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**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**AN ECONOMIC ANALYSIS OF EDUCATION,
EXPERIENCE AND EARNINGS: THE CASE OF SELECTED
URBAN CENTER IN ETHIOPIA**



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Experience and Earnings:
The Case of Selected Urban Centers in Ethiopia**



By
Zinash Kefale Zewdie



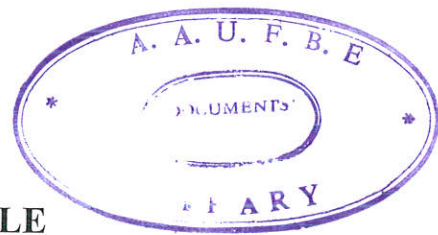
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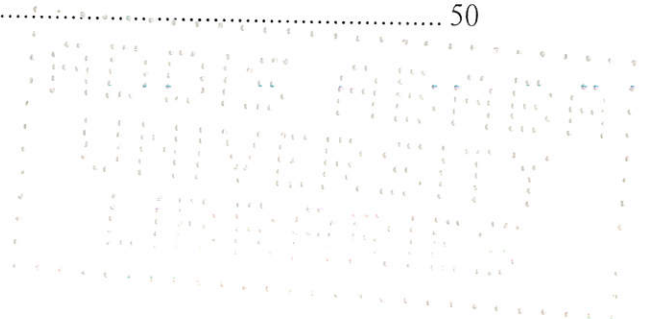
ABSTRACT

With the growing interest in human capital theory, assessing the impact of education and experience on earnings has been given special emphasis. The main objective of this study is to examine and estimate the influence of education and work experience on earnings of Household Heads in the selected urban centers in Ethiopia. The earning function is used to estimate the impact of human capital variables using secondary sources of data, which is collected by the Addis Ababa University and Göteborg University. The main findings of the study are: (a) Human Capital variables (education and experience) are most important in influencing earnings of the Household Heads for both wage/salary employees and own-account private business workers; (b) Male household heads who are wage/salary employees on average, receive higher earnings than female household heads with the same level of education, experience, occupation and sector of activity; (c) Household heads who are employed in the private/international organization receive, on average, higher earnings than other sector; (d) Household heads who have professional/administrative type of occupation, on average earn higher than other type of occupations. In addition, the start up capital of the main business has a positive impact for earnings of own account business workers. So in this study the relationship between higher earnings, higher educational attainment and occupational attainment is evident. This result has a policy implication that there is a need for qualitative and quantitative expansion of education at various levels as a major component of human resource development in Ethiopia.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

One of the most important issues in human capital theory is to know the contribution of human capital to economic development. Investment in human capital has long been on interest geared towards investigating whether or not it is profitable. Among such human capital variables as education and experience has been recognized as the most important investment in human capital for a long time. Various researchers in many parts of the world have been trying to analyze the effects of human capital on the economy of a given country both at the macro and micro levels. The concept of development has also gradually evolved towards being expressed in terms of the development of people.

(Education defined broadly as 'all deliberate learning activities' is usually used as an approximation to human capital. It is believed to create a productive citizen by inculcating important and useful knowledge into the minds of people there by speeding up economic development. In other words education "transforms the raw human beings into production human capital by instilling the skills required by both the traditional sector and the modern sector of the economy, and makes the individuals more productive not only in the market place but also in the household" (Tilak, 1992).)

(In addition (education satisfies a basic human need for knowledge, adds greater sense of participation, provides a means for meeting other basic needs,) helps add cultural and civic

dimensions to an individual's existence. That is why most of the studies in the area of human capital use formal education (usually years of schooling) and informal education (age experience) to analyze the contribution of human capital to growth.

In Ethiopia modern formal education is of recent origin. Towards the end of the Nineteenth Century however, several things draw attention for the need for modern education. The establishment of central state authority and permanent urban seat of power, the development of the modern sector economy the arrival of foreign embassies because of the recognition gained after the battle of Adwa etc. (MOE 1984). Thus modern education has to be started at the beginning of the Twentieth Century and it officially commenced in 1908 with the opening of Menlik II school in Addis Ababa, marking a significant step in the history of modern education in Ethiopia. In fact the growth of education in the country was very sluggish until 1942, and its overall development is still, very low by most international standard. According to UNESCO's 1995 statistical year book the primary gross enrollment and most of the other educational indicators for Ethiopia are well behind even from most of the Sub-Saharan African countries.

(As outlined by Lau et.al (1993) education can affect the economy as follows. First, education enhances the ability of an individual to perform standard tasks and to learn to perform new tasks. Second, education enhances the ability of individuals to receive and process new information. Third, education enhanced the ability of individuals to communicate and therefore to coordinate activities with one another. Fourth, education enhances the ability of an individual to evaluate and adjust to changing circumstances. Fifth, education enhances the probability of adoption of new technologies or practices by an individual. In addition at higher level it also help to bring about innovations in production technology.)

As a result economists emphasizing the role of education as an investment in the future. Since education and training expected to increase an individual's productivity in the work place it should also serve to raise the expected stream of future income.

According to 1996/97 data a total of 4 million students were enrolled in 10204 primary, 1472 junior secondary; 369 senior secondary and 17 in technical vocational schools. (MoE 1988, Educational Statistics annual Abstract)

Various studies conducted in low income countries revealed that education (both formal and informal) enhances productivity by imparting knowledge and skills that can make a worker more efficient, and hence, improving the earnings of the individual. So this study is expected to add some findings to the accumulated knowledge in these areas.

The organization of the study is as follows, chapter two presents briefly an overview of the Ethiopian educational sector, its present status and associated problems. The third chapter is devoted to the review of the theoretical and empirical works done in the area of education and earnings. The data base and the methodology of the study are presented in the fourth chapter. The fifth chapter deals with the empirical findings of the study and the conclusions and recommendations of the study.

1.2 STATEMENT OF THE PROBLEM

Although recent trends are also encouraging education in Ethiopia has come some distance in making education available to its people. The educational policies of the different governments in Ethiopia are as follows:

Imperial Ethiopian Government Second Five Year Plan (1963 - 67)

"Education in Ethiopia can not be considered as an end set apart from the general requirements of socio-economic development. It has primarily to serve the needs of the country's development and this makes its fullest contribution to the achievement of national goals."

During the Derg regime the educational policy was envisaged in the 1976 program of the National Democratic Revolution (NDR). It was the comprehensive guideline to government action. Referring to the education sector it states (1977):

"There will be an educational programme that will provide free education, step by step, to the broad masses... All necessary measures to eliminate illiteracy will be undertaken. All necessary encouragement will be given for the development of science, technology, the arts and literature."

In 1994 a new Education and Training Policy and Strategy (ETPS) to restructure the education system and expand its accessibility in a form that is directly relevant to the present and future requirements of the economy, says:

"The curriculum developed and text books prepared at central and regional levels will be based on sound pedagogical and psychological principles ... giving due gender issues. Training will be provided on agriculture, crafts, for those with the appropriate age".

In almost all cases education has been seen as a major driving force in accelerating the process of economic growth in the country. Investing in peoples' education boosts the living standards

of households by expanding employment opportunities, raising productivity, attracting capital inflow and enhancing earning power. The global recognition of the importance of investing in human capital has thus led to unprecedented world wide increase in schooling in recent years.

In addition to setting targets and drafting various strategies a considerable amount of recurrent and capital budget has also been poured into the educational sector. On the average between 1969/70 - 1973/74 around 13.25%, 1974/75 - 1990/91 around 11.7% and between 1991/92 - 1995/96 13.3% of the total government expenditure was allotted to the educational sector (MoE, Basic Education Statistics).

In all of the above efforts was and is that accumulation of knowledge through education is a major decisive factor in economic development. Educated persons are expected to perform certain jobs and functions with higher efficiency and adopted new technologies in a shorter period of time than uneducated persons. This is because relatively more educated persons can easily gather, process and interpret all available information so as to make decisions with relatively small errors.

In addition education arguments the ability to perform standard tasks to process and use information, and to adapt to new technologies and production practices. Education also contributes to socio-economic development by endowing individuals with the means to improve their skills, knowledge and the capability for productive work. All these benefits can be powerfully reinforced by better education services.

The transition from a centrally planned economy to a market economy has brought many economic changes. An enterprise staffed with personnel equipped with the proper skill and

education has to appear at a higher production frontier to insure better resource utilization and higher productivity. Ethiopia being cognizant of this fact has put every effort to hasten human resource development. This can be seen from the total public and education expenditure figures. Total public expenditure on education increased continuously since 1990/91 at an annual average growth rate of 23.1 percent. Its share in total public expenditure, rising from 9.7% in 1990/91 to 13.8% in 1995/96. This paper attempts to address the human capital variables such as education and experience contributes to improve earnings of the household heads in selected urban center in Ethiopia.

(Education is generally assumed to raise productivity by imparting knowledge and skills that can make a worker more efficient, and hence, more valuable in the labour market. While this is generally accepted, some controversies have arisen in recent years about the value of education. Such controversy surrounds "the screening hypothesis" namely that earnings differences might be due to the superior ability of the more educated rather than to their extra education.) The earning function used in this study, assumes that education performs a human capital function rather than a screening or credential function.

1.3 OBJECTIVES OF THE STUDY

The main objectives of the study are to analyze the impact of education and experience and other related variables on earnings of the household heads in selected urban centers in Ethiopia. An understanding of the differences in earnings which stems from productivity endowments such as education, years of experience, household personal characteristics is critical to achieving both the goals of income growth and distribution. The empirical investigation focuses on explaining to what extent the earning of the individual is sensitive to productivity endowments.

Specifically the study has the following objectives.

1. To test empirically the impact of human capital endowment such as education and experience on earnings of household heads who are wage/salary employees and who run businesses as own account workers (private business);
2. To assess the existence of earning differentials between male-female household heads;
3. To test empirically the impact of other factor such as occupations and sectors of activity on earnings of the household heads.



CHAPTER TWO

EDUCATION IN ETHIOPIA: AN OVERVIEW

2.1 HISTORICAL DEVELOPMENT OF EDUCATION IN ETHIOPIA AND ITS PRESENT STATUS

Generally, almost all of formal education from the early Christian era until the end of the Nineteenth century was under the protection of the Ethiopian Orthodox Church (Noonan 1995). The first attempt to open schools of a European type was made by the Jesuits in the 16th century (Negash 1990). Towards the end of the Nineteenth century however, several things accentuated the need for modern education. The establishment of central state authority and permanent urban seat of power, the development of the modern sector economy, the arrival of foreign embassies because of the recognition gained after the battle of Adwa etc. are among the factors (MoE 1984).

However the contribution of the educational system to the development of the Ethiopian economy is controversial. For instance, Mesfin kinfu argued that "Though Ethiopia has had her own alphabets for quite a long time in history, and though "education" as spread about by church school is not a new phenomenon in the country yet the methods which were followed by this institution were not in line to the needs economic development (Mesfin, 1969).

The Ethiopian modern education system had also showed great progress in the time of Emperor Haile Selassie. The participation of the government in expanding schools was continued until the Italian invasion and around 1936, there were at least 21 schools owned by

the government (Teshome, 1979). When the country was liberated in 1941, there were virtually no schools, no teachers and no educational materials. On the other hand, there was an acute shortage of educated personnel who could manage the government office, the armed forces, the commerce and transport services that were in the process of re-organization. Thus the main emphasis at this stage was the creation of an educational system that could provide for clerical, technical and administrative personnel to run the government machinery (Terefe 1964: 7). To meet this need reconstruction began with the re-establishment of the Ministry of Education in 1942. Schools which were closed by the Italians were reopened, many other new were constructed and around 1950 there were 540 schools of all types and the Ministry of Education was able to launch a ten year plan for the development of education in the country (MoE 1960).

With the demand for more and better education constituting one of the major roots of the revolution, the Provisional Military Administrative Council (PMAC) had to take immediate steps as soon as it came to power in 1974 (Christian Fellner, 1999) In its guide lines issued on December 20th, 1974 it declared that "under the banner of education for all, citizens shall have the right to free and fundamental education" (PMAC, 1974). Accordingly the Ministry of Education readjusted its priorities and goals towards promotion of universal primary education, reduction of inequalities in access to second level education, significant increase in the participation of girls and women in all aspects of the education programme introduction of a new curriculum and needs of the mass of the population and to the development requirements of the education system in a decentralized nature, with communities in peasant and town associations, and with government services. (Christian Fellner, 1999).

The National Democratic Revolution programme, launched on April 20, 1975 provided policy guidelines for educational development and stated that free education should be guaranteed to the masses, that illiteracy should be eradicated in the shortest time possible, and that priority should be given to the development of science technology, art and literature.

The campaign of National Development work through cooperation (Zemecha) and the literacy campaign were also very important measures taken by the government to tackle illiteracy in the country. Education was also given special emphasis by the ten-year - perspective plan (1983/84 - 1994/95). The education system was planned to be changed from 6-2-2 system to 8-2-2 with special emphasis on technical and vocational education (Teshome, 1988, p. 178). It was also planned to offer universal education up to 8th grade and general and poly-technical education for 9-10 grades and for 11-12 grade students respectively.

Significant expansion of school and enrollment was observed particularly in the first decade (1974 - 1984). The number of all types of schools in the country had risen from 3,287 in 1974 to 8,162 in 1984. Primary schools alone had more than doubled, rising from 2759 in 1974 to 7096 by 1984. The primary teaching staff had also grown from 18,644 to 46,622. The number of primary school students had more than doubled to 2,497,114 in 1984 from 859,831 in 1974. The participation of females has also shown dramatic change over time. It increased from a mere 10% in 1974 to 29% around 1990. The growth at the junior and senior secondary levels also followed similar trends (MoE 1995 and MoE Basic Education Statistics, various issues). In addition, successive rounds of literacy campaigns aimed at raising adult literacy were conducted. Generally, the early years of the socialist government did see a great expansion of schooling.

After the 1993/94 political change, the economic policy of the country changed from socialist oriented to an open market economy. Structural Adjustment Program (SAP) has been introduced in the country. In the education sector the number of schools constructed for all levels of education has increased, the teacher student ratio has decreased significantly and students are allowed to study primary education in their own language. The past and present status of the country's education can be assessed by using indicators such as literacy and participation rates, educational expenditure etc.

The literacy level before 1974 was less than 10 percent and this level dramatically increased between 1979 and 1989 and it reached 76 percent in 1990 (MoE, 1993).

The transitional Government of Ethiopia (TGE) in 1991 provided objectives of education for the transition period which were built upon the policies of the Derg except the latter's socialist orientation. These are education for production which relates practical and technical skills to attitudes expressing respect and love for labour, education for scientific conscience emphasizing an environment for inquiry and experimentation and, the application of scientific methods to all aspects of learning.

However, since 1994 a new Education and Training Policy has been adopted taking into consideration the structure of education as it evolved overtime and the long term objectives set for it. In order to implement the objectives the government of Ethiopia has developed various strategies, which are pertinent to the overall development objectives in general and educational development program in particular. Those strategies have focused on reorientation and modification of the existing educational system, revising and improving curriculum that fits within the educational objectives set out in the Education and training policy of Ethiopia.



According to the new policy the Education Structure has changed to 8-2-2 giving more emphasis to the vocationalization of the education system and enhancing problem solving capacity of students.

In addition the transitional Government of Ethiopia declare a new education policy encourages private investment in education. The TGE declared that the Government will create the necessary conditions to encourage and give support to private investors to open schools and establish various educational and training institutions. The new education and training policy envisages a vocational/technical training system parallel to the academic system. The policy also allows among other things a diversity in the languages of instruction at the primary level. From more than 80 ethnic groups in the country so far about 17 have started using their languages as a medium of instruction.

Education/training is one of the sectors in which the private investors can make significant contribution to the formation of human capital and to ensure sustainable development. The bulk of the Ethiopian education (be it elementary, high school, technical/vocational or higher education) is largely financed by the government. The budgetary allocation to education has been rising in recent years amounting to 11.2% of the entire government budget in 1995/96. Some of the basic indicators of the education system of the country in the past two decades are presented in Table 2.1

Table 2.1 Some Basic Indicators of the Education System in Ethiopia

Year	No of Schools			Enrollment			Total education expenditure in million Birr
	Primary	Junior Secondary	Senior Secondary	Primary '000	Junior '000	Secondary '000	
1973/74	2,754	420	113	860	102	81	131.8
1979/80	5,219	706	167	1,811	186	185	200.6
1984/86	7,392	909	227	2,408	320	282	369.8
1989/90	8,345	1,092	274	2,662	418	452	495.6
1990/91	8,256	1,117	275	2,466	405	454	489.7
1991/92	8,434	1,149	284	2,064	359	416	528.5
1992/93	8,120	1,099	279	1,856	349	364	691.4
1993/94	8,674	1,167	303	2,284	357	357	997.0
1994/95	9,276	1,230	330	2,722	376	371	1,132.7
1995/96	9,704	1,304	346	3,380	409	403	1385.9
1996/97	10,204	1,472	369	4006	463	426	1511.7*
1997/98	10,752**	-	383	4,608	483	467	1551.7*
1998/99	10,051**	-	386	5,060	553	522	1680.1*

Source: MoE, Basic Education Statistics, various issues

MoF, Planning and Research Department

** Includes junior secondary schools

* Preliminary actual

2.2 MAJOR PROBLEMS IN THE ETHIOPIAN EDUCATION SECTOR

1. The system is inefficient

The Ethiopian education sector is bounded with many problems ranging from low efficiency to lack of well organized curriculum (ESDP, 1998). Internal inefficiencies are observed in high unit costs, wastage through dropouts and repetition, under-utilization of facilities and equipment at all levels of education. High rates in the level of dropouts and repetitions are an indicator of low efficiency and high performance in national examinations indicate high

efficiency. External inefficiencies are also observed with failure of schools, colleges and universities to prepare youth who are appropriately trained for the labour market.

Survival by grades and number of graduates from the final year of primary cycle are the most common indicators that can be used to evaluate efficiency in education. In 1993/94 information the survival rate for grade 2 was 59.1 percent for boys and 49.9 percent for girls. This indicate that 51 percent of girls and 40 percent of boys dropped out from the system before entering grade 2 (Education Statistics, 1996, p.106). In 1997/98 the survival rate for grade 2 was 58 percent for boys and 56 percent for girls.

In Ethiopia the efficiency loss associated with dropouts is higher than the loss related to repetition. It is argued that "74.6 percent of total wastage is due to dropouts and wastage due to repetition is 23.6 percent" (Education Statistics, 1996, p. 108).

Out of 1.8 million students who sat for grade 8 National Examinations only 61.1 percent passed the exam in 1993/94 (Education Statistics, 1996). The result of the Ethiopian School Leaving Certificate Examination (ESLCE) was also deteriorating. In 1990/91 out of 100,000 students who sat for ESLCE, 94 percent did not get enough grades which enable them to join higher institutions in the country.

2. Inadequate Facilities

Shortage of class rooms, teachers, laboratory equipments, text books, instructional materials etc. are the common problems in the Ethiopian Education System. These shortage problems have great impact on efficiency of the education system. For instance due to shortage of class rooms two shift system was introduced. The number of students in one class is also almost

twice of the recommended level. Shortage of laboratories and chemicals in most of the Ethiopian high schools also a problem for students to spend much of their time on theoretical issues rather than on practice. Although text books are among the most important requirements to conduct a good education, the capacity to produce relevant instruction materials in sufficient quantities is very limited.

3. Access

Although improving quality is paramount, priority should be given to expand enrollment. About one of three youths now attends a primary school. Secondary education is accessible to less than one out of ten youths, while tertiary education is open to only a small fraction of those completing a secondary education. Evidence from published statistics indicate that a strictly low percentage of school aged children in Ethiopia participate in formal education when compared with other low income African countries. In addition according to UNESCO's 1995 statistical year book the primary gross enrollment and most of the other educational indicators for Ethiopia are well behind from most of the sub-Sharan African Countries.

4. The Structure of the System and Curriculum

The structure of the Ethiopian educational system is characterized by frequent changes. When the Ministry of Education was re-established in 1942 it was a 6-6 structure (6 years for primary education followed by 6 years of secondary education) was adopted (Gebreselassie 1964). In 1953 it was changed to 8-4 structure, with grades 7 and 8 being made part of the primary school. In the beginning of the Sixties 6 years of primary education 12 years junior and 3 years senior secondary education was introduced. (Bequele 1967).



The curriculum was centralized and the medium of instruction at the primary level was Amharic while in the secondary school (Grades 9-12) English takes that role. The lack of indiginity of the curriculum has brought problem of teaching students practical skills which can be implemented in their day to day life etc. Tough there is an increasing enrollment rates at present, the bookish education system has been producing functionally illiterate persons with no tangible skills required by the country.

As pointed out by Yesufe, 1974, p.36

"While primary education will have the end result of diffusing literacy, it should be designed primarily to improve the general intellect of the mass of the population, widening their horizons, and making them more susceptible to the inculcation of ideas for more progress and more productive systems and method of agricultural organization, cultivation and the development of agro-based and allied industries. The curriculum, text-books and practical experiences of schools should predominantly reflect the rural back ground and its potential."

In addition Mesfin Kinfu also concluded that:

"... if education is to contribute effectively to Ethiopian economic development then the high stage of students in the school system must be reduced, the educational system should stress the technical and vocational training and the existing high level human resources should be efficiently utilized." (Mesfin 1968 p.9).

5. Equity

Despite the increased effort made to expand the system, the provision of education at all levels is very low. The problem is particularly more serious at the primary level which leaves Ethiopia behind even by sub Saharan African Standards. But even this small size education has never been evenly distributed. Disparities among regions, sexes and rural and urban areas are chronic problems. The Ethiopian population is primarily rural based (that is 85%) . The

educational system on the other hand is urban biased. Like many other educational systems in Africa, gender disparities are also existing in Ethiopia. The proportion of girls from the total enrollment at the primary, junior secondary, senior secondary and higher education institutions in 1996/97 was 35.7%, 42.6%, 41.5% and 13% respectively. So in the country there was no clear policy regarding the distribution of educational institutions.

"up until the eve of the Ethiopian Revolution of 1974, the 1943 order and its two amendments of 1966 constituted the legal foundations of the Ethiopian education system. These defined the duties and responsibilities of the MoE, but made no reference to the distribution issues of educational services. ... The proclamations relating to education and issued by the Ethiopian government since 1974 make no direct reference to a regional educational policy. ... The Ten Year Perspective Plan itself has not developed a regional policy for education" (Teshome, 1988, p. 177).

Table 2.2, Gross Enrollment Ratio by level in 1989 E.C. (1996/97)

Region	Primary (1-6)	Sex		Secondary (9-12)	Sex	
		M	F		M	F
Tigray	45.1	48.6	41.3	5.4	7.3	3.5
Afar	8.4	10.0	6.8	1.5	1.9	1.1
Amhara	28.0	30.2	25.7	6.0	6.6	5.3
Oromiya	30.8	41.2	19.7	6.7	8.3	5.2
Somali	11.6	16.2	6.6	0.5	0.8	0.2
Benshangul - Gumuz	48.6	66.9	28.5	4.8	6.4	3.2
SNNP	44.4	60.0	27.7	7.6	10.4	4.7
Gambella	66.3	81.6	48.7	9.8	15.5	4.1
Harari	65.6	73.8	56.7	35.8	39.7	32.2
Addis Ababa	80.3	79.5	81.0	42.0	46.7	38.4
Dire Dawa	50.7	54.3	46.8	19.7	22.0	17.5
Total	34.7	43.0	26.0	8.4	9.9	7.0

Source: Education Statistics Annual Abstract 1989 E.C. (1996-97G.C), Addis Ababa EMIS:15

Despite various measures taken since 1974 the distribution of schools and enrollment rates are still higher in urban areas than in rural areas. The table clearly shows how rural areas are neglected with regard to the distribution of schools.

The above table presents the regional participation rate at both the primary and secondary levels. At the primary level it ranges from 8.4 percent in Afar to 80.3 percent in Addis Ababa. At the secondary level it extends from 0.5 percent in Somali to 42 percent again in Addis Ababa. Only 1 percent of girls are attending secondary level in the Afar Region as compared to Addis Ababa Region where 38 percent of girls are attending secondary school. At the primary level it ranges from 6.6 percent in Somali to 81.0 percent in Addis Ababa.

Mekete also wrote the following:

"The rural areas are neglected with regard to the distribution of the existing educational services. We have the previous situation of inaccessibility of the education to the largest section of the population. Regionalization of education must aim at basic general education for the rural population to 9 level that can serve as a basic for further leaving through formal education " (Mekete, 1988, P. 189).

6. Inadequate Funding

Ethiopia's per capita income is one of the lowest in the world. Spending on education though has increased substantially that is from 2.6 percent of national output in 1992/93 to 3.8 percent in 1995/96. According to the 1998/99 annual abstract 13.5 percent of the government budget spend on education. However, spending on education still falls short of that required because of the country's low income base. The overall expenditure on education is small even compared to least developing countries in Africa.



Table 2:3 Education Expenditure on Percentage of Total public expenditure

Country	Expenditure on percentage of Total public expenditure	
	1990	1992-94
Uganda	22.5	15.0
Mali	17.3	13.2
Burundi	16.7	12.2
Djibouti	10.5	11.1
Kenya	16.7	-
Ethiopia	9.4	13.1

Source: World Bank, World Development Reports.

CHAPTER THREE

THE REVIEW OF LITERATURE

3.1 INTRODUCTION

(Major contribution to the discussion on education - economic growth relationship was made first by Adam Smith followed by classical and neo-classical economists until Alfred Marshall in the 20th century who emphasized that "the most valuable of all capital is that invested in human beings".) However in the modern period, the inability of the conventional theories of economic growth to explain growth with the help of factors like labour and capital, led to the rediscovery of the role of human capital in economic growth in the 1950s. (Schultz's (1961) pioneering works) that led this revolution and (established that education is not merely a consumption activity, but is an investment that leads to the formation of human capital comparable to physical capital.)

So (a series of studies on economic development confirm that "one of the most important factors in economic development is human capital. It has become clear that people cannot be economically productive and generally useful to the societies in which they find themselves unless they attain education at most level. (Meket, 1988. P. 189).)

High rate of primary enrollment is usually considered as the corner stone of economic development. Peasle's (1965) and Peasle's (1967) on the 34 richest countries of the world since 1850 showed that no country has ever achieved significant economic growth within the

last 100 years without first attaining an enrollment ratio of 10% at primary level, which in other words, was absolutely essential for any economy to grow.

The importance of primary education is to produce people with a basic knowledge of reading, writing and numeracy and it serves as a spring for further education. This is mainly because high elementary enrollment is the major means to change traditional 'crust of customs' and backward working practices and attitudes.

3.2 THEORETICAL LITERATURE REVIEW

(The concept of human capital refers to the fact that human beings invest in themselves, by means of education, training or other activities, which raises their future income by increasing their lifetime earning.) Economists have long been aware of the importance of human capital.

(Adam Smith, for example, stressed the importance of education at various points in the wealth of nations, and he specifically included "the acquired and useful abilities of all the inhabitants or members of the society" in his concept of "fixed capital".

"the acquisition of such talents, by the maintenance of the acquirer during his education, study or apprenticeship always costs a real expense which is a capital fixed and realized, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise of that of the society to which he belongs." (Adam Smith, 1937)

Alfred Marshall emphasized the importance of education "as a national investment" and in his view "the most valuable of all capital is that invested in human beings." (Alfred Marshall, 1930).

(Moreover, in the modern period, the inability of the conventional theories of economic growth to explain more than a half of growth with the help of factors like labour and capital, led to the

rediscovery of the role of human capital in economic growth in the 1950s. The rediscovery created what is later described as the "human investment revolution in economic thought" (Bowman 1966).

(The basic assumption of the human capital theory, is that the discounted present value of the lifetime income of an individual may be increased by expenditure (investments) on education and training (Lydall, 1979))

(Schultz (1977) stated that investment in Human capital (health, on the job training, formal education, adult study programs and migration) accounts for most of the impressive rise in the real earnings per worker.)

Schultz's (1961a and 1961b) pioneering works that led to this revolution and established that education is not merely a consumption activity, but is an investment that leads to the formation of human capital comparable to physical capital, were followed by a significant and rapid growth in research on the relationship between education and economic development.

(The human capital theory which originated in the works of T.W. Schultz, J. Mincer and G.S. Becker regards education as an investment. Accordingly the individuals compare the direct and opportunity costs of education with its future benefits. Human capital is acquired in many different ways, but it is largely acquired through formal education and studies have shown that labour productivity is dependent on the level of education and/or training acquired by an individual.)

In economic terms, human resource development could be described as the accumulation of human capital. Human resources are developed in many ways. The most obvious is by formal

education, beginning with primary or first-level education continuing with various forms of secondary education, and then higher education including colleges, universities and higher technical institutes. second, human resources are developed "on the job" through systematic or informal training programs in employing institutions; in adult education programs; and through membership in various political, social, religious and cultural groups. A third process is self-development, as individuals seek to acquire greater knowledge, skills or capacities through preparation on their own initiative by taking formal or correspondence courses, by reading or by learning from others in informal contacts.

The potential contribution of education to improving labour productivity lowering income inequality and promoting growth and development is well recognized, and virtually all governments allocate a considerable share of their budgets to public expenditure on education. For capital scarce Sub-Saharan Africa, the effective training and utilization of its human resources may be the essential ingredient for initiating successful development. (World Bank, 1988)

Education can change the economic behaviour of workers for instance by allowing them to work more quickly, more efficiently, more intensively or with less waste or wasted time. The changes in economic behaviour then lead to outcomes that are more readily measurable, for example, to higher productivity for individual workers that in turn increases their earnings, or the firm's overall productivity and profit, or the productivity and wages of other workers.

The importance of investing in human capital especially education for economic growth and poverty reduction is recognized world wide. So investing peoples education can boost up the living standards of households by expanding opportunities for raising productivity, attracting

capital investment and increasing earning power. Better education also has value which enabling people to lead more fulfilling lives. (Education augments the ability to perform standard tasks) to process and use information and to adapt to new technologies and production practices. Education also contributes to socio-economic development by endowing individuals with the means to improve their skills, knowledge and the capability for productive work. And these benefits can be reinforced with better education services.)

(The accumulation of human capital may start with formal education, but it does not end there. It is a continuous, lifetime process, and the knowledge and skills acquired during employment are often as valuable as those acquired in school. Human capital formation also takes place in a day to day work experience, but it is dependent as well upon previous formal education.)

Other forms of investment in human capital also develop the personal attribute that help to determine a worker's productivity. (On the job training and work experience) and the process of job search, including migration, (as well as health care, can all increase earning capacity and can therefore be regarded as investment in human capital. (Psacharopoulos, 1985))

(Experience on the job is often the most essential part of the learning process.) Just as formal training can be measured by the length of time spent at school, the other part of the training process that is experience can be introduced in terms of the amount of time spent on the job.

(As more skill and experience are acquired with passage of time, earnings will rise. The knowledge and skills a worker has - which come from education and training including the training that experience yields generate a certain stock of productive capital.) However, the

value of this amount of productive capital is derived from how much these skills can earn in the labour market.

The reason why work experience determines earnings is explained by Mincer quite simply "years of labour market experience represent cumulated investment in job training and job mobility" (Mincer 1976). By "job training" Mincer means not only formal training programmes, but informal on-the-job training and "learning by doing". Becker and Mincer both explain the relationship between earnings and education and experience in terms of investment in human capital.

Training and work experience are both examples of investment in human capital by means of learning, in just the same way as formal education. Becker emphasizes this point strongly when he writes of learning by experience. "The conclusion must be that learning is a way to invest in human capital that is formally no different from education, on-the-job training, or other recognized investments. So it is a virtue rather than a defect of our formulation of costs and returns that learning by experience is treated symmetrically with other investments. (Becker 1975)•

Education is argued to be vital to increase economic growth and to improve economic equality (Harbison 1973). (Tinbergen 1970) concluded that human capital is one of the most important determinants of income inequality. Among such human capital variables as education, experience and ability, education has been recognized as the most important investment in human capital for a long time.

(Education transforms the raw human beings into productive human capital by inculcating the skills required by both the traditional sector and the modern sector of the economy, (Chiswick 1982) and makes the individuals more productive not only in the market place but also in the household. Education, including both technical training and general education, contributes to economic growth through its ability to increase the productivity of the population or the labour force in particular, which leads to increase the individual earnings. The case of the human capital theory lies in this thesis that education increases productivity of the individual and then leads to increase earnings.

(Education creates a more skilled labour force. This will produce "a shift from low paid, unskilled employment to high paid, skilled employment. This shift, produces higher labour incomes, a reduction in skill differentials, and an increase in the share of wages in total output" (Ahluwalia 1976b). The increase in the number of more educated and skilled people will increase the ratio of such people and decrease the ratio of less educated people in the labour force. Earnings distribution can be effected by education, as earnings and education are highly related.

Chiswick suggested also that inequality in earnings should be positively related to inequality in investment in human capital mean level of investment in human capital, average level of rate of return to human capital and inequality in rate of return to human capital.

(The earnings from the human capital created by education and better health tend to be increasingly important relative to the income from land and property as economic development occurs. This contributes to greater equality in the distribution of income in the very long run. Education and human capital formation contribute even further to greater

equality in the income distribution when elementary and secondary education are deliberately extended to a larger percentage of the population. (Schultz 1981).

Investment in human capital produces benefits both to the individual and to society as a whole. The individual who takes part in education or vocational training benefits by increasing his or her chances of employment and by increased lifetime earnings. (Woodhall M. 1973a).

Blaug's Survey of research on human capital links all these activities together:

"The concept of human capital, or hard core of the human capital research program is the idea that people spend on themselves in diverse ways, not for the sake of present enjoyments, but for the sake of future pecuniary and non pecuniary returns All these phenomena - health, education, job search, migration and on-the-top training - may be viewed as investment rather than consumption, whether undertaken by individuals on their own behalf or undertaken by society on behalf of its members. ... it has never entirely lost sight of its original goal of demonstrating that a whole range of apparently disconnected phenomena in the world are the outcome of a definite pattern of individual decisions having in common the feature of foregoing present gains for the prospect of future ones. (Blaug 1976: 829, 850)

Early in 1896 the role of education reducing poverty was clearly recognized in Russia: "An increase of labour productivity is the only means to erase poverty in Russia and the best policy to achieve it is through the spread of education and knowledge" (Kahan 1963).

Simon Kuznets (1955) predicted long back that income distribution in capitalist countries would become more equal as the labour force becomes more educated. Schultz (1963) had stated that "these changes in human capital (in the US) are a basic factor reducing the inequality in the personal distribution of income.

The human capital theory which originated in the works of T.W. Schultz, J-Mincer and G.S. Becker regards education as an investment. Accordingly the individual compare the direct and opportunity costs of education with its future benefits.

Greater investment in education can be expected to yield broad economic benefits. These benefits include higher incomes and lower fertility. Men and women with more education in addition to having fewer children, tend to live healthier and longer lives. Above all, education is a basic right, an end in itself, an intrinsic part of life and development. (World Bank, 1988.)

3.3 EMPIRICAL LITERATURE REVIEW

3.3.1 General

A cross - country study 1973 of 43 developing countries by Adelman and Morris' found that the improvement in human resources measured as a weighted average of enrollments at secondary of higher levels of education was a significant determinant of income inequalities. And they concluded that improvement of human resources was the only acceptable strategy. Chiwsick also suggested that inequality in earnings should be positively related to inequality in investment in human capital. Based on data on a small sample of 9 countries Chiswick (1971) found that schooling inequality is directly related to earnings inequality, and he conclude that improvement in schooling inequality could be an equalizer.

Chenery and Syrquin (1975) based on a sample of 50 countries came to a similar conclusion that high levels of education are associated with a shift of income away from top 20 percent.

Ahluwalia (1974) also found significant positive relationships between level of school earning. By using cross-country data on 66 countries the estimated regression coefficients show that a significantly positive relationship between education and earning.

In another study of 32 countries by (Wingarden 1979) it was shown that inequalities in education play a large role in generating income differences.

Harbison (1977) examined the impacts of formal and non-formal types of education on income differential and found that both had a significant influence, but that formal education had a stronger effect on income differentials.

In the US according to the earlier works of Mincer (1958) Schooling was the main cause of skewness in earnings distribution. Just over half of the inequality in earnings in US can be explained in terms of the inequality in educational attainment of workers (Mincer 1974 and 1976).

Another study on Brazil by Longoni (1973) showed that the increase in variance in education of the labour force is found to be responsible for increase in earning inequality. Educational differences explained 33 percent of inequalities in the earning between the period 1960 and 1970. Langoni in his found that education was by far the most important. One for explaining individual differences in earning. Velloso (1975) also argued that the distribution of schooling is positively related to distribution of earnings in Brazil.

When we came to Africa Knight and Sabot (1983) also found that inequality in earnings is less in Tanzania and Kenya the greater the supply of educated labour.

Psachropoulos (1978) has shown that after controlling for personal, occupational and related characteristics, dispersion in earnings declines in UK by increase in mean years of schooling. Carnoy and others (1979: 98) concluded that schooling plays a very important role in determining individual earnings in Latin America.

(Psacharopoulous 1975) Régression Analysis and earning functions estimated for workers in the United States and other developed countries suggest that education is still the most important determinant of earnings. A review of the evidence in developed countries shows that the most likely value for the Beta coefficient that is how much of the extra earnings of the educated can be attributed to their education is about 0.7 or 0.8.

A study conducted on secondary school leavers by Ministries of Labour and Education stated that in the Malawian economy schooling is the single most effective predictor of earnings. The influence of educational attainment is larger and statistically more significant than any other determinant of earnings. (The Evaluation of Human Capital in Malawi World Bank Staff working paper No. 420 by Stephen P. Heyneman 1980)

Another study by Barney Cohen and William J. House on Education, Experience and Earnings in the labour market of a Developing Economy: The case of Urban Khartoum also shows that education explains 32 percent of the variance in log earnings. On average an additional year of schooling increases earning of the worker by 6.0 percent. This result is shown for the whole sample. And a separate regression analysis was done for male and female also and the result shows that education explains 37 percent and 25 percent of the Variance in log earnings of male and female respectively. In Addition the variation in education and the variation in experience among workers contribute roughly the same to earnings inequality. For the whole sample, on

average an additional years of experience increases earning of the worker by 5.9 percent. And on additional years of experience increases earnings of the male and female workers by 5.5 percent and 6.8 percent respectively.



3.3.2 The Ethiopian Literature Review

A study by Wolday A. (1988) in Ediget Cotten Factory for the sample size of 1062 works also shows that education and experience dominate the explanatory power of the model that is education, experience and being a production or clerical worker much influence one's wages. And he concluded that human capital variables - experience, education, occupation type and martial status - explains most of the income differences.

Another study by the same person in a state-owned industry Ediget Cotton Factory and in a private formal sector enterprise (MOENCO) in 1996 also show that education and experience are important, variables explaining the variation in wages for bother males and females in Ediget Factory. The coefficient of education is significant and positive for both males and females, it is of higher magnitude for females (25.6) compared to males (18.8). For the case of MOENCO among the variables education and experience are the only ones that are positive and significance (at the 1% level). It appears that each year of experience in MOENCO increases wages by 4.9 percent on average. Similarly each year of additional schooling results in an 8 percent increase wages. Among education categories, post-diploma education has a positive and significant influence yielding a return of about 20% percent, primary and secondary levels are significant at the 1% and 5% levels.

In both enterprises, the human capital variables, that is education and experiences estimated using the earning function were found to be very important in explaining the differences in wages. A comparison of the wages of male and female workers for Edget Cotton factory in 1996 also showed that, for the same level of educational attainments, men have higher average wages than women. A further comparison in Edget Factory reveals that women paid less in 1996 compared to 1985.

The study by Wolday was done on a single firm level but this study is conducted in selected urban centers in Ethiopian household heads so the value added is that, the result obtained in this study encompasses the previous study.

CHAPTER FOUR

DATA AND METHODOLOGY

4.1 SOURCES OF DATA AND THE STUDY AREA

4.1.1 Source of Data

The main data base for this study is the Ethiopian Urban Household Survey conducted by the Economics Department of the Addis Ababa University in collaboration with the Department of Economics, University of Göteborg Sweden in 1994. The data collected cover wide socio-economic aspects of the urban households, such as composition and structure of the households, education, migration, employment and income-consumption and expenditure, health status and other welfare indicators. The data were collected on three rounds by trained enumerators supervised by the staff of the department of economics using fairly well designed and presented questionnaires.

However, since the main sources of this study is the result of the first round survey some minor errors in data entry were identified. So by critically examining some errors an attempt has been made to correct them. This seems a better alternative rather than deleting them since the sources of the errors are identified.

The study cover seven selected urban centers in Ethiopia. These are Mekele, Dessie, Bahir Dar, Addis Ababa, Dire Dawa, Awassa and Jimma. All towns have a population of 100,000 and above.

4.1.2 Sample size for the study

Out of 1500 household heads 550 household heads who were wage/salary employees are selected. Accordingly the sample included 314 households in Addis Ababa, 33 in Awssa, 54 in Bahir Dar, 26 in Dessie, 48 in Dire Dawa, 45 in Jimma and 30 in Mekele. Those individuals reported their main activity to be employment as civil servants, public enterprise employees producer or service cooperative employees or members, casual workers, domestic workers, and private employees. Out of 550 household heads 229 were employed in the civil service, 113 were employed in the public enterprises, 60 were in the private organization, 16 were in an international organization, 97 were employed as casual workers and the rest in other activities. So as we can see the government consisting of the major employees.

In addition a sample of 269 who ran businesses as own account workers are selected to see the impact of human capital variables on their earnings. Those individuals reported their business activity were in food & beverage production, textile and leather products, furniture and handicrafts and retail trades and others.

4.1.3 Descriptive Analysis of the variables.

Descriptive analysis of some of the variables are described as follows:

Table 4.1 Income group of Household Heads by city

	A.A		Awassa		B. Dar		Dessie		D. Dawa		Jimma		Mekele		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
< 50	8	2.5	-	-	1	1.9	1	3.8	-	-	-	-	-	-	10	1.8
50 - 99	20	6.4	2	6.1	2	3.7	2	7.7	2	4.2	3	6.7	6	20.0	37	6.7
100 - 199	55	17.4	6	18.2	8	14.8	6	23.1		16.7	12	26.7	9	30.0	104	18.9
200 - 299	50	15.9	6	18.2	9	16.7	2	7.7	11	22.9	4	8.9	2	6.7	84	15.3
300 - 449	70	22.3	6	18.2	16	29.6	6	23.1	10	20.8	9	20.0	3	10.0	120	21.8
450 - 599	33	10.5	4	12.1	9	16.7	5	19.2	6	12.5	7	15.6	7	23.3	71	12.9
600 - 799	28	8.9	3	9.1	4	7.4	3	11.5	10	20.8	5	11.1	2	6.7	55	10.0
800 -1499	36	11.5	4	12.1	4	7.4	1	3.8	1	2.1	5	11.1	1	3.3	52	9.5
1500 ⁺	14	4.5	2	6.1	1	1.9	-	-	-	-	-	-	-	-	17	3.09
Total	314		33		54		26		48		45		30		550	

Table 4.2 Monthly Earning group of the Household Heads by sex

Monthly Earning	Sex		Total
	Male	Female	
< 50	2	8	20
50 - 99	25	12	37
100 - 199	70	34	104
200 - 299	65	19	84
300 - 449	10	19	120
450 - 599	67	4	71
600 - 799	52	3	55
800 - 1499	52	-	52
1500 ⁺	16	1	17

As we can see in Table 4.2 about 44 percent of all sample household heads had a monthly income of less than Birr 300; and almost 22.5 percent of household heads had a monthly income of 600 and above. Specially 73 percent of female household heads paid less than Birr 300 per month. As explained in Table 4.1, all urban centres have largest proportion of low

income and the average monthly earning ranges from Birr 369 in Mekele to Birr 548 in Addis Ababa for male household heads. And for female household heads it ranges from Birr 120 in Jimma to Birr 228 in Addis Ababa

Table 4.3 Age group of the Household heads by sex

Age group	Male	Female
20 -24	4	2
25 - 29	20	10
30 - 34	42	16
35 - 39	88	26
40 - 44	93	12
45 - 49	89	12
50 - 54	59	14
55 - 59	18	4
60 ⁺	37	4

More than 80 percent of male household heads were aged 25 - 54, while around 12 percent of them were aged above 54. Whereas 90 percent of female household heads were aged 25 -54 and 8 percent of them were aged above 54.

Table 4.4 Highest level of schooling of the Household Heads by sex

Level of schooling	Male		Female		Total	
	No.	%	No.	%	No.	%
Primary incomplete	73	16.2	14	14.5	87	15.8
Primary complete	29	6.4	7	7.0	36	6.54
Secondary incomplete	86	19.1	16	16.0	102	18.5
Secondary complete	94	20.9	20	20.0	114	20.7
Diploma/vocational	70	15.6	13	13.0	83	15.1
Degree +	36	8.0	1	1.0	37	6.7
Adult literacy program	3	0.7	5	5.0	8	1.5
Others	3	0.7	1	1.0	4	0.7

Table 4.5 Main activity of the Household Heads by sex

Main Activity	Male	Female	Total
Own account worker (private business)	214	55	269
civil servant	191	38	229
Public sector enterprise employee	93	20	113
Private organization employee	54	6	60
International organization employee	15	1	16
Producer or service cooperative employee and member	11	8	19
Casual worker	71	23	94
Domestic worker	10	9	19

As we can see in the above tables (Table 4.4 and 4.5) most of the employees (both male and female) their highest level of schooling is secondary level complete and below secondary level. And most of them are employed in the civil servant and public sector enterprises that is out of the total sample 41.6 percent employed in the civil servant and 20.5 percent in the public sector.

Table 4.6 Occupation type of Household Heads by sex

Occupation Type	Male	Female	Total
Professional/technical	103	11	114
Administrative/managerial	49	3	52
Clerical and related worker	34	9	43
Sales and workers	23	2	25
Service workers	113	52	165
Production and related workers	113	23	136
Others	10	5	15

From the total sample larger proportions of the total wage employed were engaged in support services (30%), production and related worker (24.7%) and professional and technical occupation (20.7%). Males dominated professional/technical and Administrative /managerial occupations, while females dominate in service and production related work.

Table 4.7 Household heads who received specific training on the job by city

Received specific training	City							
	A.A	Awassa	B. Dar	Dessie	D. Daw	Jimma	Mekele	Total
Yes	111	20	14	9	19	19	11	203
No	203	13	40	17	29	26	19	347

Table 4.8 Household Heads who received specific training on the job by sex

Received training on the job	Sex		Total	%
	M	F		
Yes	185	18	203	36.9
No	265	82	347	63.1
Total	450	100	550	

As we can see from Table 4.8 only 36.9 percent of the household heads are received specific training on the job. And females are disadvantageous than male. That is from the total household heads who received training on the job 8.9 percent of them are females

General descriptive Statistics of the variables are given here:

Years of experience: Minimum = 1

Maximum = 32

Average = 13

Level of schooling

6.5% primary complete

20.5% secondary complete

15.0% diploma and vocational

6.7% degree +

Main activity	41.6% civil servant employee
	20.5% public sector employee
	10.9% private organization employee
	2.9% International organization employee
	17.1% casual worker
	7% producer, service, domestic etc. workers
Marital status	76% married
	24% (single, widowed, divorced, separated)
Occupation	20.7% (114) Professional/technical
	9.5% (52) Administrative/managerial
	7.8% (43) Clerical and related worker
	34.5% (190) Sales and service workers
	24.7% (136) Production and related workers.
Received training	36.9% (203) Yes
	63.1% (347) No
Sex	81.8% (450) Male
	18.2% (100) Female

In the case of own-account private business worker some descriptive analysis of the variables are given as follows:

**Table 4.9 level of schooling (education)
of Household Heads by sex**

Level of Schooling	Sex		
	Male	Female	Total
Never Attending	25	21	46
Less than Primary	97	20	117
Primary Complete	19	4	23
Secondary Incomplete	36	5	41
Secondary Complete	25	5	30
Diploma/Vocational	11	-	11
Degree +	1	-	1
Total	214	55	269

As we can see from the above table the majority of the own account private business worker (84%), their level of education is less than secondary complete. And female household heads are less involved in this type of business activity.

Table 4.10 Age groups of Household Heads by sex

Age groups	Sex		
	Male	Female	Total
16 - 25	3	1	4
26 - 34	25	8	33
35 - 44	58	17	75
45 - 54	59	16	75
55 - 65	49	7	56
65 ⁺	20	6	26
Total	214	55	249

Table 4.11 Start up capital of the Household Heads by sex

Start up Capital	Sex		
	Male	Female	Total
10 - 50	38	9	47
51 - 100	17	2	19
101 - 600	58	19	77
601 - 1000	21	9	30
1001 - 10,000	63	12	75
10,0001 - 50,000	11	3	14
50,0001 - 80,000	6	1	7
Total	214	55	269

As we can see from the (Table 4.10) around 53 percent of the own account private business household, their start up capital is up to Birr 600; 39 percent of them their start up capital is from Birr 600 up to Birr 10,000 and it is only 7 percent of them that their start up capital is more than Birr 10,000.

From this we can see that most of the own account private business household heads runs a type of business which does not require more capital.

4.1.4. Measurement of Variables

1. The following variables are used for the whole sample

- 1.1 **Lntotexp:** This is defined as taking the natural logarithm of monthly total expenditure minus remittance and transfer. This amount is used as a proxy for monthly earnings of the Households. Monthly total expenditure rather than annual expenditure is used as a dependent variable because it better reflect workers' welfare and it is measured in Birr.

1.2 **Education of workers:** Education has been treated as a dummy variable.

1.2 (a) **Educ 1:** This variable takes 1 if the household heads is completed primary level and 0 otherwise.

1.2 (b) **Educ 2:** This second variable takes 1 if the household heads is completed secondary level and 0 otherwise.

1.2 (c) **Educ 3:** This variable takes 1 if the household heads is completed college diploma or vocational/technical and 0 otherwise.

1.2 (d) **Educ 4:** This variable takes 1 if the household heads is completed first degree and above.

In this study dummy variables for the level of education achieved by the household heads are employed for allowing, separate calculation of the effect of different level of education on the earnings of the household heads.

1.3 **Years of experience (EXEPR):** This variable is defined as the actual years of experience of the household heads and it measures years of post school labor market experience. It is measured as a continuous variable.

1.4 **Years of experience square (EXEPRSQ):** This variable is the quadratic term of years of experience. It is designed to capture the non-linearity of the age - earnings profile.

1.5 **SEXD:** This is a qualitative variable which takes 1 if the household head is a female and 0 otherwise.

1.6 Occupation of the Household Heads: this variable defined using dummy variables.

1.6(a) OCUP: This is a qualitative variable which takes 1 if the household head work in professional/administrative work and 0 otherwise.

1.7 PRIVINT: It takes one if the household head works in the private/international organization and 0 otherwise

For own account worker (Private Business)

1.8 CAPITAL: It is a continuous variable and measures the start-up capital of the business. And it is measured in Birr.

1.9 EDUCATION: This variable measures the different level of education (schooling) of the own account private business household head. And it is measured using dummy variables.

1.9 (a) EDUCO1: This variable takes one if the household head completed primary school and 0 otherwise.

1.9 (b) EDUCO2: This variable takes one if the household head is not completed secondary school (i.e., if he/she is secondary incomplete) and 0 otherwise.

1.9 (c) EDUCO3: It takes the value one if the household head completed secondary and above and zero otherwise.

1.10 AGE AND AGESQ: These variable are used as a proxy for experience.

1.11 LNTOTRMO: This variable is defined as taking the natural logarithm of monthly total expenditure minus remittance and transfers. It is measured in birr and used as a proxy for monthly earnings of the own account private business household heads.

4.2 METHOD OF THE STUDY

4.2.1 Scope of the Study

Analysis of education, experience and earnings of the Household heads has been made from the urban - socio economic survey data which is conducted by the Department of Economics and the Götting university.

In this study an attempt is made to estimate the impact of human capital variables (education and experience) and other variables such as occupation and sex on earnings of the household heads in selected (seven) urban centers in Ethiopia. In addition, an attempt is made to see the impact of human capital variables for own-account private business. And for the purpose of this study the distinction between wages and salary is ignored.

One major limitation arises from the representativeness of the data for Ethiopia. The sample size is 550 wages/salary employees of household heads and 269 household heads who are own-account private business workers. So the data may not be representative sample for the country as a whole and the survey was also conducted only in seven selected towns. A second major limitation arises from the inability to control for all factors which may have an impact on earnings. As Miller argues that if the vector of independent variables does not exhaust all possible productivity-related factors, then there may be omitted variables bias. In this paper I

am not able to control for such variables as absenteeism, ability, individual personality, taste and family background. So the list of variables which have an impact on productivity are not exhaustive.

Bearing the above limitations I adopt the standard methodology for analyzing education, experience and earnings of the Household heads. I use the standard human capital model that is the earning function which is formulated by Mincer (1974).

That is by augmenting the earning function with additional explanatory variables like occupation, sector of activity and sex of the household heads.

Nevertheless, the results of this study may be useful in identifying those factors which affect earning of the household heads and which can then be used for public policy.

4.2.2 Model Specification

Human capital investments enhances the worker's skills/productivity and therefore his earnings. Together with the assumptions that employers cannot pay excess wages and survive in a competitive business environment, this familiarly hypothesis forms the basis for many empirical studies on earnings of the individual.

The estimation of earnings functions based on the theory of human capital assures that an individuals earning capacity or stream of earnings over lifetime depends primarily on years of schooling and educational attainments.

(Woodhall, 1987) The concept of human capital refers to the fact that human beings invest in themselves by means of education and training so as to raise their future earnings.

The standard human capital model is used in this study to estimate the effect of additional schooling, work experience and other explanatory variables on earnings. The standard human capital model assumes that earning variations among individuals arise from differences in the human capital they possess and in their work experience.

As Mincer pointed out, if education and experience recorded in units of time-years of schooling and years of experience, clearly a more convenient formulation- the dependent variable earnings must be expressed in logarithms (Mincer 1993).

The classical least square equation with both dummy and continuous variables are used to estimate the explanatory variables. The basic human capital model measures only the average effect of additional schooling and work experience on wages. so by augmenting the basic model with some other variables like occupation, sex and sector of activity, the econometric specification can be written in the following form:

$$\ln Y_i = B_0 + \sum B_j x_j + U \quad [1]$$

Where Y stands for the level of earnings;

x_1, x_2, \dots, x_j are exogenous variables (continuous and dummy) explaining Y;

B_j s are coefficients;

U is a random unobserved disturbance term with zero mean and constant variance;

B_0 is a constant.

Mincer (1974) being the first to have used the semi - log earning function in his analysis of the returns to formal schooling, the earning function is sometimes described as the "Mincerian function". The model typically equates human capital with education and experience, the function being of the form:

$$\ln w = a + bS + cL + dL^2 + U \quad [2]$$

where $\ln w$ = natural logarithm of individual monthly earnings

S = Schooling (either dummy or continuous),

L = number of years of individual experience

U = the error term

a = a constant

b, c, d are the coefficient.

Monthly earning rather than annually is used as the dependent variable because monthly earning better reflect workers welfare. According to economic theory, the earnings profile appears to be increasing at a decreasing rate with years of labour market attachment. Experience and its square are used to test for this. The choice of variables in the exogenous variable is straight forward as the equation measures the skills rather than the preference of the individual.

The coefficients of education (i.e. b) indicates the percentage increase in earnings resulting from a unit change in education. If education is considered as a dummy, the coefficient gives

the percentage increase in earning for a specified educational level (primary, secondary, tertiary) when compared to the base level. Using the above model specification, the coefficients to different educational levels are estimated in this study for household heads who are wage/salary workers and own-account private business worker. A number of variables such as sex, education, experience, occupation type and sector of activity are assumed to influence the level of earnings of the household heads. Those explanatory variables which are qualitative in nature are treated as dummies. The semi-log earning function is used to estimate the equation and ordinary least squares (OLS) method is used with monthly total expenditure (excluding remittance and transfers) as a proxy for monthly earnings of the household heads and used as dependent variable and the variables specified below as independent variables. The sub sub-categories excluded from the estimation are: for sex, female, for education, less than primary; for occupation nonprofessional/administrative and for sector non private/international organization. The variables used for the estimations are specified below:

**Table 4.12 Variables used for Household Heads
who are wage/salary employees**

Sex	1 if male	0 otherwise
Exper	Continuous	
EpersQ	Continuous	
Education	Dummy	
Educ1	1 if primary complete	0 otherwise
Educ2	1 if secondary complete	0 otherwise
Educ3	1 if Diploma/vocational complete	0 otherwise
Educ4	1 if degree & above	0 otherwise
Occupation	Dummy	0 otherwise
Occup	1 if professional/administrative worker	0 otherwise
Sector	Dummy	
Privint	1 if the household heads is working in private or international organization	0 otherwise

A standard statistics package, SPSS, was used to analyse the data and to derive the descriptive analysis and the regression results. And all variables are related to the head of the household heads.

Table 4.13 for household heads who are own - account private Business Workers

Age	Continuous	
Agesg	Continuous	
Capital	Continuous	
Education	Dummy	
Educo1	1 if the household head complete primary school	0 otherwise
Educo2	1 if he/she is secondary in complete	0 otherwise
Educo3	1 if he/she is secondary and above complete	0 otherwise

In Ethiopian case, Wolday A (1997) estimating the impact of human capital variables on wages in one state - owned enterprise i.e. Edget Cotton Factory and one private enterprise i.e. MOENCO, both belonging to the formal sector in Ethiopia, using the semi-log earnings function and the Ordinary Least Squares (OLS) method.

CHAPTER FIVE

EMPIRICAL RESULTS

5.1 INTRODUCTION

On the basis of empirical data, the results of the analysis are presented and discussed in this chapter. Two categories or types of household heads are selected as a sample. One is those household heads who are wage/salary workers and the second sample, is those household heads who are own account private business workers. (Then I tried to analyse the impact of human capital variables (experience and education of the household heads) and some other additional explanatory variables on earnings of those household heads.

As we have seen before, the estimation of the earning function is done for two groups. The first group which consists of 550 household heads who are wage/salary workers and the second group consists of 269 household heads who are own account private business workers. In addition I will try to see the male-female earning differentials of the household heads who are wage salary workers by including the sex dummy variable into the model.

The empirical investigation focuses on explaining to what extent does the earning of the household heads (both for wage/salary employees and own account private business workers) is sensitive to productivity endowments for selected urban centers in Ethiopia.

5.2 THE ANALYSIS OF EDUCATION, EXPERIENCE AND OTHER
EXOGENOUS VARIABLES AND EARNINGS OF THE HOUSEHOLD
HEADS FOR WAGE/SALARY EMPLOYEES

In this section the impact of human capital variables and other variables on earnings of the household heads who are wage/salary employees are analysed. And the the following model is specified:

$$\begin{aligned} \text{INTOTMRM} = & \alpha_0 + \alpha_1 \text{EXPER} + \alpha_2 \text{EXBERSQ} + \alpha_3 \text{EDUC1} + \\ & \alpha_4 \text{EDUC2} + \alpha_5 \text{EDUC3} + \alpha_6 \text{EDUC4} + \alpha_7 \text{OCCUPT} + \alpha_8 \text{PRIVINT} + \\ & \alpha_9 \text{SEXDM} + U \end{aligned} \quad [3]$$

Where **INTOTMRM** is the logarithm of monthly total expenditure (without remittance and transfers) used as a proxy for monthly earning.

EXPER is the number of years of individual experience

EDUC1 is dummy variable for primary complete

EDUC2 is dummy variable for secondary complete

EDUC3 is dummy variable for Diploma/vocational complete

EDUC4 is dummy variable for Degree + complete

OCCUPT is dummy variable for professional or Administrative occupation category

PRIVINT is dummy variable for private or International organization workers.

SECDM is dummy variable for Male

U is a random unobserved disturbance term with zero mean and constant variance. α_1 's are coefficients. It is expected that $\alpha_1 > 0$, $\alpha_3 > 0$, $\alpha_4 > 0$, $\alpha_5 > 0$, $\alpha_6 > 0$, $\alpha_7 > 0$, $\alpha_8 > 0$ and $\alpha_2 < 0$. Given the above model Ordinary Least Squares (OLS) is used to estimate the equation. Since the variable EDUC1 is not significant, it is excluded in the regression results.

Table 5.1 Regression Results of the Earning Function For (Wage/salary employees) Household Heads (Education Dummy)

Variables	Semi - log model	
	coefficient	Standard error
SEXDM	0.372	0.079*
EXPER	0.053	0.015*
EXPER ²	-0.009	0.001***
EDUC2	0.202	0.079**
EDUC3	0.509	0.105*
EDUC4	0.504	0.146*
PRIVINT	0.218	0.088**
OCCUP	0.187	0.082**
Constant	4.812	0.112*
R ²	.27	
F -Value	25.391	
N	550	

* coefficient is significant at the 1% level

** " " " " " 5% level

*** " " " " " 10% level

The intercept includes education less than primary, female; non private/international worker; non professional/administrative type of occupation

Source: Own computation

The results of estimating the augmented earning function model are presented in Table 5.1. In the specification, all coefficients take the expected signs and they are significant. The inclusion of experience is intended to take the productivity enhancing effect of on-the-job training over the life-cycle. Table 5.1 reveals that an additional year of experience on average, increases earnings by 5.3 percent and it is significant at 10% level. Experience squared takes the expected sign that is a negative sign that earnings rise as the worker gains in experience but eventually they reach a peak and subsequently fall.

In order to see the relationship between education and earnings I broke education into a set dummy variables representing different educational levels. The results are presented in Table 5.1. Again the variables except EDUC1 which is primary level complete take the expected signs and are significant at the 1% and 5% level. As the variables for education is not continuous a direct interpretation can not applied. But one can obtain the relative change in mean earning even for the dummy variable by the device suggested by Halvorsen and Palyngquist that is by taking the antilog of the estimated dummy coefficient and subtract 1 from it. So by the same coin then household heads who are completing more than secondary school, earn, on average, higher than those household heads who complete only secondary level.

Table 5.1 also shows that the coefficients of the dummies for OCCUP (professional/or administrative occupational categories) and PRIVINT (working in private or international organization) are also positive and statistically significant at the 5% level.

Similarly the estimated coefficient of the sex variable is positive and statistically significant at 1% level. This suggesting a positive relationship between earnings and being a male. In other

words female household heads earn less than male household heads. Part of the explanation can be most female household heads are less educated, as we can see from the descriptive analysis around 60 percent of them are less than secondary level complete.

5.3 THE ANALYSIS OF EDUCATION, EXPERIENCE AND OTHER EXOGENOUS VARIABLES AND EARNINGS OF THE HOUSEHOLD HEADS FOR OWN-ACCOUNTANT WORKER (PRIVATE BUSINESS)

In this section the impact of human capital and other variable on earnings of the household heads who are own account (private business) worker are analysed. The following model is specified:

$$\text{LNTOTMRM} = \beta_0 + \beta_1 \text{AGE} + \beta_2 \text{AGESQ} + \beta_3 \text{CAPITAL} + \beta_4 \text{EDUC1} + \beta_5 \text{EDUC2} + \text{EDUC3} + V$$

Where **INTOTMRM** is the logarithm of monthly total expenditure (without remittance and transfers) used as a proxy for monthly earning.

AGE is used as a proxy for years of experience.

CAPITAL is start up capital for the main business and is measured in Birr.

EDUCO1 is dummy variable for primary complete.

EDUCO2 is dummy variable for secondary incomplete

EDUCO3 is dummy variable for secondary and above complete.

V is a random unobserved disturbance term with zero means and constant variance.

From the above equation β 's are coefficients. It is expected that $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$, $\beta_5 > 0$, $\beta_6 > 0$ and $\beta_2 < 0$. Similarly given the above model Ordinary Least Squares (OLS) is used to estimate the equation

**Table 5.2 Regression Results of the Earning (Education Dummy)
for own-account private business worker.**

Variables	Semi - log model	
	coefficient	Standard error
AGE	0.114	0.032*
AGESQ	-0.001	0.000*
CAPITAL	0.00002	0.000*
EDUCO1	0.464	0.206**
EDUCO2	0.512	0.166*
EDUCO3	0.407	0.165**
CONSTANT	2.649	0.792*
R ²	0.16	
F -Value	9.708	
N	269	

The intercept includes education less than primary.

* coefficient is significant at the 1% level.

** coefficient is significant at the 5% level

Source: own computation

The results of estimating the earning function model are presented in Table 5.2. In the specification all coefficients take the expected signs and they are significant at 1% and 5% level. The variable start up capital is positive and it is significance at 1% level. The indication that those household heads who put higher startup capital earn more than others.

To see the relationship between education and earnings in the case of own account private business worker a set of dummy variables representing different educational levels are used

according to their level of education. The variables EDUCO1 (primary complete) and EDUCO3 (Secondary and above complete) are significant at the 5% level. And the variable EDUCO2 (secondary incomplete) is significant at 1% level.

Lastly this study has attempted to see how an earning of the household heads in Ethiopia is sensitive to productivity endowments of the individual and to other variables like occupation type and sector of activity. Moreover, the preliminary findings indicate that human capital variables contributes to increase an earnings of the household heads in Ethiopia.

Here also the policy implications of these results are clear, that is policy makers should be on expanding schools and on increasing school participation rates.

5.4 CONCLUSIONS AND RECOMMENDATIONS

In Ethiopia an educated and skilled manpower development capacity is very inadequate this is because the existing labour force is mainly unskilled and less productive and can hardly contribute to fast economic growth. In addition the majority of children do not go to school and the future size of the illiterate labour force is likely to continue to grow proportionately. Human development that is out of reach for a substantial part of a people in a country constitutes a major risk of enhancing inequality. In addition income inequality is high in urban Ethiopia as compared to other comparable countries. The highest income inequality is in Addis Ababa, Dessie, and Mekele, while the lowest is in Dire Dawa. (Arne Bigsten and Negatu Makonnen). With regard to investment in schooling, raising levels of human capital is essential both for overall poverty alleviation in Ethiopia and to close the gender gap in economic opportunities and earnings.

This paper has examined the relevance of the human capital approach to explaining the variance in earnings of the household heads. An understanding of the differences in earnings which stem from productivity endowments such as education and experience is critical to achieving both the goals of income growth and distribution. The main focus of this study is to see the impact of human capital variables (education and experience) and some other variables on earnings of the household heads in selected urban centers in Ethiopia, by using the Mincerian earning function. An attempt was made to estimate the earning function for those household heads who are wage/salary employees (that is those whose main activities are civil servant, public, private sector, international organization, producer or service cooperative employee, casual and domestic workers) and for own account worker (private business)

separately. In both the equations, the human capital variables, i.e. education and experience estimated using the earning function, were found to be very important in explaining earnings of the household heads.

The empirical investigation focuses on explaining to what extent household the wage offer of the individual is sensitive to productivity endowments of the household heads. The level of schooling (education) is strongly associated with the level of earnings, that is the higher the level of schooling of the household heads related with higher earnings. This is because higher formal education implies higher probability that a worker is in a higher skill-based job.

The parameter estimates and the low standard errors show that education proved to be most consistently effective variable in determining earnings of the household heads. The effects of experience and experience squared on earnings are generally as expected. The coefficients are significant in both the regression equations.

In addition other variables like gender, sector of activity and occupation type have an impact on earnings of the household heads. The gender variable should that for the same level of educational attainments male have higher average earnings than women. This result is for those household heads who are wage/salary employees. That is female were on average earn less than male.

One way of developing human resources is to broaden the specific on the job training which may develop skills and talents of the individual. As Psacharopoulos recommended that in cases where a capacity constraint exists regarding the expansion of formal education, provisions for more training opportunities within the firm is a good policy for increasing

productivity and skills of the worker which enhance their earnings which is captured by experience of workers. Despite variations in the effect of education shown in this study evidence is given that formal education has an impact on earnings.

Finally, although more children are now enrolled and there are more new schools and teachers, the educational system still has enormous problems particularly in primary schools. So attention should be given in improving educational quality and quantity and educational access in rural and under served areas as well as the promotion of education for girls.

In addition attention should be given in expanding equitable access to primary and vocational education to meet the demands of the country and the economy. The contribution of improved educational attainments is important to raising the status of women, lowering fertility aspirations, improving material and child health and reducing infant and child mortality. So the links between education and earnings are also crucial importance in decisions about the efficient allocation of resources.

The study also indicates that better schooling for girls and increasing female enrollment in vocational education will eventually increase female's access to employment, particularly wage employment and raises women's income in wage employment.

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DECLARATION


I, the undersigned, declared that this thesis is my original work and it has never been presented in any other university. All sources of materials used for this thesis have been duly acknowledged.

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