)	-0.2040 (0.3268)	1.0593 (0.5234)*	-	0.9422
MR_3	0.2318	-0.7534 (0.2933)	1.0561 (0.4744)**	-	-	-0.1327 (0.2437)	0.9914 (0.4180)*	-	0.912
MR_4	0.3599	-0.8003 (0.3302)**	1.0978 (0.4558)**	-0.0459 (0.1455)	0.1988 (0.1513)	-	0.7868 (0.2657)*	-	0.935

Note: 1, 2, and 3 are Same as Table 23.

4. ** Significant at 10 Percent Level.
5. F Test is Significant for all Regressions Except for MR_2, at Least at 5 Percent.

Table-25

Estimated Coefficients, 1985/86

Regression Type	Constant	Independent Variables Used in Estimation							R²
		X₁	X₂	X₃	X₄	X₅	X₆	L	
MR_1	-1.3760	-	-	-	-	0.0178 (0.3895)	1.5765 (0.7553)*	-0.6742 (0.6150)	0.668
MR_2	-0.1082	0.1911 (0.7408)	0.5080 (0.9943)	-0.426 (0.3352)	-0.230 (0.7542)	0.0429 (0.4266)	0.9075 (1.8387)*	-	0.816
MR_3	-1.5104	-0.3874 (0.3694)	-0.0666 (1.2110)	-	-	-0.0293 (0.4219)	1.4994 (1.1198)*	-	0.693
MR_4	-0.0871	0.1749 (0.6273)	0.5142 (1.7293)	-0.4218 (0.2875)	-0.221 (0.6492)	-	0.9471 (1.5581)*	-	0.815

Note: 1, 2, 3, and 4 are Same as Table 24.

5. F Test is Insignificant for all Regressions at 5 Percent level.

Table-26

Estimated Coefficients, 1986/87

Regression Type	Constant	Independent Variables Used in Estimation							R^2
		X_1	X_2	X_3	X_4	X_5	X_6	L	
MR_1	2.3355	-	-	-	-	0.1686 (0.2107)	0.4398 (0.2592)	0.2567 (0.2991)	0.844
MR_2	2.2284	-0.1170 (0.1891)	0.3022 (0.4002)	-0.12912 (0.127951)	0.29623 (0.30196)	0.1801 (0.1527)	0.4086 (0.2743)	-	0.967
MR_3	4.1311	-0.01034 (0.1171)	0.8065 (0.3632)**	-	-	0.0830 (0.1831)	0.0802 (0.2896)	-	0.912
MR_4	3.3783	-0.0841 (0.1960)	0.5398 (0.3624)	-0.1180 (0.1337)	0.2298 (0.3108)	-	0.32870 (0.27856)	-	0.951

Note: 1, 2, 3, and 4 are Same as Table 23.

5. F Test is insignificant for all kinds of Regressions atleast at 5 Percent Level.

4.3.1 Interpretation of the Results

It would appear that on the basis of the value of R^2, the Cobb-Douglas production function provides a reasonably good fit to the underlying data. The values of R^2 were at least 0.66 for different types of regressions and for different years, indicating that about 66 percent of the variations in output were explained by variations in the use of independent variables under considerations.

As could be observed from the tables, however, most of the coefficients are not statistically significant eventhough in the majority of the cases, F test is significant. The problem of high R^2 with high standard errors, of course, occurs in most economic researches [Koutsoyiannis, 1973:97]. In this event, she pointed out that, some econometricians tend to attribute great importance to R^2 and to accept the parameter estimates, despite the fact that some of them are statistically insignificant. Others suggested that, she argued, acceptance and rejections of the estimates which are not statistically significant depends on the aim of the model in a particular situation. Moreover, she pointed out that priority should always be given to the fulfillment of the economic a priori criteria (sign and size of the estimates). Only when the economic criteria are satisfied should one proceed with the application of the first order and second order tests of significance [p.97].

Since the main objective of this subsection is to provide empirical evidence to the existence of disguised unemployment in SSIs, we gave particular emphasis to the sign and magnitude of the output elasticities of labour.

One important result evident from regression MR_1 for 1981/82, 1984/85, 1985/86 and 1986/87 was that the magnitude of the coefficients of the raw materials are relatively higher than the coefficients of capital and labour. This may indicate that too little raw materials are being used in SSIs. Moreover, when we observe the sign of the coefficients, particularly that of labour, it is some times negative and some times positive, but statistically not different from zero implying the existence of disguised unemployment in SSIs. Like wise, capital positively and significantly affected the level of production in SSI in 1981/82. For other years, the coefficients were insignificant. The fact that capital does not seem to be significant can be attributed either to use of old vintage technologies (i.e obsolescence of machinery and equipment) or to excess capacity of SSIs due to input shortages.

Similarly, regression MR_2 shows certain patterns. First, the magnitude of the coefficients of raw materials is higher than the coefficients of other variables.

Second, the coefficients of the proprietors and unpaid family workers were consistently negative, except for 1985/86; while the coefficients of production, administrative, technical

and clerical workers are positive, and that of temporary workers and apprentices are some times positive and some times negative, even though the coefficients for all kinds of labour categories are not statistically different from zero.

Regression MR_3 and MR_4 also further support the employment of proprietors and unpaid family workers with negative marginal productivity of labour. Moreover, as compared to different categories of labour, the contribution of production, administrative, technical and clerical workers seem more important to small scale industries output.

Using the linear production function of the form:

$$Y = b_1L + b_2X_5 + b_3X_6 + U \quad \ldots\ldots\ldots$$

as an alternative way of model specification, we obtain the following results.

Table-27

Estimates of Linear Production Function

Year	Coefficient of Labour (L)	Coefficient of Capital (X_5)	Coefficient of Raw Material (X_6)	R^2
1981/82	-900.540 (1965.082)	1.104* (0.369)	1.267* (0.251)	0.97
1984/85	-2130.887 (3882.579)	-0.257 (0.213)	+3.810* (1.214)	0.96
1985/86	-8271.174 (18437.843)	-0.131 (1.717)	4.665 (4.925)	0.07
1986/87	1623.974 (1633.715)	0.201 (0.113)	1.821* (0.351)	0.98

Note: Figures in parenthesis are standard errors of the estimates.

*   Significant at least at 5 per cent level.

The linear production estimated above have zero intercepts because in the literature [for example, Koutsoyiannis, 1973 : 65] it is suggested that 'linear production functions of manufactured products should normally have zero intercept, since output is zero when the factor inputs are zero'.

On the basis of R^2, except for 1985/86 the fit was good. The independent variables explain at least 96 percent of the variations in output during the three years.

As in the case of Cobb-Douglas production function, raw material is the most important factor which frequently affects the level of output positively and significantly. Moreover, the coefficient of labour, that is, the marginal productivity of labour, is also negative for all years except for 1986/87, even though statistically insignificant. This again indicates the existence of disguised unemployment in SSI.

To sum up, if by disguised unemployment is meant the situation of surplus labour in which the marginal productivity of labour is negative, or positive but statistically not different from zero as claimed in the literature, then our finding add to the evidence which accepts the hypothesis of disguised unemployment. This may have been due to the over use of labour and inadequate use of other complementary inputs, especially raw materials.

CHAPTER FIVE

5. FACTORS AFFECTING THE PERFORMANCE OF SMALL SCALE INDUSTRIES

The available evidence shows that whether small firms perform well or not, and more importantly, whether they yield prospects for economic and socially viable development, is largely a question of how they are organized and in which political and institutional setting they operate [Schimtz, 1982]. More specifically, the literature links low employment generation, low productivity and low remunerative capacity of SSIs with several possible causes. For example, Kahnert (1987:33) grouped factors constraining the growth of employment and productivity into three types:

a)   those that inhibit human capital accumulation, for example, insufficient or unequal access to eduction, training, health and managerial and entrepreneurial know-how,

b)   those that distort access to or prices of complementary inputs, such as imperfection in the markets for investment and working capital, land, and other material inputs or inadequate availability of public utilities and services such as telecommunications, water, electricity, and transport; and

c)   those that impose unnecessary cash and time costs on business transaction, such as those caused by inappropriate land use, zoning and building codes, business permits, fee structures, and licensing requirements, not to mention inefficient public administration in general.

Similarly, Page and Steel [1984] grouped the constraints into two, namely the supply side and the demand side constraints. The supply side constraints include lack of access to investment and working capital, problems of raw material supply, lack of skilled labour, insufficient training and knowledge and inadequate infrastructure. Demand side problems include weak aggregate demand, unequal distribution of income, and competition from subsidized large scale industries and imports.

The objective of this section is not to discuss and analyze all these constraints because of the following reasons. First, they were widely discussed in the literature [ILO, 1990; UNIDO, 1991; solomon, 1992; Eshetu, 1986: Ahmed and Hayyalu, 1986; Teshome, 1984; ILO, 1983]. Second, the deleterious effects of such policies have been recognized by the previous government as well as by the transitional government, and now the government is in the process of undertaking major policy reforms. Thirdly, as succinctly pointed out by Kahnert (1987) we know all the above mentioned constraints affect businesses and thereby employment and labour productivity but we can not gauge their respective importance on the general level. The

impact each has will depend greatly on the type of business activity, on the ability of industrial enterprises to substitute for market or public sector failures and on the severity of the constraints and its changes overtime in specific areas. Fourthly, the scope of the paper and the nature of the study limit us to a brief discussion of these issues leaving the broad discussions and analysis to other interested researchers.

Due to these reasons, the main focus of this section is to remind the reader the existence of various constraints affecting the performance of SSIs.

Our results of the previous regression of employment on wages and output, as pointed out earlier, indicates that opportunities for employment generation in SSIs depend partly on the production of the small scale industrial sector. Therefore, factors which affect the development of SSIs in terms of their numbers, size and production work directly and indirectly against employment creation in SSIs. Moreover, our analysis of the production and income aspects of employment in SSIs shows that SSIs are inefficient in their use of resources and they provide inadequate incomes for their employees. Then, what are the possible explanations for these situation?

According to HASIDA survey of 1984/85, the following factors were cited as the major bottlenecks for SSIs.

Table 28

Major Bottlenecks, in Percentage and Rank, 1984/85

Type of Constraints	%	Rank
Inadequacy of Management	1.09	7th
Labour-employer Relations	0.98	8th
Skilled-manpower	2.46	6th
Marketing Problem	19.56	3rd
Raw Material Problem	25.56	2nd
Financial Problem	26.02	1st
Obsolescence of Machinery	17.55	4th
Transportation Problems	7.66	5th

Source: HASIDA Survey of 1984/85

According to the response of the small scale industry proprietors, therefore, the main constraints are financial, raw material and marketing problems, while inadequacy of management, labour employer relations and skilled manpower were among the least problems. Eventhough not stated as part of the problem, it seems that most of the above stated problems were the result of the government policies.

Of course, cognizant of the contribution small scale industries can make to the development of the national economy, the Ethiopian government took a great stride by establishing the Handicrafts and Small Scale Industries Development Agency (HASIDA) in 1977.

Per the Proclamation which established HASIDA (Negarit Gazeta, 1977), the main objectives of the Agency are to promote, encourage and coordinate the development of handicrafts and small scale industries.

The Agency has the following powers which are necessary for the attainment of its objectives.

- in accordance with national policies and plans formulate policies for the development of handicrafts and small scale industries and supervise the implementation of such policies;

- carry out surveys and research concerning handicrafts and small-scale industries;

- assist in the identification of improvable handicrafts and potential SSIs;

- study small scale industries for the products of which there is durable market demand; prepare projects for such industries and assist those who are willing and capable of implementing such projects;

- assist and encourage the establishment, growth and expansion of handicrafts and small scale industries in accordance with guidelines to be used by the Ministry of Industry.

- organize and operate demonstration and training centers designed to promote and assist Handicrafts and small scale industries.

- assist handicraft enterprises and SSIs in marketing, supply of raw materials and equipment, training, production techniques and management, and obtaining credits from banks;

- Regulate and issue licenses to small scale industries.

However, despite the establishment of HASIDA in order to encourage and promote the development of SSIs, the available evidence shows the existence of unfavorable policy environment for small scale industry's development. For example, as pointed out previously, the Government ownership and control of the means of production Proclamation, proclamation No.26 of 1975, delineated economic activities to be undertaken exclusively by the government, jointly by the government and foreign capital, and by the private sector. According to the Proclamation No.76 of 1975, a proclamation relating to commercial activities undertaken by the private sector, no license ... as industrial owner shall be issued to a person who has a permanent job, and no person shall obtain more than one license nor possess more than one business or establish a branch. Moreover, the Proclamation sets a capital ceiling of 500,000 Birr for any private industrial activities; the law also permitted group ownership of industrial activity with the restriction that the group membership shall not exceed five and they have to be actively participate in carrying out the activities.

These measures are an attempt to rationalize the small scale manufacturing and give it a new and socialist direction in line with the declared objectives of the government to create a socialist state and thus manage the economy according to the principles of socialism [ILO, 1990]. However, these proclamations limit the scope of sectoral activities and the establishment of SSIs.

The undesirable effects of the capital ceiling amounting to 500,000 Birr was expressed by ILO (1982) as follows: First, it gives a very strong incentive to consumption rather than further accumulation as the limit is approached. Second, since it does not apply to firms already above it, it has the anomalous effect of particularly discouraging growing as opposed to large firms. Third, the level falls in an unpredictable way depending on inflation. Fourth, it is an arbitrary level with no reference to the size composition of particular industries. All of these factors, goes the argument, are likely to encourage an inefficient private sector. [ILO, 1982: 159]

Regarding the determination of the scope of economic activities for SSIs, [ILO, 1982: 160] stated that ... we can see no case for the private sector being given a particular set of activities since this removes one of its main advantages of flexibility. Either private sector should be allowed in all areas of the economy or the restriction should be expressed the other way round by specifying clearly what activities the private sector is not allowed to enter.

Moreover, according to the proclamation, persons with permanent jobs and with money (or expertise) can not put their money (as passive partners) into such productive use. Or, persons with skills but without money can't raise fund through mustering of such activities. By law, more than one license is not normally issued, and establishment of branches is not allowed. Innovative, versatile and expansion minded entrepreneurs are, therefore, inhibited (from exploiting their full potential).

Perhaps, these policies also encourage more of the same kinds of activities than different kinds, entailing a narrow product category. Moreover, it may tend to concentrate activities in only certain given localities. This trend may limit the mix of products and encourage competition among SSIs for inputs and product marketing which probably reduces the productivity and income generating capacity of SSIs.

Moreover, in line with its socialist ideals, the previous government employed a number of discriminatory mechanisms in project financing, foreign exchange allocation and raw material rationing. For example, Table 29 below indicates the volume of credit extended by Agricultural and Industrial Development Bank (AIDB) to industrial activities.

Table 29

Loans Approved to Industrial Projects ('000 Birr)

Fiscal Year	Industrial Activities					
	Industrial Public Enterprises		Cooperatives		Small Scale Industries	
1981	7098	(92.7)	162	(2.1)	401	(5.2)
1982	929	(59.0)	115	(7.3)	531	(33.7)
1983	41150	(91.8)	278	(1.8)	984	(6.4)
1984	57544	(95.4)	378	(0.6)	2407	(4.0)
1985	11880	(82.0)	-		2610	(18.0)
1986	53756	(95.6)	-		2498	(4.4)
1987	96814	(97.5)	-		2475	(2.5)
1988	127167	(95.5)	-		6061	(4.5)
1989	116108	(92.4)	208	(0.2)	9267	(7.4)
1990	47072	(85.9)	20	(0.1)	7672	(14.0)

Note: Figures in Parenthesis are Row Percentages

Source: AIDB, Annual Report, Various Issues.

The Table reveals the relatively low share of the small scale industries in the total industrial loans granted largely due to the government economic policy which stood against private participation in the economy. In this regard, Dejene [1993] stated that small and micro-scale enterprises, which are subjected to repressive government policies, are denied access to credit from the formal sector. They meet their credit requirements largely from the informal sector of which the "iqqub", a voluntary, rotating savings association of individuals, is an important part.

However, our results of the Cobb Douglas production function warns us to distinguish probably the need for finance between fixed and working capital. It seems that the rating of financial problem as the foremost problem is typically for the working rather than fixed capital. For one thing, our

regression result seems to indicate the inefficient utilization of fixed capital in SSIs. For another thing, working capital shortages are often the symptom of some other problems. For instance, a raw material delivery bottleneck may force proprietors to keep their raw material inventories at unduly high levels. Similarly, managerial inefficiencies such as siphon-off funds to nonbusiness activities can appear as a working capital shortage. The raw material shortage, which the proprietors place 2nd in the list may represent the true need for raw materials, because our regression result also supports the shortage of raw materials as compared to labour and capital. With regard to domestic raw materials, the problem lies in the centralized distribution system, on the one hand, and in the acute shortages of raw material supply from domestic sources, on the other. With regard to imported raw materials the government allocated a smaller proportion of foreign exchange to SSIs. The shortage of raw materials has forced industries either to close down or operate below capacity [Solomon, 1992].

Eventhough the inadequacy of management was listed among the least bottlenecks, this constraint deserves much attention. Small proprietors are generally not aware of their need for technical and managerial assistance and they rarely mention technical and managerial deficiencies as a problem [Liedholm and Mead, 1987]. Proprietors may also be reluctant to admit that they are poor managers. However, the success of SSIs depends on the ability of the entrepreneur to recognize and

seize opportunities and to manage the enterprise's operation. Thus there are several entrepreneurial characteristics that can be hypothesized to have an important effect on the economic performance of SSIs [Liedholm and Chuta, 1976]. Primarily, it is hypothesized that the entrepreneur's acquisition of some formal education would be expected to have a positive effect on the performance of a firm. The education would be assumed to enhance the entrepreneur's managerial, organizational and technical skills and consequently influence his or her ability to operate the firm. In other words, formal education and training may influence the choice of the quantity, quality and type of other factors of production and the way they are combined in the production process. Thus, formal education and training could contribute indirectly to productivity by enhancing the entrepreneur's ability to adjust to changing conditions and to innovate.

Second, it is hypothesized that those entrepreneurs keeping records or business accounts could perform well. With the increasing use of outside wage labour and the difficulty of supervising this labour there comes a threshold where the non-separation of business and family becomes an obstacle. Thus, there is a need to formalize organizational procedures and the mode of management.

Another possible indicator of the weakness of the small scale proprietors is the nature of their responsibilities. It is often stated that, in SSIs specialized management is rare; one person is usually responsible for production,

administration, finance, marketing, and numerious other functions which will tend to reduce their performance [World Bank, 1978].

The ill-informed business person can easily make decisions resulting in an inefficient use of resources and thereby seriously affect the enterprise's ability to compete effectively. Many of the other difficulties, such as technical information, marketing, credit, raw material and infrastructural problems, may also stem from lack of specialized management.

An examination of the socio-economic characteristics of the proprietors and their enterprises, for which the data were available indicates the following features.

Table 30

Characteristics of Small Scale Industrial
Proprietors and Their Enterprises, 1984/85

Characteristics	Percentage
1. Number of Proprietors by Educational Level:	
a) Illiterate	7.2
b) Elementary /1-6/	67.1
c) Junior Secondary /7-8/	9.5
d) Secondary School /9-12/	12.0
e) Technical, Commercial and University	2.8
f) Not Recorded	1.4
TOTAL	100.0 (=7,613)
2. Number of Proprietor According to their Responsibilities:	
a) General Manager	8.7
b) Technical Manager	0.9
c) Sales Manager	1.9
d) Administrative Manager	16.9
e) All Responsibilities	71.1
f) Not Recorded	0.5
TOTAL	100.0 (=7,613)
3. Number of Enterprises According to Separate Accounts:	
a) Enterprises that keep Records	7.5
b) Enterprises that do not keep Records	91.5
c) Not Recorded	1.0
TOTAL	100.0 (=7,684)

SOURCE: HASIDA (1988)

Table 30 indicated that eventhough inadequacy of management were rarely mentioned as a problem by a small scale industry proprietors, the true need for managerial assistance, however, may be greater than the proprietors' perceived need for it.

Similarly, the skill shortage stated by SSI proprietor may be an underestimation of the true problem. This could be observed from the following Table.

Table 31

**Educational and Age Structure of Persons
Engaged in SSIs, 1984/85**

Characteristics	Percentage
1. Persons Engaged by Level of Education:	
a) Illiterate	4.6
b) Elementary /1-6/	61.2
c) Junior Secondary /7-8/	11.9
d) Secondary School /9-12/	12.9
e) Above 12th Grade	3.0
f) Not Recorded	6.4
TOTAL	100.0 (=36,846)
2. Persons Engaged by Age Group:	
a) Below 21	15.00
b) 21-40	53.80
c) 41-60	21.50
d) 61 and Above	3.50
e) Not Recorded	6.20
TOTAL	100.0 (=36,846)

SOURCE: HASIDA (1988)

The skill shortage observed in SSIs may be due to the fact that during the period, ONNCP allocates all graduates and diploma students to the public sector enterprises for their first job and these staff were unable to get transfer with out their employers consent. Consequently highly qualified personnel are directed away from private enterprises. Technical school graduates are also discouraged from taking up

posts in the private sector due to perceived lower wages and job insecurity [UNIDO, 1991]

In this regard, it is important to note that education, training and age of the workers (as a proxy for experience), have an important impact on labour productivity and earning. Other things being equal, higher human capital (education, training and health) increases labour productivity and command higher wages [Kahnert, 1987]. Comparisons of our results of Cobb-Douglas production function and the wage structure in SSIs show to a certain extent a link between productivity and incomes. Production, administrative and technical workers whose marginal contribution was positive were more remunerated than proprietors and unpaid family workers whose marginal contribution was negative.

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Manufacturing activities in the Ethiopian economy are carried out by enterprises of varying sizes and scales: the medium and large scale enterprises, the small manufacturing enterprises and the handicraft activities.

In Ethiopia, as in other developing countries, emphasis is often placed on the promotion of small scale industries as a means of creating large employment possibilities, equitable distribution of income, balanced regional development of the economy, stimulation of indigenous entrepreneurship and efficient utilization of resources, among others.

Of all the arguments advanced in support of small scale industries, the creation of large employment possibilities and the efficient utilization of resources are at the center of the debate.

The argument in support of small scale industries development programme is that they are labour intensive, and can therefore generate more employment for a fixed stock of

capital as compared to their larger scale counterparts. According to this view, SSIs are labour intensive due to their flexible factor substitution possibilities, and can hence be used as a means of alleviating the pressures of urban unemployment and underemployment.

The counter argument run as follows: small firms may have a lower capital labour ratio but they are inefficient in the sense that they use more labour and more capital per unit of output than larger firms do. More specifically, it is argued that small scale industries are family oriented enterprises, accommodating kith and kin up to the point where the marginal product of labour may be zero or negative. As a result, goes the argument, they increased the absorption of labour while at the sometime increasing under employment. Consequently according to this view, the expectation that the promotion of SSIs would alleviate the employment problem of developing countries did not materialize.

Thus, this paper goes someway towards analysing these issues.

Most of the previous studies made in Ethiopia compared the capital labour ratio of small scale industries with that of medium and large scale industries in order to measure the labour intensity of small scale industries and, hence, their employment generating capacity. The evidences indicate mixed results.

Similarly, previous empirical works also used output - capital ratio (capital productivity) or output labour ratio (labour productivity) as the measure of the economic efficiency of small scale industries. Empirical evidence, again, indicates mixed results regarding the efficient utilization of resources by small scale industries as compared to medium and large scale industries.

However, one can not judge from the previous studies whether labour in a small scale industry is productively employed or is a form of disguised unemployment. Thus, in this study, the production function approach was used in order to know the marginal contribution of different resources to total output in small scale industries.

In order to estimate the labour absorptive capacity of small scale industry, the variants of the Constant Elasticity of Substitution (CES) production function was fitted. On the basis of R^2 and standard errors, the fit was good. The computed elasticity of substitution coefficients, as in the case of previous studies for medium and large scale industries, indicate that production technology is employment constraining; that is, significant changes in industry employment are unlikely via changes in relative factor prices since substitution (of labour for capital) possibilities are rather low.

One of the variants of CES production function, namely, the employment function, fitted for small scale industry indicates the importance of small scale industry's production in affecting the level of labour demand by small scale industry. However, the magnitude of the employment elasticity of output was all less than one (except for 1981/82), implying the inelastic nature of employment output elasticities in small scale industry. This result is also consistent with previous findings for large and medium scale industry.

In order to have insights into the efficient utilization of resources by small scale industries, the Cobb-Douglas production function and the linear production function were fitted. The results demonstrate that factor utilization in small scale industry was less than optimal. Viewed from the production aspect of employment, this implies that, there are many workers who are normally counted as "employed", but added little or nothing to the national output. This supports the widely held view that employment in small scale industry is a form of disguised unemployment where workers appear to be employed but in fact, are not contributing to the net social gain. This is so probably because of interrelated factors: limited factor substitution possibilities and mode of production where a family enterprise has a social obligation to share its work and income with needy relatives.

In addition to the above findings, small scale industries also exhibit the following characteristics. Small scale industries tend to concentrate in the production of consumer

goods. Food, textile and wood products together accounted for more than 60 percent of establishments, employment and output. During the 1980s, they were also unevenly distributed geographically.

On the basis of occupational category, the vast majority of workers were production workers followed by proprietors and unpaid family workers, while apprentices labour constitute a very small proportion of small scale industry employment followed by administrative, technical and clerical workers. The level of education of the proprietors and the workers was also very low.

Lack of specialized management, in which the same proprietor acts as the general manager, technical manager, sales manager and administrative manager, was also observed in small scale industries.

Finally, it was observed that,the general policy environment, inclusive of proclamations and declarations, was not conducive to the development of small scale industries. These policies, militated against the establishment, development and diversification of small scale industry. This in turn,affects not only the employment generating capacity of small scale industries, but also their productivity and remunerative capacity.

6.2   Recommendations

The results of the study indicates that small scale industrial activities are low productivity and low income sector. Thus, in designing policies towards the development of small scale industries, it is advisable for the Ethiopian government to aim at creating productive and remunerative jobs. To this end, the government can assist small scale industries through various interrelated ways:-

1.   The policy environment both pre and post 1974 was biased towards large scale industries. Industrial policies, including tariffs, investment incentives, industrial licensing, foreign exchange allocations, etc., have tended to favour large scale industries at the expense of small scale industries. Particularly, during the Derg regime, there were laws and regulations that were downright hostile to small scale industries. These policies affected the establishment, expansion and operation of small scale industries. The experience of developing countries shows that such policies lead to allocative inefficiencies, lower output and lower employment [Haggblade et.al, 1986]

Thus, the first step that the government of Ethiopia can do to assist small scale industries is the removal of the discriminations against small scale industries. Of course, various measures were taken both by the Derg regime especially after 1989, and the current Transitional

Government of Ethiopia. These measures include lifting of capital ceiling, widening of the scope of economic activities, elimination of "one-man one-license principle" and the opening of opportunities for establishing branches, among others.

2.   The results of the estimates of the employment function indicate the existence of important linkages between the demand for labour and the level of production in small scale industries.   Hence, a strategy of expanding the participation of small scale industries in the economy and their demand for labour, depends in part, on the conditions of production and on increasing the demand of goods produced by small scale industries. An increase in the demand for their products will, in turn, depend upon various factors such as income of the household, extent of linkages between small scale and large scale industries and expansion of exports. Experiences of other developing countries (see for example, Haggblade etal, 1986) show that the removal of bias against agriculture and exports as well as the institution of a policy environment that is at least "neutral" with respect to enterprise size is likely to increase the demand for the products of small scale industries.

       Thus, in reviewing the general policy environment for small scale industries, it is necessary to take into account agricultural, trade and foreign exchange policies. The relative importance and potential benefits of

increasing agricultural income or income of households, expanding exports, and increasing linkages between small scale and large scale industries depend on the type of products and the level of development of small scale enterprises.

3. From the relative magnitudes of the estimated elasticity of substitutions for small scale industries, it seems that the instrument of relative prices was less likely to affect the choice of techniques in small scale industries. As a result, in addition to reforming relative factor prices, the government should find ways of disseminating information to small scale entrepreneurs on existing efficient, labour intensive technological alternatives. Wherever technologies appropriate to the factor endowments of the country do not exist, an attempt should be made to create appropriate technologies through encouraging research activities.

4. Results from the estimated coefficients of Cobb-Douglas and linear production function indicate the inefficient utilization of labour in small scale industries. This is so, due to the over use of labour and the inadequate availability of other complementary inputs, especially raw materials. Thus, sufficient allocation of raw materials to small scale industries is likely to increase output in small scale industries. Similarly, facilitating the movement of labour among different activities and locations, for example, through the provision of necessary

information as well as through covering some transport costs, is likely to increase the productivity of labour in small scale industries.

Moreover, small scale entrepreneurs frequently identify financial, marketing, raw material shortages etc., as the main constraints. Furthermore, the analysis of the characteristics of the small scale industry proprietors and their employees indicates the acute shortage of skills and managerial abilities in small scale industries. This implies the need for direct assistance programmes for small scale industries. These include the provision of financial assistance, infrastructure, raw materials, spare parts and managerial and technical assistance. Dhar and Lydall [1961] suggested direct assistance programmes along the following lines:- If small firms are technically back ward, remove this disability by offering them technical advice and help, but beyond a certain point such an advice should be charged for. If small firms lack capital, try to provide the necessary institutional channels to give them access to capital, but not at a subsidized price; if they lack marketing contacts, help them to establish such contacts but without taking over responsibilities for selling their products; if they lack good premises, put up industrial estates but not at heavily subsidized rents.

Therefore, assistance and training in managerial, financial and technical skills enable the small scale industrial sector to raise the productivity of the work force and hence their income. The government may also assist small scale industries in acquiring raw materials, credit and foreign exchange by encouraging, for example, the establishment of small manufactures association. This may overcome their limited administrative resources and their inability to undertake the protracted bureaucratic procedures required to obtain the necessary resources.

5. As in other developing countries, the employment problem in Ethiopia is not only one of lack of employment, but also lack of adequately remunerative and productive jobs. It is also likely that the employment problem pervades the entire economy in one form or another. It is therefore, as suggested by Edwards [1974: 12-14], only through the revision of total development strategy and its application to rural and urban areas, modern and traditional sectors, public and private activities, and education and job creation that lasting solutions (i.e to employment problem) can be found.

NOTES

1. Since the role of small-scale industries in the economic development of Ethiopia by way of (a) utilizing local resources, (b) producing basic goods and services, (c) reducing the balance of payment deficits etc., were widely discussed in the literature [Solomon, 1992; UNIDO, 1991; HASIDA, 1987; Ahmed and Hayyalu, 1986; Simme, 1985; ILO, 1983], in this study, an attempt is not made to describe and analyze the role of small-scale industries in all these respects.

2. However, as far as the Ethiopian situation is concerned, this statement must be viewed with some cautions.

3. As pointed out in Chapter 1, in this study, Ordinary Least Square single equation method is used to estimate the parameters of the CES and the Cobb-Douglas production functions.

    The problem of high R^2 with high standard errors, occurred in some of the estimates. This may indicate the incidence of multicollinearity or hetroscedasticity. Consequently, cautions must be made in interpreting the values of the estimated parameters.

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DECLARATION

I, the undersigned, declare that the thesis is my original work, has not been presented for a degree in any other University and that all sources of material used for the thesis have been duly acknowledged.

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Signature _____