

VOCATIONAL AND TECHCHNICAL EDUCATION IN ETHIOPIA:  
AN ANALYSIS OF THE DEMAND FOR AND SUPPLY  
OF MIDDLE LEVEL TECHNICAL SKILLS

By

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A Thesis Submitted for the Degree of  
Doctor of Philosophy

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Development Studies

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Glasgow

September 1989

## ABSTRACT

This study is about the state of vocational and technical education (VTE) in Ethiopia with particular focus on the factors governing the demand for and supply of middle level technical skills. Ethiopia is a low income agrarian country with a weak industrial base. Economic growth here presupposes, inter alia, the effective use of technologies. This, in turn, would call for the provision of middle level technical skills for deployment in various sectors of the economy.

The theme of the study turns on the observations that: a) there is a chronic shortage of supply of middle level technical skills of various categories in Ethiopia; and b) VTE enrolment and expenditure on VTE are both assuming a declining trend. The burden of the thesis is to explain why VTE enrolment and expenditure have to be on the decline while shortfalls in the supply of VTE-based skills prevail. This problem, set in chapter IV, is investigated with the aid of data obtained from primary and secondary sources. The primary data derive from a sample survey covering a total of 420 individuals, including VTE and non-VTE students and employees. The secondary data were gleaned from a wide range of published and unpublished sources.

Chapter V explains the problem set in chapter IV in terms of the prevalence of constraints circumscribing the activities of educational planners. Planners in Ethiopia

are acutely constrained by the limited investment resources at their disposal. This, coupled with the fact that VTE is 14 to 19 times more expensive than non-VTE and the absence of any coherent manpower planning, would make planners reluctant to spend more on VTE. The consequence of this policy bias is to deprive VTE of qualified teachers and of adequate teaching facilities, thereby constraining the quality and quantity supply of VTE graduates.

In chapter VI, the problem is explained further in terms of the attitudes of individuals towards VTE and their demand for VTE. Results of the analysis of the survey data show that there is an underlying decline of interest in VTE, precipitated mainly by the socially and economically unattractive career prospects associated with VTE-related occupations. Those already in VTE-related employment are - much unlike their non-VTE counterparts - shown to be given to a high 'rate of frustration' arising from poor remuneration and unfulfilled educational and occupational aspirations. The persistence of frustration would make VTE employees ineffective in their jobs. It would also make entry into VTE less attractive thus constraining the scope for the expansion of VTE-based skill supply. The preponderance, as at present, of such factors as cultural prejudices against VTE, the failure of the labour market to reflect shortages of skill supply by bidding up wage rates for

the relevant skills, and policy restrictions on the vertical and horizontal mobility of labour, would only exacerbate the problem of excess demand over supply with respect to VTE skills.

The study indicates the need for liberalisation of the labour market by removing the bureaucratic constraints on its operation, the adoption of policy measures enhancing educational and occupational prospects for VTE graduates, the adoption of cost-effective methods of providing VTE to be able to release resources for purposes of VTE expansion, and the reorganisation of VTE curricular structure in such a way as to make VTE professionally appealing to both employers and students.



## ACKNOWLEDGEMENTS

I wish to express my gratitude to my supervisor Professor James Pickett, for the invaluable guidance and helpful suggestions throughout the preparation of this thesis. Professor Pickett, also helped to make my stay in the David Livingstone Institute a very fruitful one.

Dr. Girma Zewdie read the draft of the study and made useful comments and suggestions. His moral support has been invaluable too. The study has also benefited from comments on the underlying basic ideas from a number of people both in Addis Ababa and Glasgow.

The Commission for Higher Education and Addis Ababa University kindly provided me with the required facilities to conduct my field work in Addis Ababa. To these I am indebted. In particular, I should be grateful to the Commission for Higher Education that financed and sponsored my scholarship to Strathclyde University.

Last but not least, I must thank my wife, Martha Teshome, for her patience and care she showed throughout the course of my study. My children, Aklil Girma, Eadom Girma and Mariamawit Girma have been very good, too, in their own ways.

And finally, the usual disclaimer: for all the support I was offered, I and only I should be responsible for any errors and omissions that remain in this thesis.

Glasgow  
September 1989

Girma Molla

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## CHAPTER I

### INTRODUCTION

#### 1.1. BACKGROUND TO THE ISSUE OF THE STUDY

Education is generally recognised to be crucial for the acceleration of growth and development in poor countries. Some consider it as an indispensable input into the growth process (Parnes, 1962; Tinbergen and Bos, 1965), and others, as a framework of the growth process itself (Blaug, 1985). There is also a tremendous popular demand for education in developing countries simply because education is considered as a guarantee for jobs, high incomes and better prospects in life. Thus, following the growing demand for semiskilled, skilled and professional manpower on the one hand, and the high expectation of the masses on the other, the provision of educational opportunities has become a major concern of policy in many less developed countries.

In this respect, one of the most difficult questions for educational policy in such countries - as indeed in others - relates to the striking of the right balance between academic and vocational education. At the heart of this question is the conceptual problem as to what makes the general academic and vocational categories of education more productive than one another. Both categories of education are in principle meant to equip individuals with skills - cognitive and non-cognitive -

that they would later be able to translate into useful employment. Often though, vocational education is perceived to be more applied and less esoteric than general academic education including the liberal science and arts offered at the tertiary level. This view, reflected in the works of R. Dore (1976, 1980) and P. Foster (1966), among others, derives support from the broad empirical observation that the rate of return on investment is higher for primary and middle level than for tertiary education.

Foster's support for the adoption of a vocational school strategy in educational planning is explicit. He does not, however, disqualify the importance of general education. He considers general education to be a necessary foundation for vocational education, and points out that the two cannot, therefore, be a substitute for one another. The latter unlike the former, he notes, is more effectively provided on the job rather than through formal schooling. According to Dore (1980, pp.55-56), a lot of the schooling that takes place in the formal education sector is 'reluctant schooling' - the ritual acquisition of qualifications to get jobs. He notes:

"....reluctant schooling .... may produce people ....who - because of the reluctant and ritual nature of their prolonged schooling - have attitudes ....which are far from likely to transform them into productive, innovative public spirited managers and administrators".

The dash for 'certification' and 'credentialing',

motivated by the search for higher social status and well-paid employment, has also meant more and more demand for general academic than vocational education. But the former may at best be expected to equip individuals with general ability that will enhance their 'trainability' prospects over a whole range of skills. The latter, on the other hand, is capable of instilling cognitive and other manipulative skills which employers are directly interested in.

The view that education is important only for the cognitive knowledge it imparts and that employers pay educated people more because they have more of this has in recent years been called to question. According to Mark Blaug (1972a, 1972b, 1985), schooling makes people more productive not so much by imparting directly usable cognitive skills as by enhancing certain non-cognitive personality traits like punctuality, persistence, concentration, self-esteem, self reliance, achievement motivation, versatility, willingness to take and accept orders and to take responsibility and the capacity to assume leadership roles. These attitudes, Blaug (1972a, p.437, 1972b, pp.53-76) notes, "are no less vocationally useful skills than the ability to turn a lathe or to read a technical instruction." That so many educational qualifications appear unrelated to the type of work that students eventually take up reflects, in Blaug's view, not so much the existence of gross mismatches between



education and work as the crucial role of non-cognitive behavioural traits in job performance. Indeed, in the process of recruitment, employers would generally use educational qualification as a 'fair and legitimate' screening factor, assuming concordance between the hierarchy of attitudes and the various levels of educational attainments. Based on this, Blaug (1972a, pp.437-438) argues:

"...the popular clamour for vocational schooling among politicians in less developed countries ...implies a patently naive interpretation of the economic value of education.... The notion that there is one kind of education called general education which has nothing to do with the world of work and another called vocational education which is fairly geared to the 'needs of a growing economy' is part and parcel of the rhetorical folklore that continues to impede rational educational planning in less developed countries."

The 'socialising' and 'screening' functions of education, however important, cannot be considered to be effective independent of the skill creating function of education. This study is not based on the presumption that vocational and technical education is more important for growth and socio-economic development in Ethiopia than non-vocational general academic education. Rather, it starts from the position that the need for accelerating growth and development in Ethiopia in the face of poor technological environment would, in the light of the present problem of shortage of supply of middle level technical manpower, necessarily call for the increased supply of these for application in the various



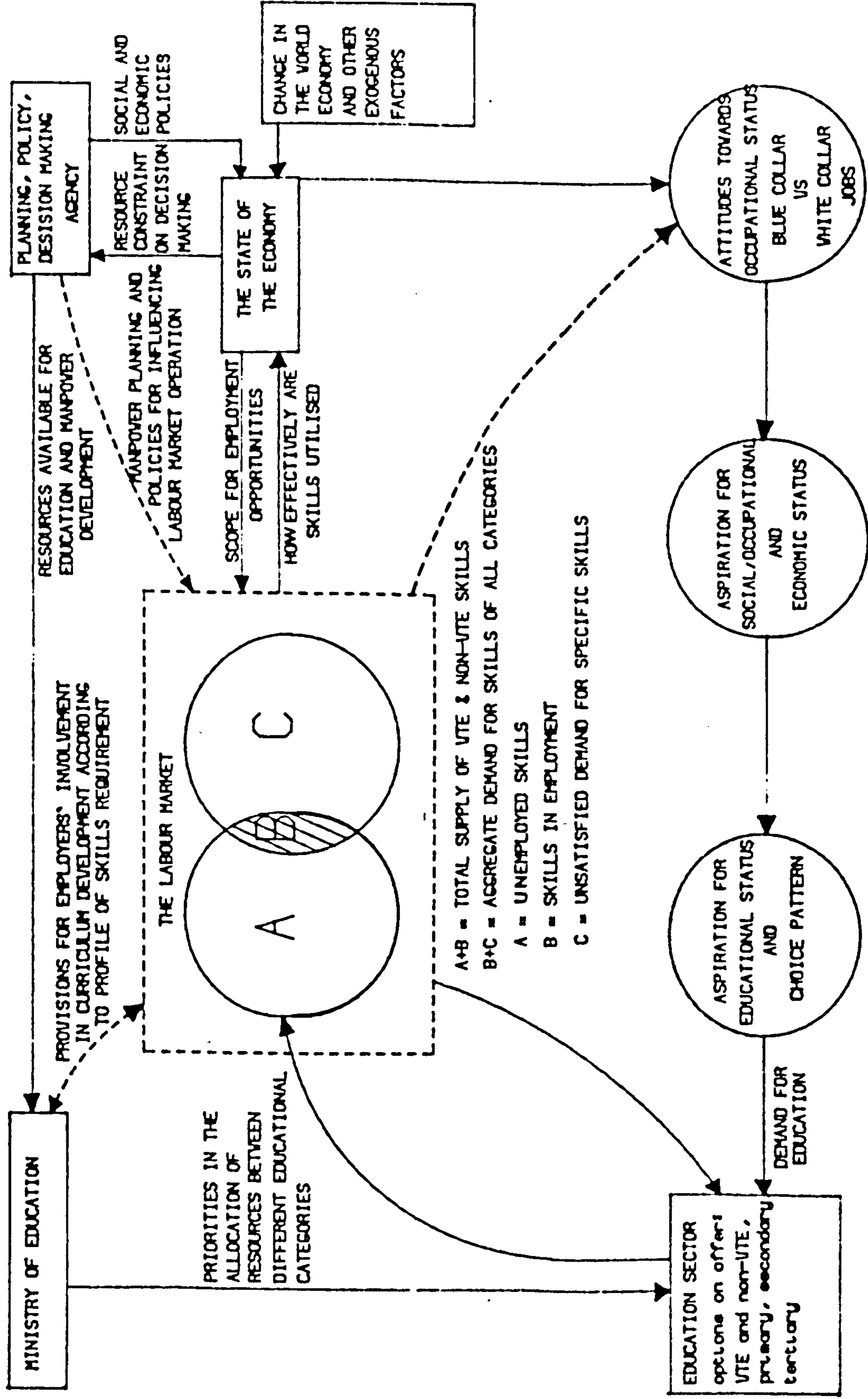
areas of business and industry.

The definition of vocational and technical education adopted in this study is limited to the consideration of six areas of training - namely, automechanics, drafting, electrical/electronics, metal work, wood work and business and commerce - which incidentally are often considered by educational planners to be relevant inputs in the development process. These areas of training anyway constitute the major aspect of vocational technical education in Ethiopia, offered at the 'ten-plus-three', 'twelve-plus-two', and more recently 'twelve-plus-four' levels. Formal training at each of these levels is terminal, save perhaps the area of business studies; and whatever additional skills that will need to be acquired is often expected to be picked up informally via, inter alia, on-the-job training.

## 1.2. THE ISSUE OF THE STUDY

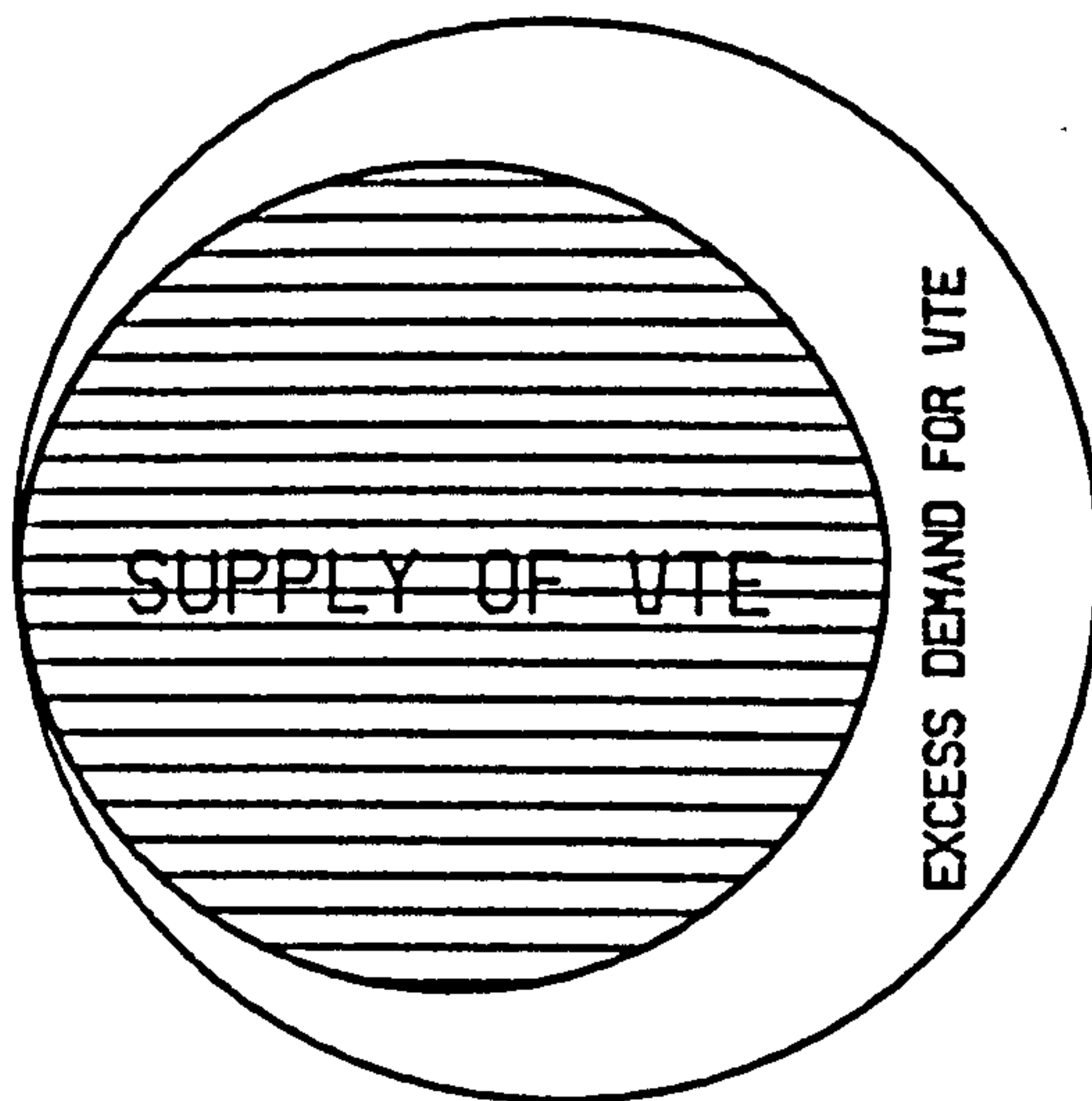
Vocational and Technical Education (VTE) has traditionally been a neglected sector in Ethiopia on the side of both supply (ie. the educational planners) and demand (society at large). The aim of this thesis is to investigate the proposition that this state of neglect has persisted over the years not because of the lack of demand for people with technical skills, but partly because of the lack of preference among individuals to opt for such education, and partly because of the lack of

Figure 1.1 CONCEPTUAL FRAMEWORK FOR ANALYSING THE DEMAND FOR AND SUPPLY OF DIFFERENT CATEGORIES OF SKILL IN AN ECONOMY



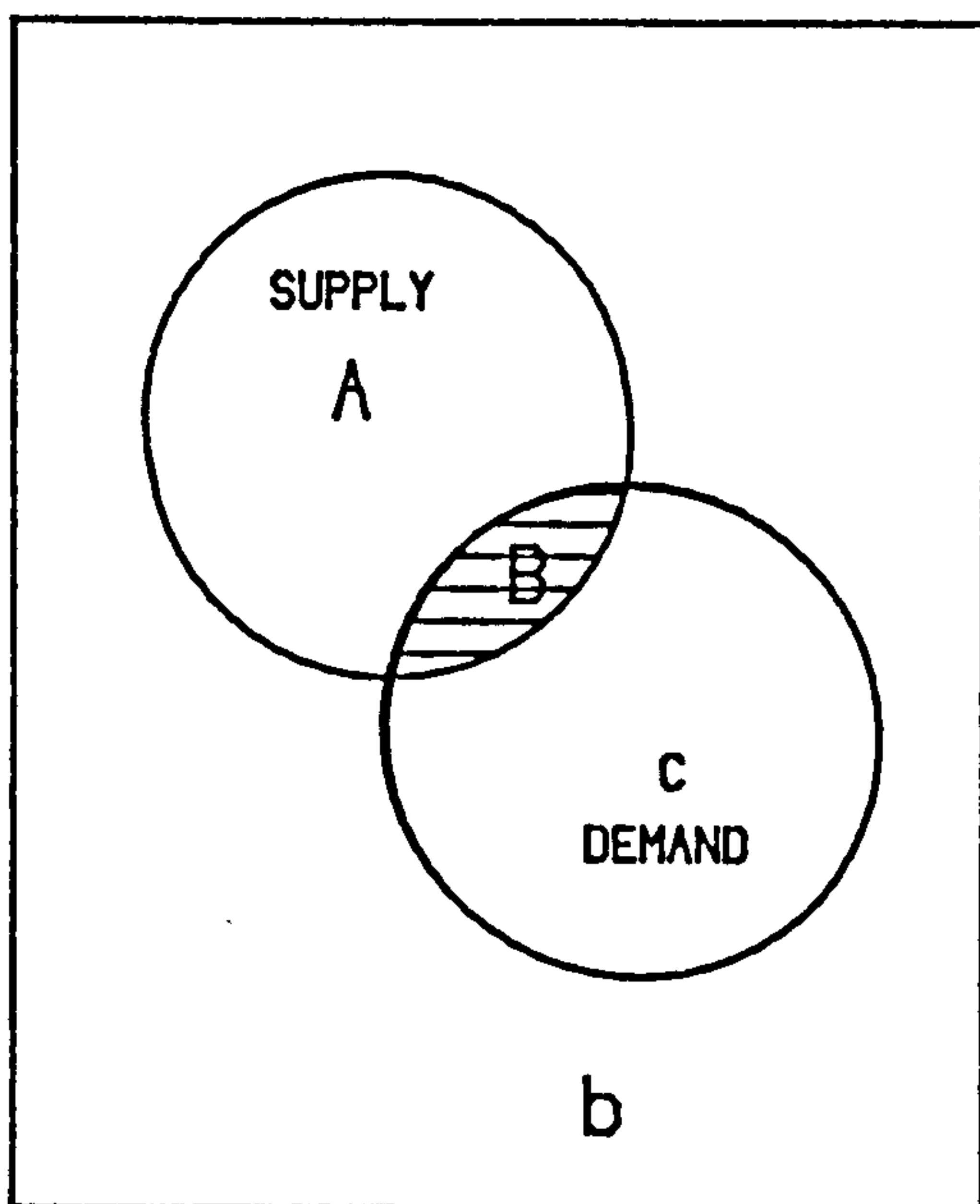
# Figure 1.2 THE LABOUR MARKET FOR VTE - WHY EXCESS DEMAND OVER SUPPLY?

1. DEMAND FOR VTE > SUPPLY OF VTE WHEN, OTHER THINGS BEING EQUAL, VTE ENROLMENT REPRESENTS A DECLINING PROPORTION OF TOTAL ENROLMENT AND/OR VTE GRADUATES . QUIT VTE.

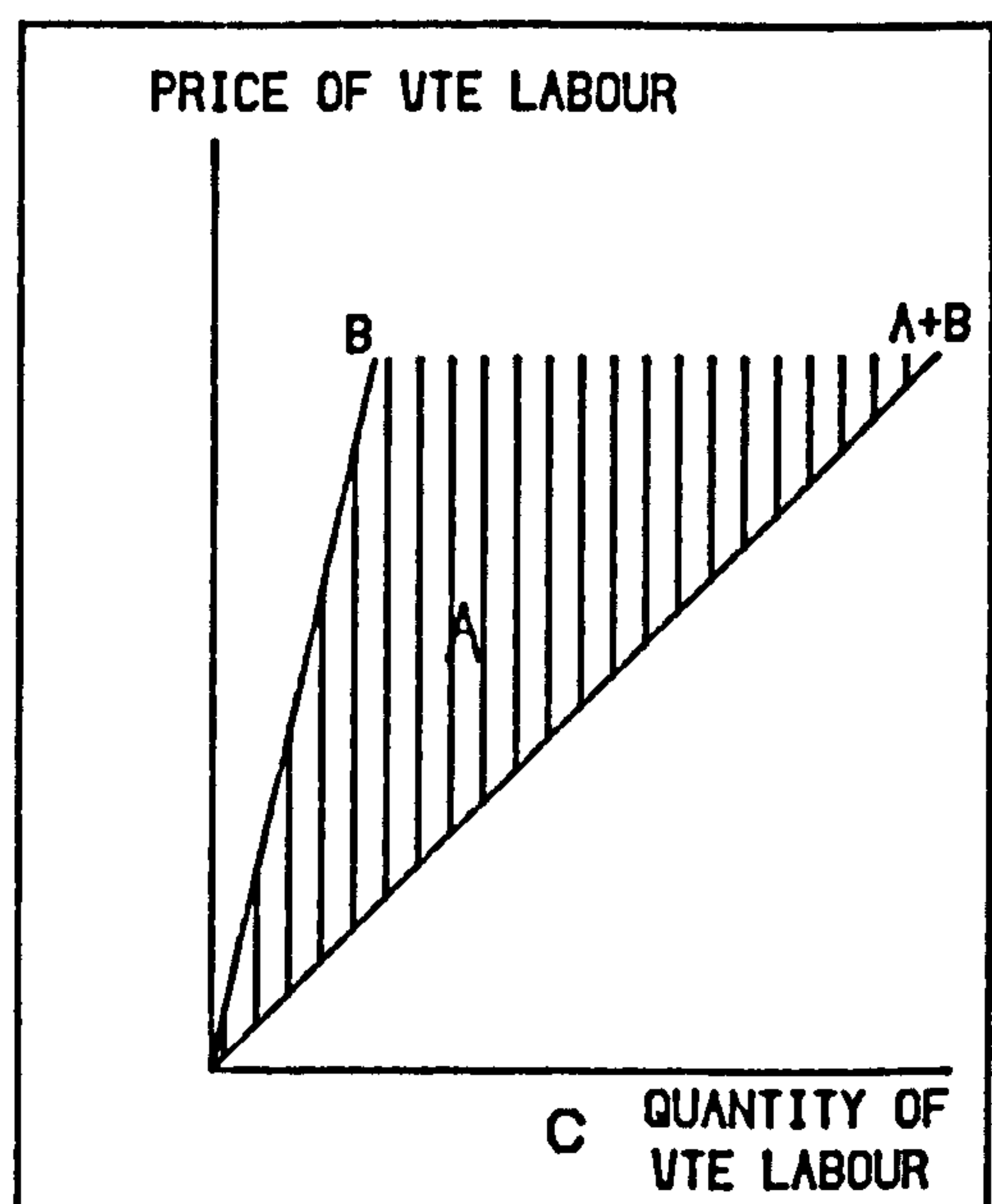


a

2. DEMAND FOR VTE > SUPPLY WHEN, OTHER THINGS BEING CONSTANT, QUALITY OF VTE SKILLS PRODUCED ISN'T EFFECTIVELY GEARED TO EMPLOYERS NEED .



b



c



commitment on the side of public policy to make more funds available in order to expand the facilities and improve the organisation and effectiveness of such education. This argument is graphically illustrated by FIGURES 1.1 and 1.2.

FIGURE 1.1 provides a broad conceptual framework for analysing the demand for and supply of different categories of skill in the Ethiopian economy. It shows the relationship between households of individuals who make the choice for education, the education sector offering the array of choice, and the labour market absorbing the output of the education sector within the constraint defined by the state of the Ethiopian economy, and planning - particularly educational planning and policy operation.

#### 1.2.1. THE HOUSEHOLD SECTOR

In the household sector, individuals' demand for education is determined principally by their attitudes towards the hierarchy of occupational categories and their aspiration to attain certain social and economic status through relevant educational qualifications. The profile of individuals' attitudes and aspirations are in turn determined partly by the state of the economy and society and partly by the manner in which those educated along different fields and at various levels are already received in the labour market. In a poor economy like



that of Ethiopia, traditional values that put emphasis in hierarchical social structures dominate individuals attitudes and aspirations. Here the maintenance of hierarchical orders is generally considered to be the source of material gains and security. Employers in the labour market, faced with the rise in the number of job-seekers, would only be interested to 'tap the pool of talent' with the highest degrees of qualification (Dore, 1980, p.55). The labour market's verdict that degrees and diplomas are mandatory for the acquisition of high-income and high status jobs has also a direct bearing on the attitudes and aspiration of individuals. Thus blue collar jobs, and educational programmes which prepare individuals for such jobs, are less preferred than white collar jobs, which in the Ethiopian context are better paid and almost invariably qualify as high status jobs. To the extent that VTE leads to blue-collar related jobs, or is considered to do so, individuals preference to it has traditionally been weak.

### 1.2.2. THE EDUCATION SECTOR

The operation of the education sector is primarily constrained by resource availability for education and manpower development in general and by the policy and planning decision to allocate funds between vocational and technical education and general academic education.

This is, however, often done in a rough and ready manner and the whims of politicians do matter a lot. As shown in FIGURE 1.1 the central planning agency would, in the context of its operational framework, broadly determine the quantum of investment resources for education. Following this, the Ministry of Education would set the priorities in the allocation of the given resources between the different educational categories.

Alternative approaches that may be considered as a basis for educational resource allocation include the manpower approach, the cost-benefit or rate of return approach, and a combination of the two approaches, among others.

The manpower approach to educational planning presumes that the economy's need for educated labour can be predicted. It is based on the assumption that a certain level of education is required to qualify one for a particular occupational role. But this approach to planning has been found wanting. In the first place, despite the assumption it makes, there is no unique education-occupation linkage. Only a fraction of what is learned is unique to specific occupation and much more of it is applicable to a wide range of jobs. Secondly, the manpower approach fails to take account of the cost of education. This means that given manpower requirements, if there is any projected gap, the gap is expected to be filled through educational expansion

irrespective of cost. Thirdly, there is a problem of making reliable forecasts in view of the ever-changing coefficients used to derive input needs from output targets. Changes in the coefficients would occur, inter alia, as a direct result of changes in the supply of educated labour and as people with more schooling opt for jobs previously done by less educated ones - a process known as 'educational deepening'.

Unlike the manpower approach which considers only benefits, the rate of return approach looks at both costs and benefits of educational investments. It is based on the human capital theory. That is expenditures on education are made for purposes of raising productivity and income. The streams output and income that result in future years then become a return on the investment made. The rate of return approach to educational planning is not without problems either. From the private point of view, the main problem is predicting what the structure of earnings will be in the future, as current structures cannot provide an accurate guide to the future. From the social point of view, higher earnings are not sufficient justification for investment unless they result from high productivity. The cost-benefit approach assumes that people completing particular levels and types of education earn a given wage regardless of the occupation they pursue. But evidence of link between education and earnings and between education and productivity is not



clear enough to warrant the adequacy of the cost-benefit approach to educational planning.

Other alternative approaches to educational planning include: the 'formal modelling approach' which represents a synthesis of the manpower and cost-benefit approaches; the 'left-revisionist approach' aimed at a root and branch change of the educational system with the view to radically transform socio-economic conditions; the 'right-revisionist approach' which leaves the question of what kind of schooling to provide and whom to educate to be settled by the operation of the market; and the 'moderate reformers approach' which proposes to vocationalise schools and make education practical by reorienting the focus of emphasis from formal to non-formal education (see Gillis et al, 1983, pp.219-230).

It is not clear, however, as to what educational policy in Ethiopia turns on. However, in more recent years, the rhetoric based on the "Left-Revisionist" approach to the provision of formal education has been in evidence. The argument has been that education in Ethiopia has historically served not so much to raise productivity as to act as a screen to select the fortunate few who are 'credentialed' and who often happen to start from privileged positions in life to hold the elite positions in society. The thrust of educational policy has consequently been to radically reform the social structure and economic system and to use mass



education as a means of raising the consciousness of the poor as regards their oppressed condition. There is, however, little or no operational value in this to make it worthy of consideration as a framework of educational planning.

The Ministry of Education has no explicit provision for drawing in employers to participate in the process of curriculum development and also in the training process. Employers' participation is crucial particularly for the effectiveness of vocational and technical education. Short of it, graduates of VTE are often least exposed to the functions of business and industry. This means they would therefore need more retraining before they can be effective in their employment. Moreover, the limited amount of resources available for the provision of education would mean that the relatively expensive categories of education like VTE will be relegated to secondary position; and in the event of the inability of the economy to afford the resources called for by the staff and facility requirement of VTE, the quality of the graduates is likely to suffer, thus constraining the effective supply of educated technical manpower.

The response of the educational sector to changes in the pattern of individuals' demand for schooling is not clear. In the Ethiopian context, however, it can reasonably be argued that the supply of education of various categories is resource rather than demand

constrained. Supply response to demand changes is particularly important when the pattern of individuals' demand for education is largely determined by conditions prevailing in the labour market, and when the labour market operates bereft of any serious distortions.

### 1.2.3. THE MARKET FOR SKILLS

In FIGURE 1.1, the operation of the labour market in Ethiopia is constrained by the state of the economy which defines the scope for employment opportunities, on the one hand, and the supply of skills by the education sector in the right quantity and quality on the other. The state of the economy depends, among many other factors, on the effectiveness with which skills in supply are utilised. The supply of skills depends partly on individuals' disposition to acquire specific skills, partly on the effectiveness of the skill creating process, and partly on the availability of resources to the education sector for investment in the expansion and enhancement of educational facilities and teaching staff development corresponding to the various skill categories. The availability of investment resources is in turn constrained by the state of the economy. In the light of this, the preponderance of skill shortage on a poor economy like that of Ethiopia, is far from surprising.

Balance between the supply of and demand for skills of various categories may be expected to obtain in the event of the application of effective manpower planning and policy. On the other hand, where the system of manpower planning is crude, mainly for reason of lack of robust data, as often is the case in many developing countries, the labour market would be characterised by a state of imbalance between the supply and demand functions corresponding to different skill categories. The panels in FIGURE 1.2 illustrate this clearly, representing VTE skills with demand in excess of supply. In 'panel a', the excess of demand over supply of VTE can be accounted by the declining proportion of VTE enrolment to total enrolment and by a growing proportion of VTE graduates moving away from VTE-related occupations disenchanted, as it were, by prospects for improvements in social and economic status.

In 'panel b', excess demand over supply in the case of VTE is observed in the face of unemployment of VTE graduates. Such a situation can prevail when, other factors remaining constant, the quality of VTE skills produced is not effectively geared to the needs of employers. In this respect, not all VTE graduates would constitute the effective supply of VTE skills in the labour market. In terms of 'panel c', A+B represents the nominal supply function for VTE skills. But the effective supply function, which is less elastic, is represented by



B. The difference, shown by the shaded region, represents the pool of VTE graduates who would badly need to be retrained before they can be seriously considered for employment.

Thus the labour market conditions depicted by panels a, b, and c in FIGURE 1.2 can be said to arise basically from neglect for VTE on the side of individuals who would rather opt for non-VTE, and on the side of educational planners who would rather allocate more and more of what little resource may be available for education to non-VTE.

### 1.3. ORGANISATION OF THE STUDY

Based on the analytical framework sketched in FIGURES 1.1 and 1.2, the remainder of the study is organised in six parts. Chapter II will discuss the state of the Ethiopian economy, and Chapter III will deal with the role of VTE in development in general. The case for VTE in Ethiopia including VTE enrolment and expenditure trends, on the one hand, and growth of demand for VTE skills, on the other, will be discussed in Chapter IV. Chapter V will deal with the policy and planning constraint on the expansion of VTE in Ethiopia. In Chapter VI the distribution of individuals' preference for VTE vis a vis non-VTE and the implications of this will be discussed making use of survey data based on a sample of 420 respondents. Chapter VII will summarise the major



findings of the study and draw some relevant policy conclusions based on the findings.

## REFERENCE

- Blaug, Mark. (1972b) "The Correlation between Education and Earnings : what does it signify?", Higher Education, 1,1, pp.53-76.
- Blaug, Mark. (1972a) "Economics of Educational Planning in Developing Countries", Prospects, 2, 4, pp.431- 441).
- Blaug, Mark. (1985) "Where are We now in the Economics of Education", Economics of Education Review, 4, 1, pp.17-28.
- Dore, R.P. (1976) The Diploma Disease. London: Allen & Unwin.
- Dore, R.P. (1980) "The Diploma Disease Revisited", Selection for Employment Versus Education? Sussex: Institute of Development Studies, 11, 2, pp.55-61.
- Foster, P.J. (1966) "The Vocational School Fallacy in Development Planning", in C. A. Anderson and M.J. Bowman (eds.), Education and Economic Development. London: Frank Cass and Co. Lts. pp.142-165.
- Gillis, M. et al. (1983) Economics of Development. London: W.W. Norton & Co.
- Parnes, Herbert S. (1962) Forecasting Educational Needs for Economic Development. Paris: Organisation for Economic Co-operation and Development.
- Tinbergen, Jan and H.C. Bos. (1965) "A Planning Model for the Educational Requirements of Economic Development", Econometric Models for Education, Paris: Organisation for Economic Co-operation and Development.

## CHAPTER 2

### THE ETHIOPIAN ECONOMY: MAJOR FEATURES AND PROBLEMS

#### 2.1. INTRODUCTION

Ethiopia is one of the least developed countries in the world. Its growth and development capability is constrained, inter alia, by inadequate supply of physical infrastructure, as well as shortage of skilled labour and investible resources. In more recent years, developments in international economic conditions and the recurrence of drought have adversely affected its growth effort. These underlying problems of economic growth have been aggravated by the persistence of wars and civil strife in the different parts of the country.

Though poor, Ethiopia is endowed with variety of natural resources that would make it potentially rich. About 55 per cent of the land, which is considered to be agriculturally viable, is the country's major natural resource. Mineral deposits including, gold, platinum, copper, fossil oil, natural gas, geo-thermal energy and potash deposits are reported to exist in different parts of the country. But the extent of their occurrence and their economic value have not yet been confirmed by surveys and studies.

Ethiopia is a mountainous country situated in North-East Africa. It has an area of 1,222,000 Square Kilometres (471,790 square miles), and a population of

about 43.5 million (mid 1986) (World Bank, 1988, p.222). The country possesses three distinct climatic zones. The hot zone (Kola) comprises an area below 5,000 feet (1,515 meters) with an average range of temperature of 80 degrees to 120 degrees fahrenheit (27 degrees celsius to 49 degrees celsius). The area from 5,000 feet up to 8,000 feet (1,515 meters up to 2,424 meters) is climatically labelled as a temperate zone (Woina Dega) and temperature ranges between 60 degrees and 85 degrees fahrenheit (16 degrees to 29 degrees celsius), and the cool zone (Dega) is found at an elevation of 8,000 feet (2,424 meters) or above with average temperature of 65 degrees fahrenheit (18 degrees celsius). In a typical year, rainfall across the country ranges between 2.5 inches (625mm) in the arid lowland areas and 106 inches (2,650 mm) along the northern and central highlands and in the south-west.

Ethiopia's economic backwardness today is a result of factors that are partly social/cultural and historical, partly geographical, and partly political. Whatever their origin, these factors have together operated over the years to constrain expansion in the stock of physical and human capital available to the country thereby stunting its growth capability.

The aim of this chapter is to set a general context within which the role of education - particularly Vocational and Technical Education (VTE) - in development



can be examined in subsequent chapters.

## 2.2. THE SOCIO-CULTURAL BACKGROUND

Ethiopia is a country of diverse nationalities with diverse languages and cultural heritages. The social values which characterise the modes of life and attitudes to work in rural Ethiopia today are the product of a long history of conflict between and coexistence of different ethnic groups with their respective languages, religions, and cultural practices.

Many social scientists are in agreement that social attitude to work, an aspect of cultural values, is a decisive factor in determining the economic status of a given society at a given time. In Ethiopia, about 80 per cent (mid 1986) of the population are employed in agriculture related jobs. Engagement in agriculture and agriculture-related activities has over the years resulted in three distinct cultural formations: the plough culture, the hoe culture and the nomadic culture.

The plough culture is a predominant feature of sedentary cultivation in the central and northern plateaux. Ploughing is done by wooden instrument tipped with a steel point designed to be pulled by two oxen or one horse or one mule depending on the region. This method of cultivation is somewhat primitive, but is well adapted to the cultivation need of the indigenous people.

In the plough culture regions, land is regarded as the source of social and economic power. Before 1974, nearly one third of the cultivated land used to be under the control of the Orthodox Coptic Church and holy days alone constituted nearly two third of the year. As well as Christians, there are a considerable number of Muslims and other religious groups. Both the Christian and Muslim religions have deep rooted influence on the general attitude of the people who tend to be rather fatalistic in their views about work and material gains in life. The objective of ones life is considered to be a preparation for the life after death. In consequence, people would usually devote much of their time going to church, praying, fasting, observing holy days, and making pilgrimage to distant holy places or monasteries. Engagement in manual work during holy days is considered anathema to the fulfilment of the spiritual and material well-being in ones life (Lipsky, 1962, pp.207-242). This orthodox views is, however, at variance with the 'Protestant ethic' which emphasises the need for one to engage in hard work and edifies profitable enterprises. But the 'Protestant ethic' is alien to traditional Ethiopia. So also has been the spirit of individual enterprise. Little wonder, therefore, that the plough culture prevalent in the northern and central highlands has, despite the passage of time, hitherto remained virtually intact.

The hoe culture is another major aspect of the mode of production prevalent in the south and south-western regions of Ethiopia. Like the farmers in the central highland regions, the farmers in these regions are also settled cultivators. Traditionally, the method of farming has been hoeing, but today one can also find ploughing and also modern mechanical means of cultivation methods in few areas. The hoe is a wooden implement with a steel tip and is mainly used by hand. In comparison with the plough culture, the hoe culture involves a relatively more labour intensive mode of operation. This differential in the factor intensity of mode of production between the two regions is somewhat consistent with the corresponding differentials in resource endowment, in the sense that the southern regions are generally more densely populated than the central and northern highland regions. In terms of productivity effort, the hoe culture is as outmoded as the plough culture. Here, too, social and cultural values have traditionally turned on the prevailing religious values.

The major religions of the region are Islam and Christianity. As in the other regions, the strict observance of holy days is an important aspect of life. Most holy day periods are high food consumption periods accompanied - in the case of Moslems - by the chewing of "Chat", a narcotic plant which has the effect of making people lethargic.



The nomadic culture constitutes the other major mode of production. The nomadic people are found mostly in eastern and south-eastern part of Ethiopia. Their livelihood largely depends on livestock raising, moving from one place to another in search of grass and water. The majority of nomads are Muslims and the rest are pagans. At present, the government is encouraging them to settle in one place and to use irrigation and wells for their livestock and livelihood. Their movement from one place to another causes administrative problem. For instance, there are no schools or hospitals in areas where the nomads are found. Moreover, most of the lands which are under the use of the nomads are not fully utilised or exploited for agricultural or other purposes.

Urban areas can be considered as a 'melting pot' of different cultures - the plough, hoe or nomadic cultures, deriving from traditional Ethiopia, and western cultures adopted from foreign countries. Unlike rural dwellers, urban people are involved in diversified occupations. However, one can crudely classify their occupations into two major categories. People who are directly involved in physical or manual labour can be categorised as 'Blue Collar workers' and those who are not directly involved in physical or manual labour can be categorised as 'White Collar' workers.

The blue collar workers include unskilled, semiskilled, and skilled labourers. White collar workers



are those who are generally skilled and who work in the government administrative work and those who administer their own small private business enterprises. In terms of economic and social status, blue collar work is considered to be inferior to white collar work mainly because it involves menial tasks in which one has to soil ones hands and pays low. White collar work on the other hand is socially and economically more valued and respected than blue collar work. Hence the common Ethiopian proverb: "from cleverness of the hand (manual labour) comes serfdom; from cleverness of the mouth (ability to speak well) rule." Although, there now seems to be a a favourable change of attitudes towards work among a growing number of city dwellers, tradition still prevails undermining the values of manual work. Since the majority of the Ethiopian ethnic groups have been warriors, herdsman, and farmers, handicrafts and cottage industries are considered to be demeaning, and are practised by minority groups like the 'Felashas', who are seen as an outcasts.

Traditional and cultural practices have not only been a major constraint on the improvement of the primitive modes of agricultural production, their persistence also discouraged the development of the skill content of the human resource endowment. Thus, it is not surprising that the Ethiopian economy today is one of the least developed in the world in spite of - and it can

also be argued, because of - a long history of independent and nationhood and Christianity unrivalled even by many of the most developed countries.

### 2.3. THE ECONOMY

The Ethiopian economy is predominantly rural, with agriculture producing almost one-half of GDP in years of normal rainfall. Agriculture accounts for about 90 per cent of the country's total export earnings and employs about 80 per cent of total labour force. With GNP per capita estimated to be US\$120, Ethiopia finds its place among the poorest of the poor in the world in general, and in Africa in particular (see TABLE 2.3 for comparison with some low income African countries). GNP per capita hardly grew in real terms between 1965 and 1986. The average annual growth in overall GDP, at constant price, was 2.7 per cent during the period 1965-80, and 0.8 during 1980-86. (World Development Report, 1988, pp.222-225)

Coffee accounts for about 60 per cent of all export receipts. Apart from coffee, Ethiopia's major exports include hides and skins, and pulses and oil seeds. The average growth rate of agriculture has declined from 1.2 per cent in 1965-80 to -3.9 per cent in 1980-86. Export earnings have consistently failed to pay for imports. In 1970, the current account of the

balance of payments was in deficit by \$32 million. By 1985, this deficit had increased to \$130 million. Industrial activity, which contributes about 16 per cent to Ethiopia's GDP, is confined mainly to food processing and the manufacturing of textiles and goods for local consumption. Even then, production increased from the average of 3.5 per cent in 1965-80 to only 3.8 per cent in 1980-86. (World Development Report, 1987, p.230 and 1988, p.224).

A major factor which acts as serious constraint on economic development in Ethiopia is lack of adequate transport and communications facilities. The country's mountainous and ragged features make the provision of such facilities costly and hence difficult. Other obstacles include the lack of trained manpower and shortage of investment resources. There have been a series of attempts at planning with the aim to overcome these constraint and accelerate the rate of economic growth and development. Before dealing with the present socio-economic development plan of Ethiopia, it will be helpful to see the three Five Year Plans of the country that were implemented during the pre-1974 period.

The First Five Year Plan (FFYP) covered the period between 1957 and 1961. The empirical basis of the plan was, however, poor. This is not perhaps surprising considering that Ethiopia had no prior experience in development planning, and robust social and economic data



which form the basis for sound planning were conspicuous for their absence. The aspiration for rapid socio-economic transformation was, nevertheless, explicit.

The basic targets listed in the First Five Year Plan (FFYP), 1957-1961 were: to give priority to development of the infrastructure which represents a prerequisite for accelerating economic growth, to raise the level of education and to devote attention to the training of technical personnel for implementation of the five-year programme, to accelerate the development of agriculture which represents the major sector of the national economy and contributes the greatest part of exports and industrial raw materials, to establish processing industries for the abundant supplies of domestic raw materials and for the requirements of the domestic market, and to direct economic, and particularly financial policy, toward mobilising financial and human resources for economic development. (FFYP, 1958, p.39).

Accordingly, out of the total investment of Eth. \$673.6 or US \$296.4 million (at 1961 prices), 27 per cent was allocated for agriculture, 20.5 per cent for industry, and 8.5 per cent for social services (education, health, etc.). National income was planned to grow at an average rate of 3.2 per cent per annum between 1957 and 1961, with agriculture expanding at the average rate of 11 per cent during the plan period. This, however, was far from fulfilled. During the plan period,



the fulfilment of the national income target was estimated at 95 per cent. Yet, the rate of growth was lower by 0.5 per cent decreasing the actual growth rate of the national economy to 2.7 per cent per annum. Moreover, the institutional and technological constraints on agriculture remained unrelaxed, stunting the growth rate of the agricultural sector. On the other hand, TABLE 2.1 shows that actual investment during the plan period exceeded planned investment for all sectors with the exception of education which fulfilled only 68 per cent (SFYP, 1962, p.43). This appears to suggest the importance of factors other than the supply of investment resources, like land reform, the supply of skilled manpower, etc., for the achievement of the target growth rate of the economy, but government policy in general was not favourably addressed to such questions. For all its shortcomings, the FFYP provided a lesson of planning experience, however crude, for subsequent years.

The targets set for the Second Five Year Plan (SFYP, 1963-1967) was more or less the same as the FFYP. Agriculture remained the leading economic activity and was planned to give the largest contribution to increase in the National Production. The industrial sector, and particularly the manufacturing industry, were intended to make increased use of the existing agricultural resources, so that with the increase in the demand for agricultural raw materials, agricultural

activities would also improve in terms of productivity, employing improved tools and implements. Indeed, special attention was given to the development of agro-industry during the plan period. Education was planned to be

TABLE 2.1

INVESTMENT IN ETHIOPIA'S MAIN SECTORS DURING THE FFYP  
(IN MILLIONS OF ETH. \$)

SECTOR	PLAN	FULFILLED	INDEX OF FULFILMENT
AGRICULTURE AND FORESTRY	92.1	109.9	120
MINING, POWER AND MANUFACTURING	138.0	159.8	116
TRANSPORT AND COMMUNICATIONS	240.0	287.3	120
SOCIAL SERVICES (EDUCATION, ETC.)	57.0	39.0	68
HOUSING	122.5	206.8	169
OTHER ACTIVITIES	24.0	36.8	153
TOTAL	673.6	839.6	124

SOURCE: Imperial Ethiopian Government. (1962). Second Five Year Development Plan, 1963-1967. Addis Ababa: Berhanena Selam Printing Press, P.43.

extended with the aim of providing the population with elementary education and to train the necessary technical personnel and skilled workers for economic and social development. The implementation of the SFYP was aimed to result in a growth of GNP from Eth. \$2,166 (US \$866.4) million in 1962 to Eth. \$2,718 (US \$1,087.2) million in 1967 at an average rate of 4.6 per cent. The planned rate of growth for the plan period was 2.3 per cent per year for agriculture, 27.3 per cent for

industry (manufacturing) and 11.3 per cent for education. (SFYP, 1962, P.77). Nevertheless, as in the case of the FFYP, the actual growth rates for the national economy as a whole and for the different sectors were lower than that expected by the planners. The economy grew at the rate of about 4.0 per cent per annum and agriculture, industry and education grew by 2.1, 16, and 8.1 per cent respectively (TFYP, 1968).

In the Third Five Year Plan (TFYP) 1968-1973, the objectives set are again much the same as in the two Five Year Plans. The target contribution to the National economy was, rightly enough, expected to come from agriculture. But the plan was to reduce the share of agriculture in total GDP to 27 percent. This plan was consistent with an annual growth rate of 2.9 per cent per annum for agriculture during the plan period. Industry's including manufacturing growth rate was to be 15 per cent; and that of education was to average 8.1 per cent per annum during the plan year.

The Third Five Year Plan (TFYP) was less ambitious and more realistic than its predecessors. It certainly benefited from the planning experience gained during the First and Second Five Year Plan periods. The plan appreciated the need for increased supply of trained manpower at all levels, and more particularly, emphasis was placed on the increased supply of middle level technical manpower. Concern with the need for manpower



development led to the Education Sector Review during the last phase of the plan period. The Review was an attempt to gear the output of the education sector at various levels to the development requirements of the economy. Beyond this, it posed a challenge to the conventional belief that Vocational and Technical Education (VTE) was inferior to academic education by focusing attention on the critical role of middle level technical skills in the general development process. The plan was aware of the constraints - including the land tenure system - subject to which it had to set its growth targets. The plan preparation was an achievement par excellence, but implementation was far more difficult and performance had in most cases betrayed expectation, just like in the case of the previous two Five Year Plans (see TABLE 2.2).

The 1974 revolution was in part a reaction to the failure of the three plans to deliver development at least on a scale that would have made Ethiopia self-sufficient in food supply. A major point of development immediately after the 1974 revolution was land reform. The 1975 land reform proclamation was the economic centre piece of the Ethiopian revolution, but its implementation was far from plain sailing. Production disruptions ensued and agricultural productivity suffered a decline. In part, this was a result of the reaction of vested interests to the long overdue reform. But it was also a result of the manner in which the production and



marketing of agriculture was organised in the post-1974 period.

The Ten Year Plan followed a decade of political and economic uncertainty after the revolution. It covers the period between 1984/85 and 1993/94, and aims to achieve self-sufficiency in food and to develop the industrial sector among other things. Over the period of the plan year, industry's contribution to GDP is projected to increase from 16 per cent to 26 per cent, while agriculture's share is expected to fall from 44 per cent in 1985 to 35 per cent at the end of the plan period. During the plan period, GDP is expected to grow by 6 per cent per year in real terms. The state's share of agricultural production is to be significantly expanded while 216 industrial projects are to be carried out, with the aim of making Ethiopia less dependent on imported capital goods.

If the plan were to be effectively implemented, it would call for the expansion of the educational sector, matching with the growing demand for skilled manpower at various levels. It is very difficult to see how the plan to increase industry's contribution by 10 per cent during the plan period, (1984/85-1993/94), could be effected without increases in the supply of technical manpower with different skill categories. Theoretically, the increase in the level of demand for skilled technical manpower could be determined given sectoral input-output



technical coefficients. Unfortunately, the data base for manpower planning in Ethiopia is far from robust, and in the absence of input-output technical coefficients, projections of manpower requirements are likely to either

TABLE 2.2

ETHIOPIA'S AVERAGE ANNUAL GROWTH RATE  
(IN PER CENT)

YEAR	GDP	AGRICULTURE	INDUSTRY	SERVICES	TOTAL POPULATION	LABOUR FORCE
1960-70	4.4	2.2	7.4	7.3	2.0	2.0
1970-76	2.5	0.9	1.6	4.4	2.6	2.0
1965-80	2.7	1.2	3.5	5.2	2.7	2.1
1980-86	0.8	-3.9	3.8	5.1	2.4	1.7

SOURCE: The World Bank. (1978, 1988) World Development Report.  
New York: Oxford University Press.

understate or overstate actual demand levels by wide margins. This does not, however, disqualify the point that generally speaking there is a growing demand for skilled technical manpower in countries like Ethiopia, where the plough and hoe culture have to give way to modern and efficient agricultural technology, and the cottage industries which form the bulk of industrial activity have to come of age. The question is why, despite this point, policy emphasis on Vocational and Technical Education (VTE) in Ethiopia has not historically been as strong as it has been on academic education. As can be seen from Table 2.4 below VTE represented less than one per cent of total enrolment,



suggesting that either there is no effective demand for such skills, (which is contestable) or if there is demand it is not readily expressed. This is the point of departure for the discussion in the next chapter.

TABLE 2.3

BASIC SOCIO-ECONOMIC INDICATORS COMPARING ETHIOPIA  
WITH SOME LOW INCOME AFRICAN COUNTRIES

	BURKINA						
	ETHIOPIA	FASO	KENYA	MALI	MALAWI	NIGER	TOGO
POPULATION IN MILLIONS, 1985	42.3	7.9	20.4	7.5	7.04	6.4	3.04
POPULATION GROWTH RATE IN %, 1973-85	2.7	2.3	4.0	2.5	3.1	3.0	2.8
SCHOOL ENROLMENT AS % TOTAL POPULATION, 1984	24	13	78	17	48	17	72
POPULATION/DOCTOR '000 1981	88.1	49.2	7.5	25.4	53.0	--	18.6
POPULATION/NURSE '000 1985	5.0	3.1	1.0	2.3	3.0	--	1.6
LIFE EXPECTATION IN YEARS, 1984	44	45	54	46	45	43	51
PER CAPITA INCOME IN US \$, 1985	110	140	290	140	170	200	250
PER CAPITA INCOME REAL GROWTH RATE IN % 1973-85	-0.4	0.4	0.3	1.0	-0.4	0.5	-1.1
GNP IN BILLION OF US \$, 1985	4.63	7.08	5.96	1.07	1.16	1.25	0.75
GNP REAL GROWTH RATE IN % 1973-85	2.2	2.7	4.3	3.6	2.6	3.5	1.7
GDI AS % OF GDP, 1984	11	14	22	17	16	25	23
GDS AS % OF GDP, 1984	2	-13	20	-2	17	11	4

CONTND.

	BURKINA						
	ETHIOPIA	FASO	KENYA	MALI	MALAWI	NIGER	T060
SHARE OF AGRICULTURE IN TOTAL GDP IN %, 1984	48	43	31	46	37	33	22
SHARE OF INDUSTRY IN TOTAL GDP IN %, 1984	16	20	21	11	18	31	28
DAILY CALORY SUPPLY PER CAPITA AS % OF REQUIREMENT, 1983	93	85	83	68	95	97	94

SOURCE: Compiled from World Bank. (1986) World Development Report. New York: Oxford University Press, and World Bank. (1987) The World Bank Atlas. Washington D.C.: The World Bank.

-- = Data not available

TABLE 2.4

ENROLMENT IN GOVERNMENT SCHOOLS OF ETHIOPIA  
(EXCLUDING COMMUNITY/PUBLIC SCHOOLS)

LEVEL 1 YEAR	LEVEL 2 GRADE 1-8	LEVEL 3 GRADE 9-12	LEVEL 3 GRADE 13-16	VTE AS % TOTAL VTE	VTE AS % TOTAL ENROLMENT
1955/56	109368	2097	345	15271	1.35
1959/60	176522	5624	939	19631	1.06
1965/66	378750	55579	2256	34611	0.80
1970/71	716729	140691	4636	57371	0.70
1975/76	1084100	182263	4978	87951	0.69
1980/81	1130716	427597	11458	186811	0.73
1984/85	2800695	276253	15776	4063	0.13
1986/87	3153737	325957	17601	5980	0.17

SOURCE: Central Statistical Office, Ethiopia, Statistical Abstract. Various issues; Ministry of Education. School Census for Ethiopia. Various issues, and Unesco. Statistical Year-Book. Various Issues.

\*Includes number of students in Teacher Training Institutions.



## REFERENCES

- Imperial Ethiopian Government. (1958) First Five Year Development Plan, 1957-1961. Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1962) Second Five Year Development Plan, 1963-1967. Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1968) Third Five Year Development Plan, 1968-1973. Addis Ababa: Berhanena Selam Printing Press.
- Kaplan, Irving et al. (1964) Area Hand Book for Ethiopia. Washington D.C.: U.S. Government Printing Office.
- Korten, David C. (1972) Planned Change In A Traditional Society: Psychological Problems of Modernisation in Ethiopia. New York: Praeger Publishers.
- Lipsky, George A. (1962) Ethiopia. New Haven: Harfpress.
- Markakis, J. (1974) Ethiopia, Anatomy of Traditional Polity. London: Clarden Press.
- Markakis, J. et al. (1978) Class and Revolution in Ethiopia. Nottingham: The Russell Press Ltd.
- Ministry of Information. (1964) Ethiopia. Commercial Printing Press.
- World Bank. (1978,1987,1988) World Development Report. New York: Oxford University Press.

## CHAPTER 3

### THE ROLE OF VOCATIONAL AND TECHNICAL EDUCATION IN DEVELOPMENT AND A REVIEW OF ITS POSITION IN ETHIOPIA

#### 3.1. INTRODUCTION

Education is a process of human capital formation. From the social point of view, it is pursued insofar as it is instrumental in producing the basis for inventive and innovative activities that enhance the productive capacity of people. It is meant to enable individuals to become effective members of society by improving their contribution to the material well-being of the society. From the private point of view it represents investment with secure rate of return in terms of access to income-generating employment. It is thus aimed at enabling people to apply their physical and mental efforts to productive and remunerating activities, and at preparing them to adapt themselves to and make good of difficult circumstances. As Alvin Toffler (1970, p.357) explains:

"....its [education's] prime objective must be to increase the individual's 'cope-ability'- the need and [the] economy with which he can adapt to continual change....".

There is growing demand for education in virtually all countries, and governments in many countries have been keen to expand investment in education. Government interest in the expansion of the educational sector as a whole is based on the presumption that education, being the means for human resource development, is critical for

the process of economic growth and development.

Human resources are developed through different forms of education. The most obvious is by formal education. This constitutes primary, secondary and tertiary sectors. Human resources are also developed 'on-the-job' through systematic, non-formal training programmes by employing institutions. Non-formal education is also obtained in adult education programmes, 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 non-formal courses or by learning from others through informal contacts.

The process of education is normally a continuous one, wherein each stage constitutes a logical preparation for the next. The conventional approach to the training of the individual first involves acquisition of general knowledge. It then becomes more and more specialised with the utilitarian aim of attaining practical mastery in a specific field. This approach involving rather longish educational cycles is not, however, without cost and raises questions as to its relevance for developing countries - could developing countries readily afford to adopt such an approach?

Education is generally understood to be better geared if it is designed not only to teach facts but also to give individuals ideas as to how problems in real life could be tackled, for instance, through engagement in practical work. This is known as general education, and it is often designed with the aim to prepare individuals for and equip them with vocational expertise.

### 3.2. EDUCATION AND ECONOMIC DEVELOPMENT

Economists and educators like Cotgrove (1958), Schultz (1963), Bennett (1967), Coombs (1968), Blaug (1970), Vaizey (1973), Foster (1975), Ginzberg (1975), Dore (1976), Gillis (1983), Todaro (1985), Psacharopoulos and Woodhall (1985) among others, stress the importance for development not only of the number of educated people that a country has, but also the quality aspect of school leavers and graduates.

The formation of human capital development have increasingly captured the attention of public policy makers, the business community, and scholars in disciplines such as education and economics. The many forms of investments in human capital includes; schooling, on-the-job training, medical care, migration, mobility, the alteration of social customs, and searching for information about prices and incomes.

Blaug (1970, p.xvii) referred to the economics of education as an "...infant industry." The precise



content and even the substantive core of subject still remain in dispute. This is to say that no two experts in the field would wholly agree to the relative significance of the various findings to date. Nevertheless, there is wide agreement among educational policy makers that educational decisions should take account of the economic value of education or the contribution of education to economic growth. This of course, varies across countries. As can be seen from TABLE 3.1, education appears to be as much a major source of growth in Africa and Asia (pace Japan) as it is in Canada, the United States, the United Kingdom and Belgium. TABLE 3.1 is significant insofar as it indicates not only the importance of education to economic development in general, but also the manner in which education influences the speed and direction of development.

Concern with investment in education is not new. What is perhaps new is the relative emphasis it has received in recent years in the light of deteriorating social and economic conditions in less developed countries, which are broadly characterised, inter alia, by the prevalence of poor health, poor nutrition, and rather low rates of literacy and numeracy population. Strategies for economic development invariably emphasise human capital development through investment in education.

TABLE 3.1

THE CONTRIBUTION OF EDUCATION TO ECONOMIC GROWTH (R)  
(IN PER CENT)

COUNTRY	R
NORTH AMERICA	
CANADA	25.0
UNITED STATES	15.0
EUROPE	
BELGIUM	14.0
DENMARK	4.0
FRANCE	6.0
GERMANY	2.0
ITALY	7.0
GREECE	3.0
ISRAEL	4.7
NETHERLANDS	5.0
NORWAY	7.0
UNITED KINGDOM	12.0
USSR	6.0
LATIN AMERICA	
CHILE	4.5
ARGENTINA	16.5
COLOMBIA	4.1
BRAZIL	3.3
EQUADOR	4.9
HONDURAS	6.5
PERU	2.5
MEXICO	0.8
VENEZUELA	2.4
ASIA	
JAPAN	3.3
MALAYSIA	16.5
PHILIPPINES	10.5
SOUTH KOREA	15.9
AFRICA	
GHANA	23.2
KENYA	12.4
NIGERIA	16.0

SOURCE: Psacharopoulos, G. (1984) The Contribution of Education to Economic Growth: International Comparisons. World Bank Reprint Series, No. 320, Table 8-1. p.337.



The word 'capital' generally refers to the productive power of natural and manmade producer goods. Typically, capital resources are factors of production which must themselves be produced at some cost and are subject to changing value with use or disuse.

The treatment of human beings as a capital component and as integral input in the economic development process is by no means a novel idea. Early interest in the human capital was motivated by a desire to draw public attention to the value of conservation of life and the need to develop systems of compensation for injury or death. Interest in human capital was sparked by its implications for understanding the sources of wealth and the effects of education on the distribution of earnings. For the classical economists, for whom the labour theory of value formed the corner-stone of economic growth, increased expenditure on human capital formation would, ipso facto, give rise to increases in national wealth (Wykstra, 1971 pp.xii-xvi).

The argument about human capital has thus been going on for a long time before it was defined as the essential aspect of manpower economics. One of the first attempts to estimate the money value of human beings was made around 1691 by Sir William Petty. He believed labour as being the "father of wealth" that must be included in any estimate of national wealth. The first attempt to quantify the capital value of human beings was devised

in 1853 by William Farr. Farr suggested that since human beings are productive, they should be regarded and taxed as capital. Farr's idea was almost identical with the method utilised by Louis Dubbin and Alfred Lotka in 1930 (Kiker, 1966, pp.481-99). During the 1930s and 1940s economists' interest in the human factor of production was rekindled in part by the socio-economic problems and policies associated with the conditions of depression and war of the time. Moreover, this was a period in the history of economic ideas when it was fashionable to study market implications, particularly trade unionism, and forcefully question the neo-classical view of economic doctrine concerning factor market pricing and resource allocation (Wykstra, 1971, p.xiii).

Despite the long standing awareness of the importance of human capital for economic growth, it was only recently that the issue has been systematically incorporated in the analytical framework of economic thought.

Solow's work (1957) dealing with the analysis of the residual in the aggregate production function has been the most influential in this respect. Using the case of the American economy over the first half of the 20th Century, he established the residual factor which refers to changes in the stock of human capital and hence technological progress, as accounting for about 90 per cent of the average annual rate of economic growth.



Subsequent investigations refining the analysis of the residual - Denison (1967), among others - also show the importance of the role of human capital, although unlike in the case of Solow, the growth contribution of human capital and technological progress is reduced to 45 per cent. The data in TABLE 3.1 refer to the contribution of the residual factor to economic growth, and this is shown to be widely varied across countries. The data do not reveal any pattern of relationship between the level of development and the percentage contribution of education (broadly defined) to economic growth. But limiting the definition of education to the vocational and technical aspect, it can be shown (see TABLES 4.1 and 4.2 in chapter IV) that the contribution of education to economic growth is more important in developing countries like Ethiopia than it is in the developed ones.

### 3.3. EDUCATION AS INVESTMENT AND CONSUMPTION

Investment is a complex process, but it usually has to do with the nation foregoing current consumption so as to increase the stock of capital goods, thus increasing, in turn, the flow of future consumption goods. The conceptual problem of distinguishing between the investment and consumption dimensions of goods and services could be applied to education. For it is possible that people may decide to have education as a

means to an end or as an end in itself. A passionate scholar may embark upon a lifelong study of a forgotten language purely for its own sake. Or one may decide to take up a skill (say music) purely because one enjoys it. But this is not always true. Indeed much of the demand for education may fairly be said to be a derivative of family or community choices on the allocation of resources with a bearing on consumption now and in the future. Any country or society that decides to put a substantial part of its current income into educating its young people and improving their aptitudes, skills and attainments does so with the hope to see an important change in its economic and social returns in the future.

It is in this senses, therefore, that outlays on education may come to be regarded as the sacrifice of present income and satisfaction for material gains to be earned in the future. According to the definition of investment, it makes sense to look at what happens to educational expenditure as a process of investment which usually takes long to mature and benefit the individual, the family, the society and the nation. In countries where the population is growing fast - as in most less developed countries - the addition to the labour force can be regarded as a new net investment, net addition to the stock of 'human capital'. Vaizey (1973, p.30), pointed that there is a sound policy for the proper education of the young generation.

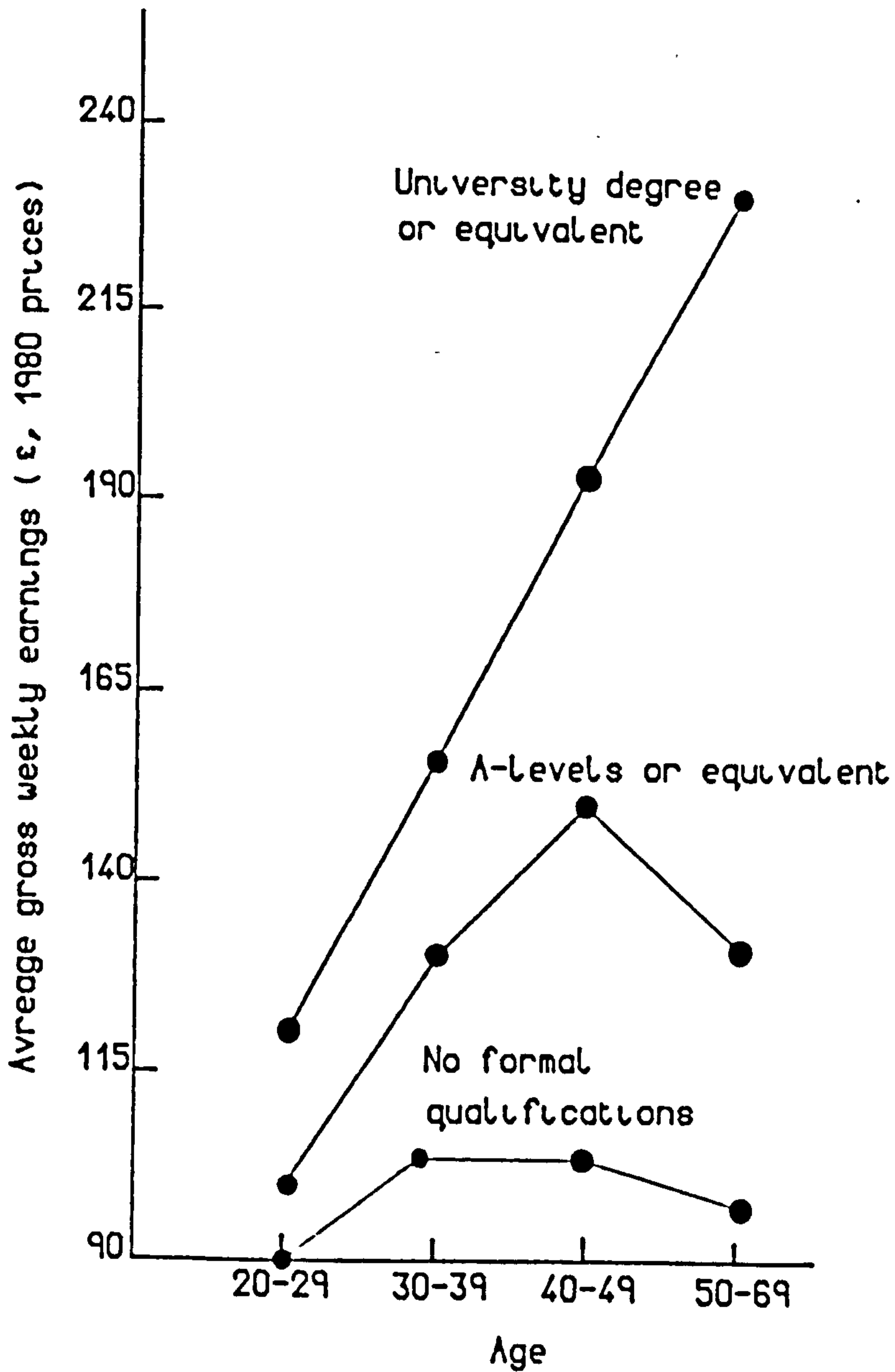


Economists like Blaug (1976), Becker (1964), Begg (1984), Vaizey (1963), Psacharopoulos (1982), Schultz (1963), among others, believe that, all other factors remaining equal, people with more education earn on average higher incomes than people with less education, as shown in FIGURES 3.1 and 3.2. In other words, additional education pays off in the form of higher lifetime incomes. This is borne out in the case of Ethiopia (see TABLE 4.16 in chapter IV). Thus, in this very simple sense, the costs incurred by individuals in acquiring more education constitute an investment in their own future earning capacity. It is, therefore, useful to think of a threefold category rather than a twofold one. That is, education may be acquired by individuals as if it were a none durable consumer good, a durable consumable good, and a capital good (investment) (Blaug, 1970. pp.18-21).

Not  
always

Indeed, one of the outstanding reasons for believing, a priori, that education is important is the correlation - perceived on the basis of experience - between the levels of educational attainment and corresponding earnings at both the individual and the societal level. For instance, it is noticed that although not all high school graduates earn more than all primary school leavers, the majority do, so that, on average, their earnings are much higher. Hence the growing demand for education. At the level of national

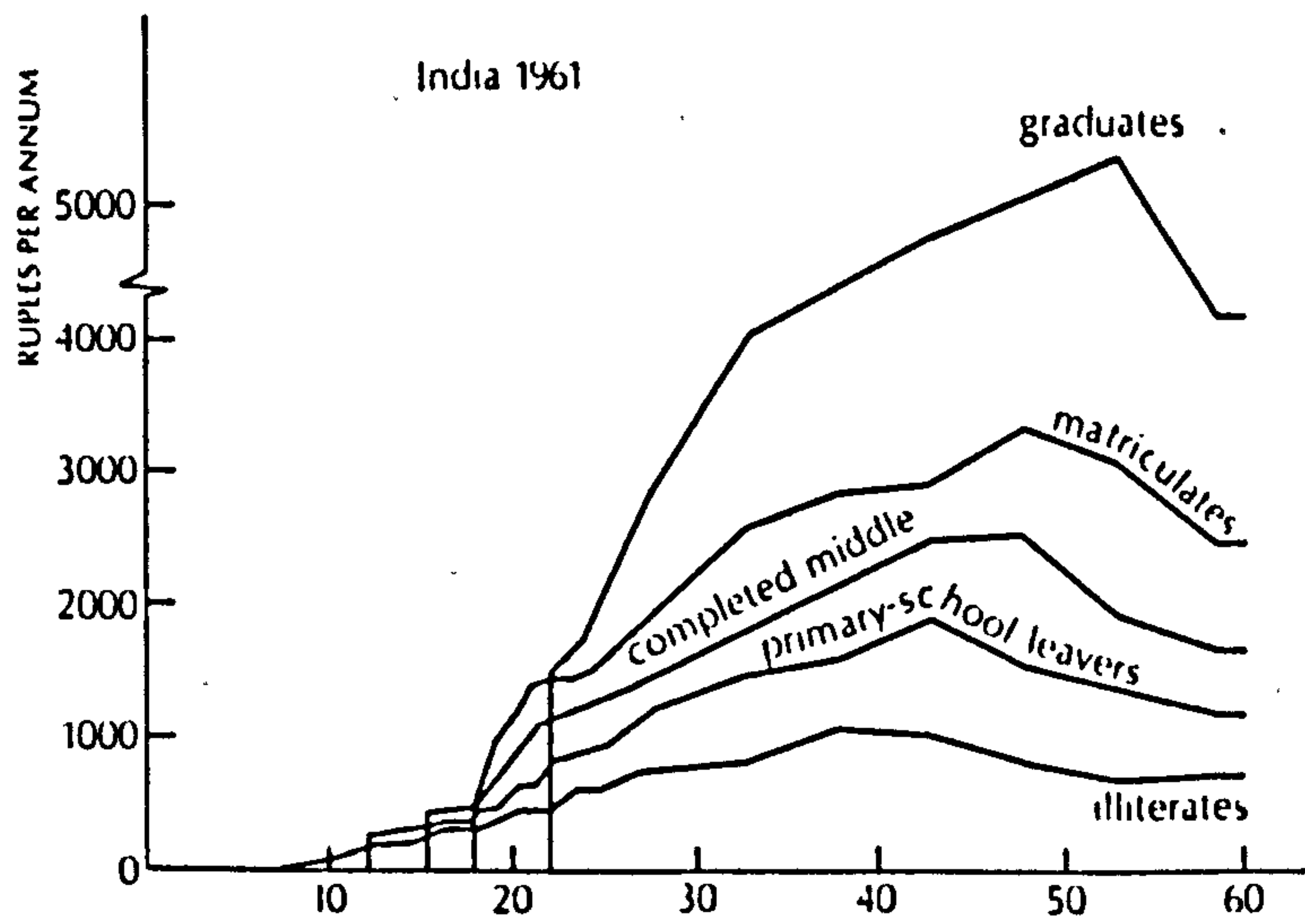
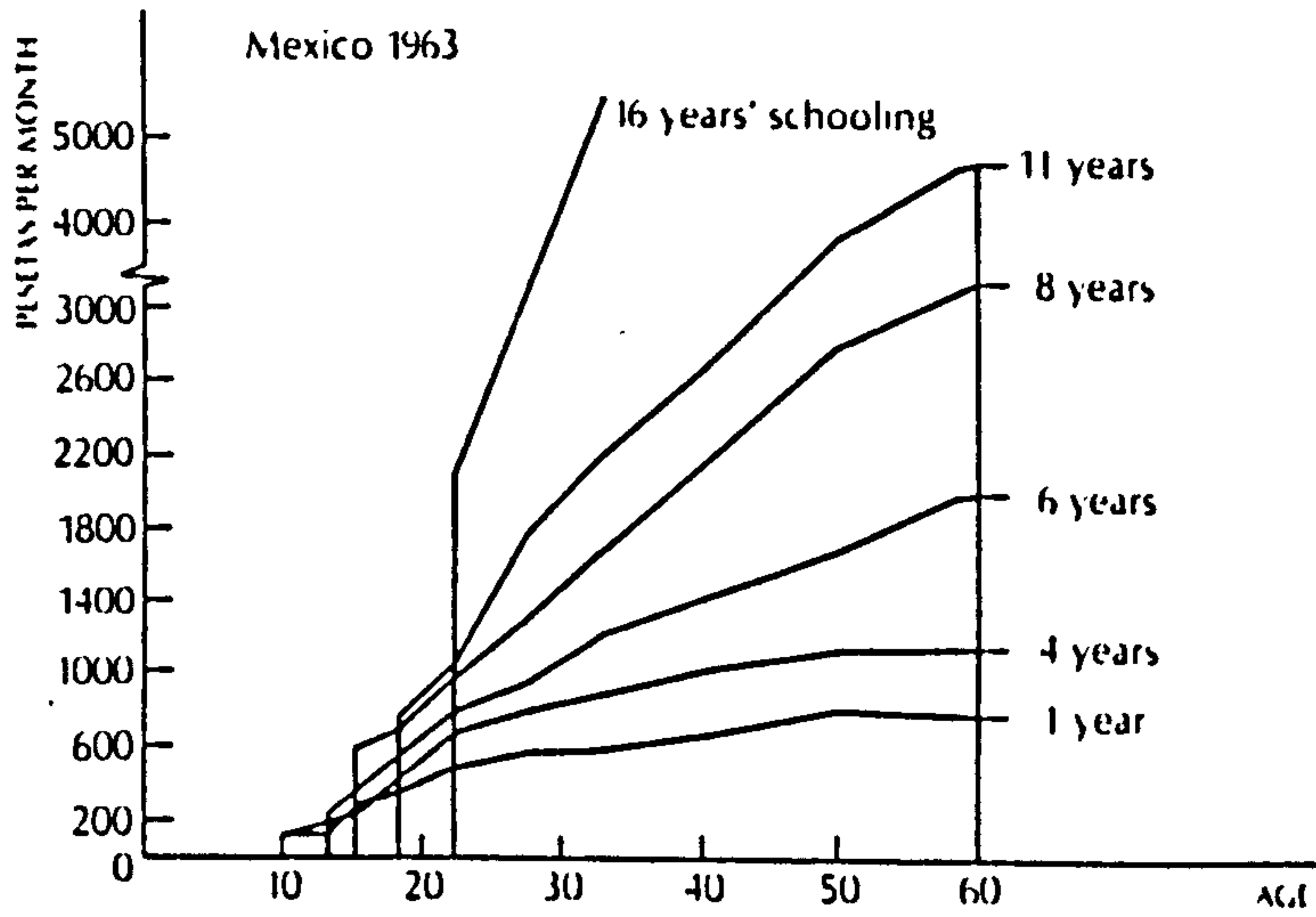
FIGURE 3.1 AGE-EARNINGS PROFILES BY HIGHEST EDUCATIONAL ATTAINMENT. The figure shows earnings in the U.K. in 1980 for male workers in full-time employment. It relates earnings to age in highest educational attainment. It shows that earnings increase with the level of education and, up to a point, with age.



SOURCE: Begg, David et al. (1984) Economics. London: McGraw Hill Book Company (U.K.) Ltd. P.251.



FIGURE 3.2 AGE-EARNINGS PROFILES IN MEXICO AND INDIA



SOURCE: Gillis, M. et al (1983) Economics of Development.  
New York: Norton & Company, p.212.

policy making, importance of education is sharply brought home by the general observation that illiteracy is preponderant in the very poorest countries, and diminishes sharply as one goes up the income scale. There are, of course, cases of rich individuals and societies which have received little schooling, and of well-educated individuals and heavily schooled societies whose incomes are relatively low (Gillis, M. et al.; 1983 pp. 211-12). But these are exceptions to the rule.

From the view point of individual choice, the essential distinction that is being made is, between the enjoyment of education for its own sake and the anticipated enjoyment of a higher monetary or psychic income in the consumption component of education. If education is motivated by utilities that will accrue in the future, it is more related to investment than to current consumption. Since this sort consumption benefit of education is almost certainly positive, very few people enjoy less for being educated. Higher life time earnings perhaps constitute the most important factor explaining the motive for the acquisition of more education. But the same thing is not necessarily true of the current consumption of education which may actually carry negative utility for the average student (Blaug, 1970, pp.20-22).

Among the factors of production, labour and entrepreneurial ability lend themselves to improvement



by education and training in the widest sense. Education; makes people more receptive to inventions and innovations, promotes the division of labour and the use of machinery, permits increasingly advantageous combinations of factors of production, makes it possible for any new technical discovery to be brought into operation with little or no delay, promotes both in the domestic economy and on an international scale, a far reaching mobility of labour and of entrepreneurial ability, and ensures that those individuals who are responsible for making major technical, economic and political decisions are capable of avoiding potentially dangerous mistakes.

The education factor in human capital formation is often - but not necessarily - associated with the creation of internal and external economies that are capable of reducing risks and costs and enhancing the efficiency with which productive activities are performed.

The quality and quantity of the contribution of land and capital can also be improved and they can be made to enter into increasingly profitable factor combinations. But once they have reached, respectively, a certain degree of efficiency of production, it is only upon the event of technological progress that they can produce greater output. From this it can be seen how critical the human capital factor can be for the development of

general economic activities.

The widest possible distribution of education and training throughout all strata of the population is all the more necessary in a country where the labour force is abundant and perhaps even in excess of other factors of production. In this case, education enhances one of the most valuable natural endowments, and permits the human factor to combine in a more profitable way with the other factors. Therefore, every effort to promote development in a country must start from improving the human factor.

It was frequently stressed that a concept of capital restricted to physical assets, including inter alia, production equipment and inventories is much too narrow to consider in the study of growth in general, and the measurement of improvements in the standard of living in particular.

Kusnets (1972, pp.61-64) sees the matter clearly at one point in his work when he observes that for the study of economic growth over long periods and among widely different societies, the concept of capital and capital formation should be broadened to include investment in human beings.

In his 'Reflections on Investment in Man' T.W. Schultz (1963, p.x) maintains that man's economic capabilities are predominantly a "...produced means of production" and that except for some pure rent (in earnings) caused by differences in inherited

capabilities, most of the differences in the amounts that have been invested in people. The hypothesis, then, is that the structure of wages and salaries is primarily determined by investment in schooling, health and on-the-job training, by information on employment opportunities and by investment in migration. Another hypothesis is that changes in the investment in human capital are basic factors in the reduction of inequality in the distribution of personal incomes (Blaug, 1985, pp.17-27).

Even though these hypotheses are expressed in somewhat sweeping and arbitrary manner, they are largely supported by empirical findings and are particularly useful in the construction of a more comprehensive theory of economic development.

Generally speaking the demand for education grows as the social and technical environments become more complex, and the leisure time available to individuals increases. The result is an increase in the 'schooling rate' that is, the ratio of school age population to total enrolment and those who are in the various types of schools. Indeed, it can be argued that the supply of education on a small scale tends to create a more than proportionate expansion in the demand for education. This appears to be the case in most developing countries where expectations for higher level of earnings is largely contingent upon the level of educational attainment. Against the background, this pattern of income



expectation has emerged the divergence between the social and private rates of return to education. Thus, for example, while private rate of return to education is higher at the tertiary level and least at the primary level, the converse seems to be the case with respect to the social rate of return to education in developing countries.

Schooling rates anyway tend to grow everywhere, though less rapidly in the industrialised countries than in the poor countries of the Third World. In Western Europe, for instance, the schooling rate can grow to an appreciable extent only in the case of secondary and higher education, since primary schools already have almost their maximum possible attendance. In developing countries, by contrast, the schooling rate can grow in all types of schools, 'general public service' which, though its implied consequences, affects not only those who directly benefit by it, but also society as a whole.

If private enterprise alone were responsible for the supply of educational services, society would run the risk of receiving a kind of education not in line with national interests. In view of the importance of education not only for its private but also for its social consequences, it is not surprising that it has come to occupy a decisive place in a country's plan and general policy packages.

Recent research confirms that the bulk of economic development in many countries is attributable to the improvement of the human factor. The influence of education on the development of a country resides in the speed with which individuals absorb new ideas, develop new skills and adapt themselves to changing and often unforeseen conditions.

Education is, needless to say, universally recognised as a form of investment in human beings, which yields economic benefits and contributes to country's future wealth by increasing the productive capacity of its people. And, expenditure on education is invariably justified in terms of the potential contribution of education to economic growth. It is here that cost-benefit analysis becomes useful for determining the educational requirements of a nation in the light of its economic circumstances and development aspirations.

#### 3.4. WHY HUMAN CAPITAL?

Begg (1984, p.250) says:

"....Human Capital is the stock of expertise accumulated by a worker.... valued for its income earnings potential in the future."

One of the major areas of inquiry in manpower economics is the formation of human capital - the process of further developing the productive capacity of human resources through investment. There are three

general reasons for investment in human resources.

First, it is quite apparent that the formation of human capital is an important prerequisite for the achievement of several traditional concerns of economists such as the efficiency of resource allocation, economic growth and stability, and distributional equity of factor income. The development of manpower through investment in human capital certainly relates to economic efficiency as the time-enhanced organisational skills of management and labour suggest. Of course many factors contribute to economic growth in quantitative and qualitative terms and it is the contribution in the latter sense which gives human capital formation pride of place in the formation of development policy. Moreover, the distribution of income is related to the value of human factors of production and thus to the quality as well as the quantity of resources available to the market economy.

Secondly, most of the Western world has viewed much of the formation of human capital as being the proper province of the public sector. Education has been generally regarded as social good properly supplied by the public instead of the private sector. In the event, much of the contemporary human capital formation occurs outside the market economy.

Thirdly, the human capital orientation toward more encompassing manpower problems is partially explained by the goodness or poorness of fit between the tools of



economic analysis and the character of the problems posed and the policies proposed. If the multi-billion education industry functions outside of the price-directed market system, what can be said about the efficiency of resource allocation in education? How does one evaluate the worth of such expenditures? To whom is such 'good' distributed and upon what terms of financial sacrifice? How does education relate to future economic growth? These questions have not been asked forcefully enough by economists primarily interested in the market economy where the private sector reigns supreme. Economists may well be able to contribute to solving the manpower questions of the 1980s by adopting a human capital formation perspective. Even though this vantage point does not respect the complete manpower scope, it certainly represents one important dimension (Wykstra, 1971, pp.xv-xvi).

Human capital also implies demand for education and economic growth. Even since the Second World War, there has been a marked growth in the demand for education at all levels; primary, secondary, further, higher and adult. The highest rate of growth in the developed countries has been in higher education sector. In the developing countries, it has, rightly enough, been primary and secondary education that have grown most quickly.

It is necessary to insist upon the fact that

technological and economic change depends upon a steadily growing body of experience in members of the working force, and among the population generally. But the great increase in education in almost all countries since the end of the Second World war has not been in any sense perfectly or moderately adapted to the needs of society and the economy. For instance events relating to shortages of teachers, student riots, unemployed graduates etc., reflect partly the conflict of objectives that people seek to attain through education and partly the lagged response of public policy to adjust differentials in the supply of and demand for education, and to enhance the employment capability of the economy. This lagged response is not necessarily a result of sheer inertia on the side of policy makers. For instance, it takes time to train teachers and skilled workers. But having made allowance to such delays, the question is whether, or to what extent, these shortages are remediable.

It might be easy to demonstrate that, if a free market for education operated, there would be no shortages. All that is needed is a simple faith in the perfect competition model. But Vaizey (1973, pp.30-32) notes that much of the 'demand' is extra market demand, expressed politically; and that the educational system, as well as fulfilling 'economic' requirements, is also central to social and political structures. It cannot be

isolated as some pro-market theorists would seem to wish, unless the explicit assumption is made that all non market forces are to be ignored.

One of the major characteristics of developing countries is that the majority of the population in such countries do not have any education, and the rate of growth of the supply of educational services is not commensurate with the rising aspiration of the growing population. Those who have had the opportunity of access to education would often assume 'elitist' position for themselves and are consequently reluctant to enter occupations involving manual work, even when they are trained for it, and - even more important - when services as manual operators is badly needed (Sanders, 1966, p.51).

Developing countries need human capital in the form of skilled manpower just as urgently as they need physical and financial capital. Indeed, unless these countries are able to develop their educational systems, they cannot effectively absorb and utilise physical capital to productive ends. Of all the resources required for economic development, educated and skilled manpower requires the longest 'lead time' for its creation. Dams, power stations, textile factories, steel mills, etc. can be constructed in few years, but it takes an initial ten to fifteen years to develop educated and skilled personnel who will be able to administer and operate



them. The existence of such manpower, however, is essential if the countries are to achieve self sustaining growth (Harbison, 1964, pp.51-52).

It is generally believed that in order to accelerate the process of development, priority must be given to the development of human capital through increased investment in education. Education plays an important role in the pursuance of economic growth and development by contributing both to the increase of the productive capacity of the economy and its effective utilisation. Economic development can take place even if natural resources that a country is endowed with are poor, as in Japan and South Korea. Development will, however, be severely constrained if too many people remain illiterate. It is, therefore, the burden of education to produce people with new skills. Investment in educable talent is generally believed to result in a high economic rate of return (Broekmeijer, 1966, pp.76-80).

Although human capital will not cure all the problems of society, without it no remedy for any problem is possible. It is high among concerns, central to the purpose of any country's administration, and at the core of the hopes for a better society. Even when viewed in the narrow perspective of economic benefit alone, the direct returns to individuals and society from investment in education have been shown by recent studies to be high, and to compare favourably with the returns

available from other forms of investment. It is, therefore, safe to assume that a careful and selected investment on human capital for underdeveloped nations will help boost the prospect for development and economic growth.

### 3.5. DEVELOPMENT OF VOCATIONAL AND TECHNICAL EDUCATION (VTE) IN DEVELOPED AND DEVELOPING COUNTRIES

Before looking into the role of Vocational and Technical Education (VTE) in the development process, it is necessary to define what in effect it constitutes. As defined by Unesco (1983, p.1); Vocational and Technical Education is:

"those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and Vocational Education is further understood to be; a) an integrated part of general education; b) a means of preparing for an occupational field c) an aspect of continuing education."

Training in VTE usually covers areas in skilled trade and semiprofessional careers like Automechanics, Business or Commerce, Drafting, Electrical Technology, Metal Technology, Wood Technology, and related areas of study.

The importance of relating education to work was mentioned in most of educational, philosophical, economic and political writings of the early western philosophers.

For instance, Cominius's support of the teaching of the principles of mechanical arts was to enable the learner to understand his environment and participate in the world of work without much difficulty. Other early philosophers like Rousseau and Herbert, also pointed out the importance of VTE.

Some of the more recent contributors to the relevant literature, like Roy W. Roberts (1971, pp.55-75) think that the VTE derived from the philosophies that grew out of the revival of learning during the 5th and 6th centuries A.D., has gone through different phases of development. The humanistic movement, in the 5th and 6th century A.D., stressed the individual and his privileges and responsibility. In the 16th and 17th centuries the *raison d'etre* of educational philosophy was the pursuit of realism. During this post-renaissance era, John A. Cominius and John Locke, among others, supported the pursuit of science and practical arts. During the 18th Century the ideas of Jean Jaques Rousseau and Johann Heienrich Pestalozzi further contributed to the development of more concrete educational programmes. Education was sought not as an end in itself but as a means to a more practical social and economic end. As such it was meant to have a cutting edge capable of generating, restoring confidence and enterprise. Thus the European countries, in the 17th century, established industrial schools to cater for the poor and delinquent



children. For example, in England the Blue-Coat School was established in 1694; in Switzerland, the Neuhof School was established in 1774; and in the United States, the Dela Howe Agriculture School was established in 1797 (Roberts, 1971, pp.125-135).

In most of the above mentioned schools, handicrafts and industrial skill such as turning, fastening and fishing, were given as major courses. The emphasis of education on industrial skills was marked especially in the Neuhof School, in Switzerland, which was founded by Pestalozzi. Here, the method of instruction was from 'things to words' rather than otherwise. Pestalozzi was also aware to the importance of combining the theoretical aspects of education with practical work (Roberts, 1971, pp.140-155). Hence, the interest among proponents of practical education in many countries to have handicrafts as an integral component of education. In 1868, Otto Salamon introduced the 'Sloyd Training' school as a VTE centre in Sweden (National Institute of Basic Education, 1965, p.5). By introducing pupils to the technicalities and artefacts of wood work, the centre aimed at developing appropriate habits and attitude to work in individuals. The 'Sloyd Training' period prepared individuals to undertake further industrial apprenticeship training. By the end of the 19th century, the arts, crafts, industrial and VTE movements had already been established. For instance, Ethel M. Wood

(1965, pp.123-135) points out that in 1886, in the United States, the objective of practical education was not merely to churn out narrow minded mechanics but to enable the students to effectively apply their learned skills to a wide range of problems under changing social and economic circumstances. This objective is best achieved by combining shopwork in, for example, manual arts such as graphic arts, mechanical arts, plastic arts, and textile arts, with academic courses. This together with the ascendancy of the industrial culture in Western societies formed the *raison d'etre* for the establishment and growth of industrial arts and vocational and technical schools.

In England, following the Great Exhibition of 1851 in London, important steps were taken to introduce VTE programmes for employers and designers as well as for ordinary workers. The importance of crafts as an essential component of general education was recognised in the famous Handow Report of 1924. Following the Handow Report, almost every secondary school was provided with craft rooms and facilities, so that pupils would spend from 5 to 15 per cent of their week at school on craft and related work (Porter, 1970, pp.115-116). This, it was thought, would prepare them for further work experience. Beyond that society as a whole would benefit from the accumulation of technical experience which was generally believed to provide the basis for technological progress

and economic change.

Training programmes relating to industrial service and agricultural activities have thus a long history. Apprenticeship, an arrangement by which neophytes in a trade work alongside a master craftsman has, historically, been accepted as a mode of training. However, the significance of its traditional role has in recent years been diminished by the introduction of VTE linked with work as a component of formal education.

During the 19th Century and up to the middle of the 20th Century, the balance between education designed to achieve cultural objectives and VTE seemed to have been irrevocably lost; and a choice had to be made between the ideal of developing personality founded on cultural values and the ideal of attaining technical skill capable of taming the forces of nature. Many humanists defended the traditional ideal of culture and reject the advent of modern technology as anathema to the conservation of stable society. On the other hand, those who went for new technologies rejected conservative cultural values and placed their whole faith in technical prowess. Faced with this alternative, man had either to be 'spiritualised' by culture and remain ignorant of all technical matters, or else 'technicalised' and remain ignorant of culture or without any human face. Consequently, schools had to train either 'spiritualised' humanists or 'barbarian' technicians.



The 20th Century has seen the development of the vocational and technical orientation of elementary schools, colleges and universities in a number of countries, apparently as a response to the challenge of social and economic demands deriving from the introduction of new technologies (Porter, 1970, pp.115-116).

The pattern of development of VTE in today's developing countries, is largely influenced by the manner in which it evolved in the developed nations. In many developing countries in Africa, for instance, the type of education that existed before the colonial period was mostly informal. Education prepared children for village life and village life in turn, played the role of schools. Children grew steeped in traditional values and aware of the social and economic responsibilities that traditional values involved.

But the mould of traditional values was broken by the institution of colonial settlers, and missionaries; societies, and new values were subsequently introduced through the establishments of formal schools. If the education of the colonial masters helped people to become literate, it also prepared the 'Black African' to copy foreign ways of thinking and living. In the event, indigenous African technologies, however crude, started to be replaced by foreign technologies. But this eventual wholesale rejection of indigenous talents is one aspect

of the impact of colonial education. The advent of modern education was also instrumental for enhancing the development of indigenous technological capability.

The development of VTE in the past was not only due to the efforts of educational and political philosophers. There was also a pragmatic appeal to it consequent upon the social and economic pressures of the time. For instance, the increased interest in welfare for the poor and juvenile delinquents encouraged society to develop vocational and technical schools for them. Moreover, with the advent of the industrial revolution, the increased demands on the apprenticeship system brought pressure to bear on schools to relate their academic subjects to practical work and, hence, to design their curricula to meet the needs of prospective employers in industries (Cremin, 1961, p.39).

### 3.6. VOCATIONAL AND TECHNICAL EDUCATION (VTE) AS AGENT OF ECONOMIC DEVELOPMENT

Technological development is basic to economic development. In less developed countries, with low level of technological development, productivity is so low that almost everyone has to work to produce the minimum physical necessities of life. In industrialised societies, on the the other hand, high level of productivity due to the high level of technological achievement, enables a relatively small proportion of the

population to supply the total amount of basic needs demanded, hence, releasing a substantial amount of labour force for employment in areas including, inter alia, the arts, or the production of additional services (Ginzberg, 1975, pp.23-24).

The skill factor is a major link between education and economic growth. The process of economic growth invokes a rising and changing demand for skills, and this is satisfied partly by on-the-job training or 'pick it up as you along' method, but mainly by the formal education system. The physical capital stock of the economy embodies technology, and this embodied technology determines and is, in turn determined by the skill effect of education. These skills are obtained partly by experience and partly by formal training. But experience and training both rest upon a complex process of instruction and socialisation, which implies the existence of a highly articulated, expensive and diversified system of education (Vaizey, 1973, pp.30-32).

The need for VTE arises in the context of division of labour in the economy, so that efficiency in the conduct of a certain duty becomes a function of the capacity of education to generate cognitive skills. This has for long been a matter of conventional wisdom. According to Sanders (1966, p.23), competitive efficiency in the production and sales of goods and services cannot be achieved "...without setting up, on national basis a



great and efficient system of technical education." But in recent years, the conventional view of the economic value of education, especially of VTE, has been called to question. Philip Foster (1966, pp.148-171), argues, based on Ghanaian experience, that VTE as part and parcel of formal education could not become an effective method of accelerating economic development. He further explained that vocational technical schools are expensive; that teachers ought to be both well trained and must be well equipped with industrial experience, but, deplores that such people are few and far between; that the equipment of vocational technical schools is liable to be either outmoded or so advanced as to have little relevance to the country in question; and that it is virtually impossible to simulate the actual rhythm and discipline of factory work in the class room. Nevertheless, if vocational and Technical schools made sense, these should merely constitute surmountable difficulties. Unfortunately, vocational training in formal educational institutions makes little sense on either educational or economic grounds.

Psacharopoulos (1982, p.41) said, at one time it was thought that the right kind of education to promote economic development should be of vocational and technical type. However, recent examination of this type of education has brought forth results that cast serious doubts on its economic value. More often than not, the

rate of return to academic curriculum is higher than the return to a vocational and technical curriculum at the same level of education (see TABLE 3.2). The reason is that, although engineers and technicians on average, earn more than social science graduates, the cost of VTE is very much higher than the cost of academic education - a factor that depresses the social returns to investment in VTE.

TABLE 3.3 shows the unit cost structure of the secondary curriculum in five countries. It is evident from the TABLE that on average, agricultural and especially vocational and technical subjects are significantly more expensive than academic/general

TABLE 3.2

THE SOCIAL RETURNS TO SECONDARY EDUCATION BY CURRICULUM  
(IN PER CENT)

	YEAR	CURRICULUM	
		ACADEMIC	VOCATIONAL
CYPRUS	1975	10.5	7.4
	1979	6.8	5.5
FRANCE	1970	10.1	7.6
INDONESIA	1978	32.0	18.0
LIBERIA	1983	20.0	14.0
TAIWAN	1970	26.2	27.4

SOURCE: Psacharopoulos, G. (1986) To Vocationalise not to Vocationalise? That is the Curriculum Question. The World Bank, Education and Training Series, No. EDT31, Table 9, p.21.

option. In Malaysia, for example, it requires 60 per cent more resources to keep one student in vocational and technical stream than in academic stream. As can again be seen from, TABLE 3.2, the extra cost of vocational and technical streams at secondary level could be justified if the individual or the society for that matter, derived corresponding extra benefits from such investments. Yet existing evidence does not substantiate this point. Indeed, several evaluations of such programmes, both in advanced and developing countries have typically concluded that the extra benefits are not there. For

TABLE 3.3

THE RELATIVE UNIT COST STRUCTURE OF THE  
SECONDARY SCHOOL CURRICULUM

(INDEX: ACADEMIC = 100)

C U R R I C U L U M				
COUNTRY	ACADEMIC/ GENERAL	AGRICULTURE	COMMERCIAL	VOCATIONAL/ TECHNICAL
COLOMBIA	100	119	101	125
TANZANIA	100	119	109	113
MALAYSIA	100	--	163	163
BARBADOS	100	139	158	142
JORDAN	100	--	--	196

SOURCE: Psacharopoulos, G. (1986) To Vocationalise or not to Vocationalise? That is the Curriculum Question. The world Bank, Education and Training Series, No. EDT31, Table 1, p.11.

-- = Data not available



example, a recent study provided a critical appraisal of Nigerian VTE at the secondary level. According to the author, it is not certain that VTE in Nigeria promotes economic development any more than conventional schooling (Urevbu, 1984, p.227). The same view is reflected when secondary VTE in Kenya was evaluated. The report concluded that in terms of teaching costs and supplies, VTE is twice as expensive as other subjects. When capital costs are considered, the difference between academic and VTE is five to six times more expensive relative to general education and yet, its (VTE's) social benefit is not justified (Lauglo, 1985, p.189).

What is not in question, however, is the importance for economic development of VTE. Many developing countries suffer from acute constraint in the supply of technically trained manpower. The problem is that technical schools are expensive to set up and maintain. Many government departments and large private organisations have their own training centres and programmes for updating their staff. These in-service or departmental training centres have flexibility in their operations and can easily introduce change in the structure and mode of training. This is important particularly when educational reforms for skill training are being considered. Too often, most of what is acquired when one goes through the formal educational system tends to be forgotten after a few years, principally because

their orientation is towards problem solving for particular job situations (ECA, 1985, p.143).

That is why developing countries have deficiency of certain types of skills and, at the same time, a surplus of other skills. For example, a country may lack various types of engineers, skilled mechanics, machinery maintenance personnel, entrepreneurs, and people with managerial talents while at the same time it may have a surplus of individuals with degrees in social sciences. It is not uncommon that in some developing countries pools of unemployed intellectuals coexist and shortage of people with technical skills.

On the other hand, even in developing countries, changes and innovations in business, industry, homemaking, and agriculture have in recent years increased the need for VTE. Old jobs are going, and new jobs are emerging. Displaced workers must learn new skills and must often find jobs in new locations. The most rapidly expanding occupations require training. A major task of educators in VTE is, therefore, to equip people with the required skills and technical fields.

Generally VTE programmes are grouped into seven categories. These include: Trade and industrial, Office or Business, Distributive, Agricultural, Home Economics, Health Occupation, and Technical (Shores, 1978, p.23).

There are at least a couple of reasons for the development of VTE today (Sanders, 1966, p.38). In the

first place, the increasing complexity of the technological, social and political structures of modern societies makes even increasing skill demands. Hence, the role of VTE in providing the needed skills. Secondly, the acquisition of skills is a guarantee for employment. Conversely, the unskilled in general and people without appropriate skills, according to the demands of the labour market, would find it difficult to be employed without further training. Therefore, VTE is seen as a method of preparing the underprivileged and the unemployed to take up employment, and thereby contribute to the development of the society.

### 3.7. THE EVALUATION OF MODERN EDUCATION IN ETHIOPIA

Modern education in Ethiopia has not yet made much impact paving the way for social and economic transformation. Ethiopia has, however, a long tradition relating to institutions of learning. The country has its own written language and a body of literature comprising of religious and historical works. In the past, the art of writing was practised mainly by the clergy, and was used by the nobility in the administration of state. As important institution in traditional society, and as the custodian of the Ethiopian historical and cultural tradition, the church developed an elementary system of education which served not only the needs of the Church itself, but also



the cultural needs of society in general.

It has been quite a while since traditional schools started giving way to modern educational institutions. Modern education was first introduced in Ethiopia during the last years of Menelik's eventful reign (1889-1913). The need for modern skills made itself felt in Ethiopia at the same time as the realisation that the pressure of the European powers which had surrounded Ethiopia with a ring of colonies was not a temporary situation but a permanent threat. Menelik was confronted with a situation entirely novel for Ethiopian ruler. The new capital, Addis Ababa, became crowded with foreign embassies determined to negotiate treaties, demarcate borders, establish commercial relations, and gain concessions. Merchants, trade agents, adventurers, and freebooters of all types also descended on the primitive town seeking contracts, franchises, orders, or jobs as advisers, interpreters, craftsmen, mercenaries, etc. Lacking the skilled manpower or the means to train it, Menelik was forced to enlist the aid of numerous foreigners and through them was able to introduce such innovations as national currency, a state bank, a postal, telephone, and telegraph system, the building of railroad, bridges, and hospitals, the importation of a printing press, and the training of Ethiopian soldiers in the use of modern fire-arms.

During Menelik's reign few Ethiopians were sent

abroad, where they acquired modern education and the knowledge of foreign languages. Upon return to Ethiopia, some found use for their skills. Generally, however, these pioneers of modern education received little recognition for their educational achievements. Distrusted because of their missionary connections and disliked for their assumption of European customs, they were employed sparingly and in lowly posts (Markakis, 1974, pp.144-145).

Menelik's greatest contribution in the field was to sow the seed of modern education in Ethiopia. Thus the Emperor Menelik II School, the first school of its kind, was established in 1908. The modernisation and building of schools was later continued by Emperor Haile Sellassie, but was disrupted during the period of Italian occupation between 1936 and 1941. During the period of occupation, the Italians eliminated most of the educated Ethiopians and this set the novel process of modern education back by many years. Although the occupation itself did not last very long, its effect on the modernisation of education was significant and lasting. The fledgeling system of state education was completely demolished, students and teachers were dispersed, the meagre collection of educational materials was scattered and destroyed, foreign teachers fled the country or were expelled, and buildings were commandeered by the occupying army.

The task of establishing a system of modern education in Ethiopia continued and was undertaken in earnest in the mid-1940's. A Ministry of Education and Fine Arts was created soon after 1941. The first budget for education was adopted for the year 1943/44. And also at this time, the first secondary school (the then Haile Sellassie I Secondary School) was founded in Addis Ababa. The period, between 1944 and 1950 was one of slow growth of enrolment. For in a predominantly traditional society, the material advantage of modern education were not readily perceived. Indeed, parents were cajoled to send their children to school, and there was little or no enrolment demand pressure on schools. On the supply side, this was perhaps a blessing in disguise. For in later years, the case was to be on in which efforts to organise the educational system and provide for its expansion were confounded at every step by severe shortages of everything except students (Markakis, 1974, pp.147-150).

Nevertheless, a beginning was made by laying the foundation that was to provide for future expansion. By 1950 more than 500 primary schools and four secondary schools had come into existence. About 56,000 students were enrolled in both primary and secondary education. The budget for education rose from less than US \$400,000 in 1943/44 to about US \$4 million in 1950. This was supplemented by a special tax on cultivated land, levied in 1947, intended for the support of schools in rural



areas. To alleviate the problem of teachers, teacher training schools were established in Addis Ababa (Markakis, 1974, pp.147-150).

Since 1950 the size of the educational establishment has expanded slowly but steadily. During the period between 1955 and 1980 the overall enrolment expansion was over tenfold (see TABLE 3.4). For several years the system was organised at two levels, the first eight grades comprising the primary level and the next four grades the secondary level. A middle level called 'junior secondary' was introduced in 1964 consisting of the seventh and eighth grades.

TABLE 3.4

ENROLMENT IN GOVERNMENT SCHOOLS, ETHIOPIA  
(EXCLUDING COMMUNITY/PUBLIC SCHOOLS)

YEAR	LEVEL 1 GRADE 1-8	LEVEL 2 GRADE 9-12	LEVEL 3 GRADE 13-16	VTE	VTE AS % TOTAL ENROLMENT
1955/56	109368	2097	345	15278	1.35
1959/60	176522	5624	939	19638	1.06
1965/66	378750	55576	2256	3461	0.80
1970/71	716729	140691	4636	5737	0.70
1975/76	1084100	182263	4978	87958	0.69
1980/81	1130716	427597	11458	186818	0.73

SOURCE: Central Statistical Office, Ethiopia, Statistical Abstract, Various issues; Ministry of Education, School Census for Ethiopia, Various issues, and UNESCO, Statistical Year Book, Various issues.

\*Includes number of students in Teacher Training Institutions.

In addition to the government system of education, a number of other schools operated by private groups, foreign missions, and Ethiopian Orthodox church came into being. Most of the private secondary schools were operated by foreign communities resident in Ethiopia. The modern schools operated by the Ethiopian Orthodox church followed the curriculum of the Ministry of Education and are not the same as the traditional church schools.

While the modernisation process continued, it was not until the early 1950s that schools of vocational and technical nature (VTE) started to be built. This delay in the introduction of VTE in Ethiopia was not however without reason. Traditional and cultural values in Ethiopia denigrated manual work, and with the preponderance of cultural and traditional influence on attitudes and behaviours, VTE was relegated, albeit by default, to a pariah status. Consequently, the demand was not for VTE, but for academic education at primary, secondary and tertiary levels. That VTE has been literally a victim of traditional values is best exemplified by an Ethiopian proverb: 'from cleverness of the hand comes serfdom; from cleverness of the mouth (the ability to speak well) mastership'. But traditional Ethiopian was equivocal, in the sense that while despising manual work, he would dread to think of one as educated unless one is capable of making needles. The demand for needles is real and significant. But the

appreciation to the technology that produced it is more apparent than real. Thus those in the army or administrative machinery were more socially acceptable than those engaged in arts and crafts. In the event, occupations in the fields of tannery, weaving and blacksmithing etc., were largely restricted to ethnic minority groups or 'submerged classes' like the 'Felashas' (an ethnic minority found in Ethiopia). The social and economic alienation of people with the creativity and capability and engage in manual work discouraged development of skills and technical progress. Hence, the persistence of low levels of productivity in all sectors of the economy. It is generally felt that the development of VTE has been adversely affected by prevailing attitude to manual work. As it is, VTE is lagging badly both in terms of enrolment and provision of facilities. For instance, in 1980/81, there were a total of only 18,681 VTE students, and this accounts for less than one per cent of total enrolment (see TABLE 3.4).

A close examination of the figures cited in TABLES 3.4 and 3.5 indicates the narrow scope of the educational process. Although enrolment, particularly at the first level, has increased considerably over the years, the total still represents a small percentage of the school-age population.



TABLE 3.5

PERCENTAGE OF AGE GROUP ENROLLED IN GOVERNMENT SCHOOLS  
AND EDUCATIONAL EXPENDITURE, ETHIOPIA  
(EXCLUDING COMMUNITY/PUBLIC SCHOOLS)

YEAR	LEVEL 1 GRADE 1-8	LEVEL 2 GRADE 9-12	LEVEL 3 GRADE 13-16	EDUCATION EXPENDITURE AS % GDP
1960	7	--	--	1.40
1965	11	2	--	2.10
1970	16	4	0.02	2.80
1975	24	6	0.05	2.30
1980	43	11	0.05	2.90

SOURCE: World Bank, World Development Report, Various issues, and UNESCO, Statistical Year-book, Various issues.

-- = Data not available

Another feature of the educational system in Ethiopia is uneven distribution of Schools - particularly at secondary level - between urban and rural areas. Educational services and facilities are concentrated in towns and administrative centres. In 1969, of the 46 government secondary schools, 20 were located in the province of Shoa; and of these Addis Ababa had 13. Six were in the province of Eritrea, the concentration there being in Asmara, the second largest town in Ethiopia. The distribution of non-government schools also follow the same pattern (Markakis, 1974, pp.149-151).

### 3.8. VOCATIONAL AND TECHNICAL EDUCATION (VTE) IN ETHIOPIA

Interest in the development of technical schools in Ethiopia goes back to the time of the Emperor Theodore,

Yohannes IV and Menelik II, who were interested in the technical skills and expertise of gunsmiths, blacksmiths, carpenters, masons and bricklayers mostly to support the war effort that they were waging with foreign powers.

In the absence of adequate supply of technical skills, resort was often made to foreign sources of supply; and so, for a long time in Ethiopian history foreigners, known as 'Ferengis', played a major role as technical experts.

In 1930, when the Ethiopian Department of Public Education was raised to Ministry of Education (MOE), efforts were made to introduce technical skill through formal education. In some schools, teaching was designed with the aim to preparing the pupils for technical and professional work. As in Europe, in 1932, the school of the Redeemer for orphan boys was founded. The school's curriculum included blacksmith, shoemaking, and other trades (Pankhurst, 1955, pp.534-538).

Vocational and Technical Education (VTE), as an aspect of formal education, was introduced in Ethiopia in the early 1940s. The first vocational and technical school was established in Addis Ababa in 1942/43. The initial intake was limited to about fifty students; and course offered covered a limited range of disciplines. Over the years, there has not been much development, except the establishment of one technical school in Asmara in 1954 and polytechnic institute at Bahar Dar, in

1963. In the 1960s, the Ministry of Education started to vocationalise some senior high schools. It went further to introducing VTE in elementary schools with the view of integrating manual skill with academic education. The study of 'Industrial Arts' was consequently introduced in the elementary school curriculum. However, due to lack of qualified industrial arts teachers and financial resources for investment and recurrent expenditures needed for the implementation of the programme, the idea could not get off the ground.

To alleviate the problem of VTE teachers, a Technical Education Department was instituted in the Faculty of Education of Haile Sellassie University (HSIU) in 1967. The establishment of the Department to train technical teachers for junior high schools was the result of a joint effort between the United States Aid for International Development (USAID), Ministry of Education (MOE) and HSIU. Areas of training included, automechanics technology, business education, drafting technology, electrical technology, home economics, metal technology and wood technology. The annual intake capacity was limited to 25 students for business education, 25 for Home Economics and 10 students for each of the other disciplines.

But this department alone could not satisfy the growing demand for VTE. So, in subsequent years, the MOE, with the help of United Nation Development Programme



(UNDP), started another VTE programme as part of a college of Teacher Education at Kotebe, in Addis Ababa, focusing on three disciplines: business education, electrical technology, and metal technology. The objective was the same as before. The intake capacity was 20 students per year for business education and 10 students per year for each of the other disciplines. To date, these are the institutions that train educators for VTE programmes in the nation. The Ambo Agricultural Institute, the Awassa College of Agriculture, the Jimma College of Agriculture, the Bahar Dar Polytechnic Institute, the Addis Ababa Commercial School, the Municipal Technical Institute, and the training centres run by government and non-government institutes, have also been in operation for many years now; but they were established with aims other than training educators for VTE programmes.

At present, the Commission for Higher Education (CHE) has a plan to open a four year programme in VTE in collaboration with International Bank for Reconstruction and Development (IBRD) and International Development Agency (IDA). The programme is to be placed in Nazareth (90 km south of Addis Ababa), and is expected to be operational as of 1989/90.

The need for the maintenance of the skill level of work force through appropriate training is being increasingly felt in many countries today. Skills tend to

become outmoded in the light of rapid technological progress, and like machinery and equipment are subject to obsolescence after a while. Inevitably a good deal of the task of 'refresher' and new skill training falls on VTE (Sanders, 1966, pp.10-14). In the light of these, chapter IV will discuss the importance of VTE in development effort and the shortfalls for the development of VTE in Ethiopia.

## REFERENCES

- Begg, David, et al. (1984) Economics. London: McGraw-Hill Book Co. (U.K) Ltd.
- Blaug, Mark. (1970) An Introduction to the Economics of Education. London: Allen Lane the Penguin Press.
- Blaug, Mark. (1985) "Where are We now in the Economics of Education," Economics of Education Review, 4, 1.
- Broekmeijer, M.W.J. (1966) Fiction and Truth About The Decade of Development. Leyden: A.W. Sijthoff.
- Cremin, Lawrence A. (1961) The Transformation of the School. New York: Alfred A. Knopf Inc.
- Denison, E.F. (1967) Why Growth Rates Differ: Post War Experience in Nine Western Countries. Washington: Brookings Institute.
- ECA. (1985) Survey of Economical and Social Conditions in Africa, 1983-1984. Addis Ababa: ECA.
- Foster, P.J. (1966) "The Vocational School Fallacy in Development Planning", in Aderson, C.A. and Bowman, M.J. (eds.), Education and Economic Development. London: Frank Cass and Co. Ltd.
- Gillis, M. et al. (1983) Economics of Development. New York: Norton and Company.
- Ginzberg, Eli. (1975) The Manpower Connection: Education and Work. Massachusetts: Harvard University Press.
- Harbison, Fredrick and Charles A. Mayers. (1964) Education, Manpower, and Economic Growth: Strategies of Human Resource Development. New York: McGraw-Hill Book Co.
- Kiker, B.F. (October, 1966) "The Historical Roots of the Concepts of Human Capital," Journal of Political Economy, 74, pp.481-99.
- Kuznets, S. (1972) Economic Growth of Nations: Total Output and Productive Structure. Massachusetts: Belknap Press of Harvard university press.
- Lauglo, J. (1985) "Practical Subjects in Academic Secondary Schools: An Evaluation of Industrial Education in Kenya," Institute of Education, University of London (Mimeographed).



- Markakis, J. (1974) Ethiopia, Anatomy of Traditional Polity. London: Claredon Press.
- National Institute of Basic Education. (1965) Craft in India School System. New Delhi: National Council of Education Research.
- Pankhurst, Sylvia (1955) Ethiopia: A Cultural History. Essex: Lalibela House.
- Porter, D. (1970) Technical and Vocational Education: Six Area Studies. Strasbourg: Council for Cultural Co-operation of the Council of Europe.
- Psacharopoulos, G. (1982) "Education as an Investment," Finance and Development.
- Roberts, Roy W. (1971) Vocational and Practical Arts Education. London: Harper and Row Ltd.
- Sanders, C. (1966) (ed.) Technical Education for Development. Nedlands, W. Australia: University of Western Australia Press.
- Schultz, T.W. (1963) The Economic Value of Education. New York: Columbia University Press.
- Shores, L. (1978) (ed.) Collier's Encyclopaedia. New York: Macmillan Educational Corporation, 28.
- Solow, R.M. (August 1957) "Technical Change and Aggregate Production Function", Review of Economic and Statistics, Vol. 39, pp.312-320.
- Toffler, Alvin. (1970) Future Shock. London: The Bodley Head.
- Unesco. (1983) Technical and Vocational Education in the World 1970-1980, A Statistical Report. Paris: Office of Statistics.
- Urevbu, A.O. (1984) "Vocational Education in Nigeria: A Preliminary Appraisal," Prospects, 12, 1.
- Vaizey, J. (1973) The Economics of Education. London: The Macmillan Press Ltd.
- Wood, Ethel M. (1965) A History of the Polytechnic. London: Macdonald Ltd.
- Wykstra, R.A. (1971) (ed.) Human Capital Formation and Manpower Development. New York: The Free Press.

## CHAPTER 4

### THE CASE FOR VOCATIONAL AND TECHNICAL EDUCATION (VTE) IN ETHIOPIA

#### 4.1. INTRODUCTION

Vocational and Technical Education (VTE) constitutes a narrow segment of the Ethiopian educational sector. There are, at least, two possible reasons why it has not expanded significantly over the years despite the important role often claimed for it regarding the generation of skills relevant to developing countries like Ethiopia. On the one hand, it is felt that students do not generally have any particular preference for enrolment in VTE; and that they would only opt for it faute de mieux. Underlying this lack of preference for VTE is the general attitude that not only are income gains obtainable from the application of VTE skills insufficient to make up for the generally low social status traditionally accorded to VTE, but also that the scope for professional enhancement is narrowly circumscribed in the VTE domain.

On the other hand, the VTE subsector is said to suffer from a chronic problem of underfunding. Hence, the constraint on prospects for expansion. Insofar as underfunding derives from the poverty of the economy, it is a problem common to all other educational subsectors. Neglect, however, implies that the weight of the problem

due to underfunding is heavier on VTE than on the other subsectors, despite the presumption that the former is no less significant than the latter in terms of contribution to the general development effort of the country.

The aim of this chapter is to investigate whether there is good reason to believe that in a poor country like Ethiopia, VTE should be accorded more concern than hitherto. The remainder of this chapter is set in four parts. The first part discusses the importance of the contribution of VTE to the general development effort in Ethiopia. The second part will document the enrolment and expenditure trends with respect to VTE in Ethiopia, while the third part seeks to investigate whether or not VTE is treated with degree of priority it actually deserves. The fourth part will discuss the factors affecting the status of VTE in Ethiopia.

#### 4.2. THE IMPORTANCE OF VOCATIONAL TECHNICAL EDUCATION (VTE) IN DEVELOPMENT EFFORT

In a poor country like Ethiopia, the need for educational policy to give priority to skills resulting from Vocational and Technical Education (VTE) is evident. VTE can be geared to the production of middle level technical manpower with skills that are directly applicable to a wide range of economic activities immediately upon completion of the course. As such, VTE can be considered



to be a substitute for the conventional apprenticeship programmes.

General academic education, on the other hand, has no immediate and specific occupational application, but equips students with basic knowledge that can be adaptable to a wide range of occupational circumstances. Both VTE and general academic education are important for development, but according to Bennett (1967, pp.104-108), the rate of development in poor countries is, generally speaking, a direct function of the ratio of the output of the VTE subsector to that of the general education subsector. Based on the cross section analysis of data from a total of 70 countries, it was shown that the ratio of output of Vocational and Technical Education to that of General Secondary Education (VTE/GE) is positively related significantly to the level of economic development, suggesting that VTE, relating to technical skills imparted through secondary education, is critical for the execution of developmental programmes, in general, and for the operation of industrial projects, in particular.

From TABLES 4.1 and 4.2 below, VTE appears to be more important for developing than for developed countries. It correlates positively with general development indicators (GNP per capita, daily calorie intake per head, and energy per capita) in the former case and negatively in the latter case. The implication

is that at higher stages of development, there would be more and more demand for higher level and specialised technical manpower, and that it is at the lower stage of development that supply of middle level technical manpower is absolutely critical. The negative correlation in the case of developed nations implies that VTE is not important for such nations as it is for poorer countries. With technological progress and consequent socio-economic transformation, as has occurred in developed countries,

TABLE 4.1

CORRELATION BETWEEN SECONDARY VTE AND THREE ECONOMIC INDICATORS BY WORLD REGION

	GNP	CALORIES/DAY	ENERGY/CAPITA
WORLD	0.775	0.734	0.780
N. AMERICA AND W. EUROPE	-0.195	-0.196	-0.016
E. EUROPE	-0.143	-0.429	-0.310
LATIN AMERICA	0.434	0.367	0.332
MIDDLE EAST AND N. AFRICA	0.652	0.609	0.768
ASIA	0.479	0.611	0.617

SOURCE: Bennett, W. S. Jr. (1967) "Educational Change and Economic Development," Sociology of Education, 40, 2, p.108.

the demand for VTE and middle level technical manpower gives way to demand for higher level technical manpower that is capable of efficiently operating sophisticated and high level technologies. VTE cannot supply these

because of the limited nature of the training involved in this respect. Bennett's point is corroborated by Psacharopoulos (1984, p.343) who shows the existence of significant differential in the rate of return to VTE between Colombia (at 35.4 per cent) and W. Germany (at 9.0 per cent). The evidence presented on TABLE 4.3 indicates that VTE is by far more important for developing nations than it is for the developed ones.

TABLE 4.2

CORRELATION BETWEEN THE VTE/GE RATIO AND THREE ECONOMIC INDICATORS BY WORLD REGION

	GNP	CALORIES	ENERGY
WORLD	0.481	0.413	0.485
N. AMERICA AND W. EUROPE	-0.492	-0.499	-0.257
E. EUROPE	-0.481	-0.695	0.287
LATIN AMERICA	0.076	-0.137	-0.031
MIDDLE EAST AND N. AFRICA	0.684	0.446	0.797
ASIA	0.554	0.421	0.327

SOURCE: Bennett, W. S. Jr. (1967) "Educational Change and Economic Development," Sociology of Education, 40, 2, p.108.

The rate of return is also shown to be higher for VTE than for general education in developing nations (see the case of Sao Paulo, TABLE 4.4). The Malaysian case, TABLE 4.5, shows the rate of return from VTE according to the firm, the worker and the society as being



considerable. Israel's case, TABLE 4.6, is also an indication that VTE should not be seen lightly when it comes to the contribution of development and economic growth.

The importance of skills resulting from VTE has long been recognised by development planners in Ethiopia. For

TABLE 4.3

RATES OF RETURN TO EDUCATION BY SEX (%)

COUNTRY	EDUCATIONAL LEVEL/TYPE	RATE OF RETURN	
		MALE	FEMALE
COLOMBIA	VOCATIONAL	35.4	39.8
PUERTO RICO	SECONDARY	26.3	44.9
NEW ZEALAND	SECONDARY	19.3	25.3
W. GERMANY	VOCATIONAL	9.0	11.3

SOURCE: Psacharopoulos, G. (1984) "The Contribution of Education to Economic Growth: International Comparison", In John W. Kendrick, (ed.) International Comparisons of Productivity and Causes of the Slow down, Cambridge: American Enterprise Institute/Ballinger Publishing Co., pp. 335-360, (p.343).

instance, the First Five Year Development Plan of Ethiopia, (FFYP, 1958, p.39), emphasised the need,

"....to raise the level of education and to devote attention to the training of technical personnel for the five-year programme".

The Second Five Year Development Plan (SFYP, 1962, pp.64-65) also noted that economic development in Ethiopia - as indeed elsewhere - would call for the adoption of modern techniques and equipment and hence the generation of skills and knowledge in applied science that can be flexibly adapted to the changing patterns of

TABLE 4.4

SOCIAL RATE OF RETURN BY TYPE OF VOCATIONAL TRAINING  
AND LEVEL OF ACADEMIC SCHOOLING, SAO PAULO

LEVEL AND TYPE OF EDUCATION	RATE OF RETURN (%)
JUNIOR HIGH SCHOOL	12
SENIOR HIGH SCHOOL	23
TECHNICAL HIGH SCHOOL	13
Draughtsman	12
Electricity	30
Electronics	0
Mechanics	31
Metallurgy	9
SENAI <sup>a</sup> AFTER PRIMARY (4-6 YEARS)	24
Draughtsman	9
Electricity	37
Electronics	18
Tool and Die Making	46
Mechanics	33
Metallurgy	24
SENAI AFTER JUNIOR HIGH SCHOOL	12
Mechanics	26
Production control	8
Research and Development	29
SENAI AFTER SENIOR HIGH SCHOOL	23
Mechanics	39
Production Control	20
Research and Development	43

SOURCE: Castro Moura, C. De. (1979) "Vocational Education and the Training of Industrial Labour in Brazil", International Labour Review, 118, 5, pp.617-629, (p.919).

a = Serviço Nacional de Aprendizagem industrial  
(National Industrial Apprenticeship Service)

TABLE 4.5

## RETURNS TO BASIC SKILL TRAINING, MALAYSIA, 1982

SECTOR	RATE OF RETURN (%) TO:		
	FIRM	WORKER	SOCIETY
METAL PRODUCTS	29	28	29
NON-ELECTRIC MACHINERY			
FIRM A	13	29	14
FIRM B	22	24	22
FIRM C	25	25	35
AVERAGE	22	27	25

SOURCE: Metcalf, D.H. (1985) The Economics of Vocational Training, Past Evidence and Future Consideration. Washington, D.C.: World Bank Staff Working Papers, No. 713, p.24.

TABLE 4.6

## RATE OF RETURN IN ISRAEL TO INVESTMENT IN VOCATIONAL SECONDARY SCHOOLS, OVER AND ABOVE OTHER TRAINING MODELS

COMPARISON GROUP	RETURN TO VOCATIONAL SECONDARY SCHOOLS (%)			
	SOCIAL RATE OF RETURN		PRIVATE RATE OF RETURN	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
APPRENTICESHIP	0	5	0	5
INDUSTRIAL SCHOOL	2	14	0	11
SHORT COURSE	1	12	4	21

SOURCE: Levine, V. (1979) "Evaluating Vocational Training alternatives Using Single Period earnings Data: A Technical Note", Comparative Education Review, 23, 1, pp.125-133, (p.133).



technology. The Second Five Year Plan consequently advocated the case for the expansion of VTE in Ethiopia. The recognition of VTE was not, however, adequately complemented by the provision of funds for investment in VTE.

The Third Five Year Development Plan was even more explicit than its predecessors:

"....it is clear that wide gaps exist, and will persist for several years between projected needs and the potential capacity to supply them [technical manpower]. This is specially true for high-level manpower requiring advanced and professional training. But it is also true for middle-level technicians and professionals and, in lesser degrees, for many types of skilled manual and clerical workers.... This emphasis will focus particularly on the adequate utilisation, improvement and expansion of technical and vocational schools at the secondary level". (TFYP, 1968, p.297).

The idea of expanding and developing the VTE sector of education for economic development is also supported, among others, by Unesco (1961), Bennett (1967), Education: Challenge to the Nation (1972), Ducray (1979), King (1984), Psacharopoulos (1983, 1985, 1987), Blaug (1972), Foster (1966), The World Bank (1982).

Vocational and technical skills are important inputs in the development process. The social rates of return to VTE are generally known to be high. Substitution in production to get the least cost input mix often call for more skilled labour; and it is not always possible to substitute general education for VTE when producing VTE skills (Metcalf, 1985, p.9).

A certain range of vocational and technical skills are needed for an economy to function properly. Unless such skills are readily provided, production will be impaired, and this is not unlikely to have unsalutary consequences for economic growth and development. Thus, the role of VTE in the supply of skills of critical significance for productivity growth cannot be underestimated. (Unesco, 1988, p.143).

#### 4.3. ENROLMENT AND EXPENDITURE TRENDS WITH RESPECT TO VOCATIONAL AND TECHNICAL EDUCATION IN ETHIOPIA

For Developing nations as a whole and most African nations in particular, providing the basic necessities of life has been a major development challenge. As Cream Write (1988, p.2) explains, all the social indicators related to development and the general status of African nations are going from bad to worse and there are no indications that things will get better in the near future. For instance, in 1983 income per capita was about 4 per cent below that of 1970 in real terms and there is a steady decline in agricultural output per capita, resulting in one fifth of cereal requirements being met through imports. Child mortality increased at a very high rate when compared with the average for developed countries. Hunger and malnutrition afflicted as many as 100 million people in 1984, compared with 80 million in 1972-74. The refugee population increased by 16 per cent

from about 400,000 twenty years ago to 2.5 million.

The reason behind the poverty affecting Africa as a whole is not far to seek. Africa is more rural than any other continent. Between 80 and 90 per cent of the population live in villages and depend on agriculture. But the mode of agricultural production is primitive for the most part, and consequently, agricultural productivity has been very low. This is at the heart of rural poverty in most African countries. Any relief from misery for the populations of Africa will, therefore, depend on the transformation of the rural economy through improvements in agricultural productivity, among other things. Hence, the urgency to orient education to serve this end.

In principle, there is no dispute as to the significance of the role of education in the process of development. In practice, however, educational programmes are often pursued independent of the urgent need for socio-economic change, or as if they were an end in themselves. In May, 1961, UNESCO organised a conference on African education in Addis Ababa. The conference unanimously adopted a plan to build up an educational system providing elementary education for all, starting at six years of age. Notwithstanding the good will of universal education advocated by the plan, there was little or nothing in the plan which recognised the need for integrating primary education with agricultural or



Vocational and Technical Education (VTE). On the contrary, VTE is relegated to the margins; and the tenor of the report focused on the urgency for setting the basis for the provision of universal elementary education (Balogh, 1962, p.8).

TABLE 4.7

ENROLMENT IMBALANCE BETWEEN ACADEMIC EDUCATION AND VOCATIONAL AND TECHNICAL EDUCATION IN ETHIOPIA'S EDUCATIONAL SECTOR (IN '000)

YEAR	1 - 8	9-12(A)	13-18	TOTAL(B)	VTE	VTE AS % OF A	VTE AS % OF B
1970	653.3	42.5	4.1	700.2	--	--	--
1971	728.1	53.2	5.1	786.4	--	--	--
1972	796.3	61.4	7.2	864.9	--	--	--
1973	853.0	70.8	6.1	929.9	--	--	--
1974	961.5	81.3	--	1042.8	1.96	2.41	0.19
1975	1084.4	64.2	--	1148.6	--	--	--
1976	1225.1	90.1	5.0	1320.2	--	--	--
1977	1326.8	131.3	--	1458.1	1.84	1.40	0.13
1978	1287.1	135.7	8.1	1430.9	1.82	1.34	0.13
1979	1538.6	193.9	13.4	1715.9	0.99	0.60	0.05
1980	1997.3	185.2	14.2	2196.7	1.02	0.55	0.05
1981	2340.1	216.9	14.3	2571.3	2.59	1.19	0.10
1982	2623.1	238.4	14.7	2876.2	4.77	2.00	0.17
1983	2789.1	257.1	15.9	3062.1	3.503	1.36	0.11
1984	2800.7	276.3	15.86	3092.8	4.064	1.47	0.13
1985	2728.3	282.2	16.8	3027.3	3.98	1.41	0.13

CONTND.

YEAR	1 - 8	9-12(A)	13-18	TOTAL(B)	VTE	VTE AS % OF A	VTE AS % OF B
1986	2811.9	202.4	18.2	3122.5	4.57	1.56	0.15
1987	3153.7	326.0	17.68	3497.3	5.98	1.83	0.17
1988	3348.0	378.7	16.60	3743.3	5.30	1.39	0.14

SOURCE: Commission for Higher Education, Ethiopia; Ministry of Education, Ethiopia. Various documents, and Ethiopia Statistical Abstracts. Various issues.

-- = Data not available

The enrolment trend with respect to vocational education in Ethiopia is shown in TABLE 4.7. The general trend in Ethiopia has been one whereby despite the explicit policy and planning concern for the development of technical and other skills through the promotion of VTE, emphasis has almost invariably been given to the general academic subsector rather than to VTE. For instance, in 1974, the number of students in general academic subsector was 81,300 while in the VTE subsector it was only 1,960 that is, about 2.41 per cent of general academic enrolment and 0.19 per cent of total enrolment in that year. In 1984, the enrolment of general academic in senior high schools rose to 276,300 while enrolment in VTE was only 4,064. During that year, VTE's enrolment was 1.47 per cent of general academic in senior high schools and 0.13 per cent of total enrolment. TABLE 4.8 indicates an increase in enrolment of 135 per cent for VTE and 67 per cent for secondary general academic envisaged by the

Third Five Year Plan in 1973. Between 1969 and 1973 enrolment was expected to expand at the rate of 23.5 per cent per annum in the case of VTE and 14.1 per cent in the case of GE. The idea is to correct the enrolment bias in favour of GE and subsequently to close the VTE/GE

TABLE 4.8

EDUCATION TARGETS TFYP 1968-1973

	ACTUAL 1968	T F Y P 1969	1973	% INCREASE 1968-73	% OF TOTAL 1968-73
<b>ENROLMENT</b>					
<b>GOVERNMENT</b>					
PRIMARY	338 737	392 000	616 000	82	84.0
<b>GENERAL</b>					
SECONDARY	61 768	60 810	102 920	67	14.1
VTE	2 231	2 253	5 245	135	0.6
TEACHER TRAN.	1 722	2 150	5 950	246	0.6
UNIVERSITY	3 113	3 488	5 033	59	0.7
<b>TEACHERS</b>					
<b>GOVERNMENT</b>					
PRIMARY	6 471	8 960	14 000	116	75.4
GEN. SECOND.	2 339	2 246	3 777	61	21.4
VTE	166	217	292	76	1.7
TEACHER TRAN.	101	127	350	256	1.5

SOURCE: Imperial Ethiopian Government. (1968) Third Five Year Plan (TFYP). Addis Ababa: Berhanena Selam Printing Press, p.300.

enrolment gap. But the question is not whether the VTE/GE enrolment gap should be narrowed or not, but rather, whether the expansion of VTE enrolment is in keeping with the growth rate of demand for VTE skill.

Similarly, it could be asked whether the allocation of resources to the VTE subsector has been consistent with plans for the supply of VTE skills. TABLE 4.9 shows



TABLE 4.9

GROWTH RATE OF EXPENDITURES PER ANNUM IN GOVERNMENT SCHOOLS FOR THE PERIOD  
BETWEEN 1965-1980 (PER CENT)

AREAS OF EXPENDITURE	SALARY	CAPITAL	OTHER	TOTAL	PERCENTAGE CHANGE OF SHARE IN TOTAL EXPENDITURE	
					1965	1980
HEAD OFFICE	1.8	-22.0	4.6	1.7	16.0	3.6
PRIMARY SECTOR	13.6	-4.9	7.7	13.1	48.6	49.6
SECONDARY SECTOR	19.8	15.8	14.0	19.1	16.6	35.0
VTE AND TTI	7.7	0.4	10.3	8.5	8.4	4.8

SOURCE: Based on TABLE in APPENDIX II

the average growth rate of expenditures across the different subsectors of the educational system excluding tertiary education. The share of VTE in total expenditure is shown to have declined from 8.4 per cent in 1965 to 4.8 per cent in 1980 while the share of the primary and secondary sectors increased. Total expenditure in VTE grew at the average rate of 10.3 per cent per annum which is comparable to secondary education and exceeds that of the primary sector. But the annual growth rate of capital expenditure which is very crucial in the case of VTE, is shown to be very low in comparison with the capital expenditure growth rate for secondary sector. The slow growth rate of capital expenditure in VTE and TTI may not perhaps be surprising in view of the fact that expenditure per student is generally much higher for VTE and TTI than for the other subsectors.

Whether this factor leads to under-investment in VTE in relation to other subsectors, and hence to a relative neglect of the VTE subsector is, however, an empirical point which has yet to be put to the test.

#### 4.4. IS THERE ANY EVIDENCE SUGGESTING RELATIVE NEGLECT OF VTE?

As mentioned elsewhere, the demand for people with VTE skills stems from the basic need to transform peasant agriculture by improving productivity. After all, eight out of ten (mid-1986) inhabitants of Ethiopia are either small-scale farmers or are employed in farm related jobs. It is, therefore, important that investment resources are directed at enabling small individual and co-operative farmers to shift from the use of primitive tools - hoes and ploughs - to the use of simple implements which serve as better substitutes for brute labour in the process of planting and harvesting.

In a country like Ethiopia, the majority of the working force is drawn from the peasant sector. Given this, it is often presumed that of the many types of training available to labour force, VTE is the most relevant. The argument behind this is that VTE is for the most part compatible with the operation of the level the dominant technology variants in such societies. For instance, VTE creates awareness of the need to improve productive efficiency by enlarging the methods of

production. Designing appropriate tools and repairing implements at lower technological levels is likely to have the long run effect of enhancing the technological capability of the economy at large. Metcalf (1985, pp.ii-iv) indicates that technologies which are economically efficient, even when labour intensive, require labour to be skilled in vocational and technical terms. Hence the need for training in VTE.

The share of VTE in total enrolment is not, however, significant. For instance, as can be seen from TABLE 4.7, enrolment in VTE is shown to be less than 0.2 per cent of total enrolment throughout the period indicated. The persistence of shortfalls in VTE supply in relation to growing demand is often blamed on the orientation of educational policy - that precious little is done by the government to stimulate the expansion of the VTE subsector. This, of course, raises the problem of manpower planning in developing countries like Ethiopia. In the absence of serious manpower planning, however, predicting the growth rate of demand for VTE and GE involves guesstimates. Such guesses are often enhanced by a sound understanding of labour market conditions and the skill requirements of a growing economy.

A major aspect of the planning process is determining input-output coefficients for the economy in general and for the various sectors and subsectors of the economy in particular. This, of course, calls for the



availability of robust data which are very difficult to come by in developing countries. Moreover, in the context of developing countries, the coefficients may not be expected to be stable for long in the face of structural changes and other changing conditions in such countries. This can, however, be overcome by considering input-output relationships over a reasonably long periods of time, and possibly also by invoking relevant cases from countries with more or less similar experience.

In manpower planning, the sectoral labour requirement has to be disaggregated according to skill categories, and supply can subsequently be adjusted to demand. The data basis of manpower planning in developing countries in general is, however, so weak that such a procedure of drawing balance between supply and demand is difficult, if not impossible, to apply.

In the circumstances, an attempt is made here to investigate, ex post, evidence of neglect of VTE in terms of shortfall of supply of VTE skills on the one hand and over-indulgence in GE presumably at the expense of VTE enrolment expansion, on the other. This is done using available data based on reported vacancies and registered job seekers, according to occupational classification corresponding to VTE and GE. Such data for Ethiopia are regularly compiled on a quarterly and annual basis by the Ministry of Labour and Social Affairs.

These data are not, however, without limitations, so that predictions of VTE skill needs in Ethiopia based on these cannot be expected to be conclusive. The operation of employment exchange centres which are responsible for the production of such data do not cover the labour market in the whole country. But insofar as the major cities, accounting for the bulk of the demand for wage labour are covered, this may not be much of a problem. On

TABLE 4.10

DEMAND AND SUPPLY FOR VTE AND GE IN ETHIOPIA

YEAR	REGISTERED JOB SEEKERS		VACANCIES		SHORTFALL	
	GE(A)	VTE(B)	GE(C)	VTE(D)	GE(A-C)	VTE(B-D)
1978/79	19245	3054	4548	5870	14697	-2816
1979/80	13808	1944	5022	9424	8786	-7480
1980/81	16599	2868	4821	5725	11778	-2857
1981/82	16898	2513	5879	5483	11019	-2970
1982/83	20559	3274	6709	5003	13850	-1729
1983/84	18645	2973	6489	4712	12156	-1739
1984/85	22605	4407	6354	4732	16251	-325
1985/86	20822	4668	5232	5351	15590	-683
1986/87	25539	2897	5338	4615	20201	-1718
AVERAGE	19413	3178	5599	5657	13814	-2480

SOURCE: Compiled from Ministry of Labour and Social Affairs, Department of Labour. (1987) "Employment Service Information, 1978/79 - 1986/87", Addis Ababa: Employment Research Section (Mimeograph).

the other hand, there are a number of factors which diminish the robustness of data obtained from employment exchange counters. For instance, for lack of communication, job seekers eligible for registration may not be able to register. Second, those who knew about the service and are eligible to register, may for one reason or another, fail to register. Perhaps, they feel the probability of getting the job they register for is slim any way. Third, the Ministry relies on the different government institutions and agencies to compile the vacancies available. In the event, the vacancy figures passed on to the Ministry of Labour by the different institutions tend to be somewhat inflated for fear of budgetary cuts by the Ministry of Finance.

For all the shortcomings suffered, the data in TABLE 4.10 indicate that there are unfulfilled demands for VTE while there is over-production on the part of GE. Over the periods indicated, shortages are noted in the case of VTE skills by an average of 2,480 people every year, and over-supply in the case of GE. There was an average of 13,814 job seekers with GE over and above the vacancies reported every year. This suggests that some of the GE students without jobs could have been trained in various VTE skills and productively employed subsequently.



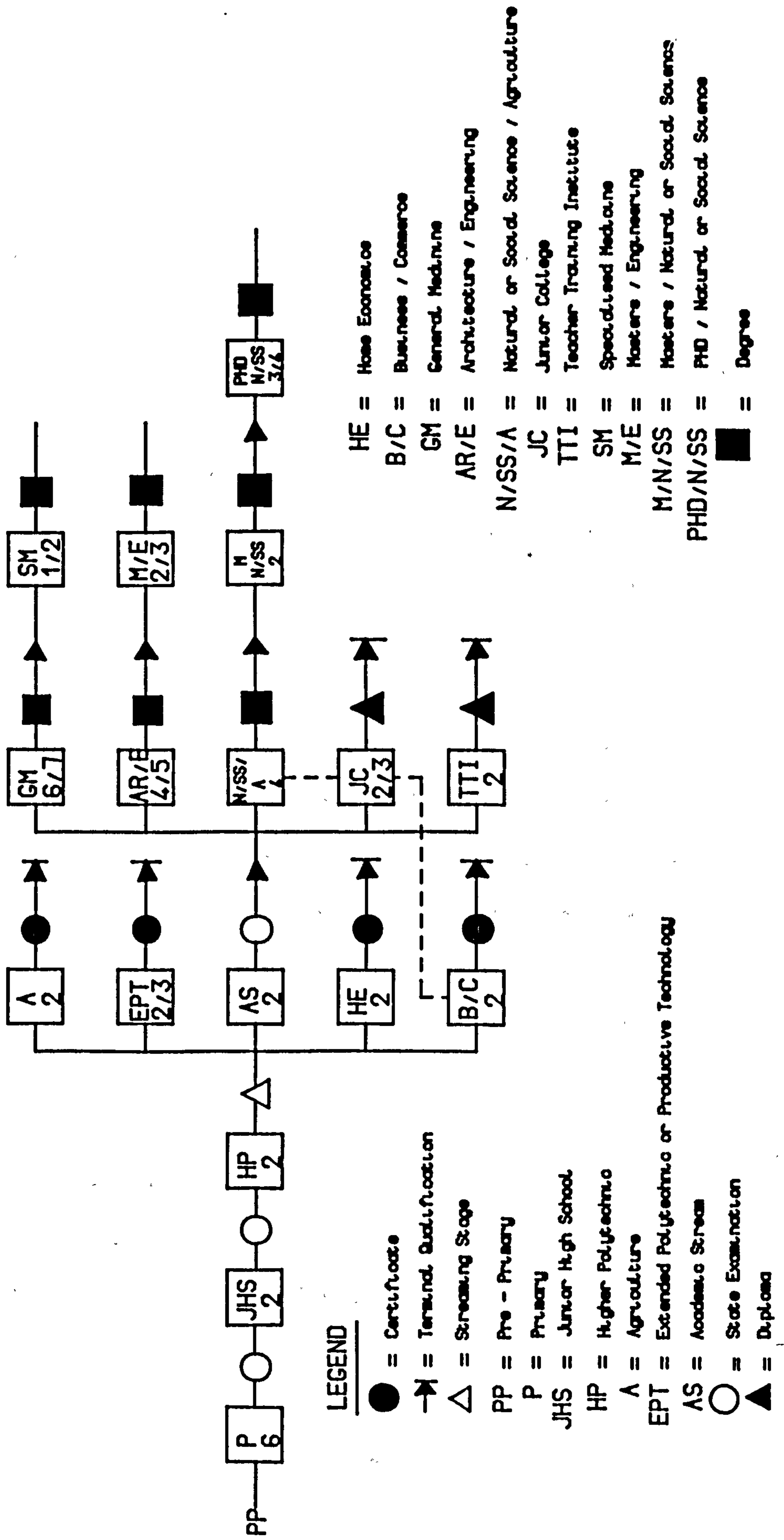
#### 4.5. THE STATUS OF VTE IN ETHIOPIA

One factor behind the apparent lack of seriousness with VTE is the emerging role of non-formal training (like on-the-job training, etc.) in improving the technical ability of individuals. As can be seen from FIGURE 4.1, the VTE subsector, which includes Agriculture, Extended Polytechnic or Productive Technology, Home Economics and Business/Commerce, starts after streaming.\* For students who joined the VTE subsector with or without their choice, it is generally indicated - although it may not necessarily be the case - that completion of their course of VTE training will be the beginning of their careers. There are no further outlets in the country for enhancing professional qualification, with the possible exception of Business/Commerce students, who can be admitted to colleges or universities if they pass the state exams (ESLCE). The state exams (ESLCE) do not cover VTE subjects except those which fall under Business/Commerce courses, namely economics, book keeping, and accounting. Passes in these courses and other subjects like Mathematics, English, and few other social science subjects would entitle one for admission to junior colleges, if not universities.

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\*Streaming is the term used to indicate the stage where all students would have finished the common General Education (GE) as part of the educational process and will be distributed to the various disciplines that each individual is assumed to follow for their future skills or profession.

FIGURE 4.1 The Structure of the Ethiopian Educational System



There is also scope for specialisation in the areas of agriculture, and architecture/engineering, at the tertiary level. But for admission to colleges and universities, VTE qualifications are of no help at all. Instead, ESLCE pass grades in Science, Maths and English Language are considered mandatory for one to be able to proceed with the learning of technical skills at college or university level. The VTE curricula incorporate these foundation courses, and the courses could be taught with more or less the same vigour as they are taught in the non-VTE subsector. The difference is that in most cases, VTE students are not required - and consequently they are either reluctant or unprepared - to sit for the state exams. The option, however, is open for one to take the exams privately in ones own time. Those who opt to do so often aim at social science education, (save those who go for business studies), thus abandoning the specialisation acquired in the VTE subsector, and rarely at engineering and agriculture. The tendency to opt out of VTE and opt into academic education derives from the fact that the latter offers prospects for qualification at degree levels and for career with better remuneration than would be the case otherwise.

The other aspect of VTE's misfortune in Ethiopia is that skill upgrading through non-formal education does not appear to cut ice with employers. The recruitment, compensation and promotion systems provide no incentive



for non-college graduates to pursue a career in the enterprise in which they are employed without recourse to the formal education system. The search for better career prospects precipitates demand for higher education degrees, and diminishes ones propensity to improve one's skills and proficiency on the job through non-formal education, however important this may be for the enhancement of productivity. Compensation and promotion benefits accrue more to those with higher degrees of qualification than to those whose qualifications are based on VTE acquired through non-formal education. Thus, as the wage and salary system is linked to the credentials of the formal education system, more people would seek higher education in the face of limited places for enrolment in the higher education sector. The quality of secondary and post-secondary education is often below the expectation of business/industrial enterprises. High school graduates' lack proficiency and the skill to take up jobs in very demanding enterprises. In the event, employers would need to train their own personnel or else to have the graduates retrained at cost.

The current VTE institutions, offer only basic education and training programmes and the skills acquired from these would generally need to be upgraded, subsequent to employment. There is, however, lack of credible programmes for upgrading the skills of workers already employed. Some of the existing part-time or

evening courses offered by secondary schools and junior colleges may help individuals to acquire skills, techniques or practical knowledge, but are no help as a basis for joining colleges or universities in order to be able to achieve professional status.

The search for career advancement leads to the pursuit of degree level qualification along areas unrelated to VTE, thereby undermining the advancement of technology and skills and diminishing the quality of the work force. The tendency to abandon VTE-based experience in favour of college/university based academic education could perhaps be restrained through the adoption, inter alia, of policy creating provisions for degree level training in VTE and remunerations to VTE graduates attractive.

TABLE 4.11 indicates that the decline in the average expenditure per student for VTE is very drastic when compared with the expenditure per head for the other educational subsectors. For VTE the average expenditure per student was 4,959 Birr in 1978/79, and 198 Birr for secondary GE. In 1981/82, the per capita expenditure for VTE decreased by about 87 per cent to 651 Birr, by 31 per cent to 137 Birr for secondary GE.

Here, of course, a note of caution is in order. The important point is not that expenditure per head had declined faster in VTE than in secondary GE, for that by itself is not necessarily indicative of any policy bias

towards one and against the other. For instance, it might be that expenditure per head in VTE declined faster than in secondary GE because the fall in demand is greater in

TABLE 4.11

EXPENDITURE PER HEAD BY LEVEL OF EDUCATION IN ETHIOPIAN GOVERNMENT SCHOOLS (IN BIRR<sup>a</sup>)

YEAR	LEVEL	COST
1978/79	PRIMARY (GE)	73.00
	J. SECONDARY (GE)	218.00
	S. SECONDARY (GE)	198.00
	S. SECONDARY (VTE)	4959.00
1981/82	PRIMARY (GE)	53.00
	J. SECONDARY (GE)	142.00
	S. SECONDARY (GE)	137.00
	S. SECONDARY (VTE)	651.00
1986/87	PRIMARY	72.00
	J. SECONDARY (GE)	110.00
	S. SECONDARY (GE)	137.00
	S. SECONDARY (VTE)	729.00

SOURCE: UNESCO (1984) Ethiopia, Tertiary Education and National Development. Paris: Unesco, p.78, and Office of the National Committee for Central Planning (ONCCP). (1984) Ten Year Perspective Plan 1984/85-1993/94, General Education. Addis Ababa: ONCCP (Amharic Version).

a = Birr is the national currency of the Ethiopian Government. Birr 1= US \$0.483.

the case of the former than in the case of the latter. However, this has not been the case in Ethiopia as suggested by the data in TABLE 4.10. Historically, demand for VTE skills has been in excess of supply. Not so, however, for those with secondary GE qualifications.

The little importance given to VTE is also apparent from the data on TABLE 4.12 indicating the level of



education by occupation. Out of a total of 1,476 maintenance technical and repairmen, only 46 per cent read and write, 29 per cent finished elementary education, about 12 per cent are from secondary GE. Out of the total, only 12 per cent are properly trained and technically qualified. This factor also holds true for production supervisors and foremen. The Survey data in TABLE 4.12 sheds light on the importance of VTE for the skill structure of the work force in industry. The total number of production supervisors and foremen, maintenance technicians and repairmen, technical graduates commercial graduates together constitute about 73 per cent of the total sample population of industrial work force.

But VTE neglect is not unique to Ethiopia. It is also apparent in other African countries. Balogh (1962, p.241) for example, specifically attributes Nigeria's employment crisis during the late 1950's and early 1960's to the provision of a particular form of academic elementary education that generated unrealistic employment expectations for clerical work, caused massive flight from the rural areas and fostered a disdain for VTE based occupations. In spite of the relevance of VTE to the skill requirements of the developing economies of many African countries, the emphasis hitherto put on VTE has been rather lukewarm. For instance, in all African countries listed on TABLE 4.13, the enrolment rate of secondary GE has been steadily rising, despite declining



employment opportunities for people with such type of education. On the other hand, the enrolment rate for VTE has been drastically declining despite the persistence of excess demand over supply for such skills in the labour markets, thus indicating the diminishing attention given to VTE. There is certainly an apparent lack of awareness of the benefits of minimum employment risk that deriving from the decision to opt for VTE skills. But the benefits are not exclusively private. The application of VTE skills is bound to have far-reaching growth consequences on developing countries. For instance, in peasant-dominated economies like that of Ethiopia, the role of technical cadres working in close contact with peasants as agent animateurs can hardly be overemphasised.

Unemployment among school-leavers in many developed and developing nations is reaching an alarming proportion and it is becoming a problem with no evidence to diminish in the near future. Given this, the crucial question relates to the identification of the factors determining its incidence. The problem is generally believed to derive mainly from the reluctance of literate individuals and school leavers to enter occupations involving manipulative skills as middle level technical personnel, and from their unrealistic search for high wage and high status white-collar employment. The traditional belief that to be educated is to end-up in white-collar employment is naive at best and counter-



TABLE 4.12

## LEVEL OF EDUCATION OF DIFFERENT OCCUPATIONAL CATEGORIES, 1978

	READ AND WRITE	1-8 <sup>a</sup>	9-12 <sup>a</sup>	9-14 TECHNICAL	9-14 <sup>a</sup> COMMERCIAL	13-18 <sup>a</sup>	TOTAL
ACCOUNTANTS	--	2	31	--	65	97	195
ECONOMISTS <sup>b</sup>	--	--	--	--	--	10	10
ENGINEERS <sup>b</sup>	--	--	--	--	--	18	18
OTHER PROF.	4	6	49	5	5	24	93
MANAGERS AND ADMINISTRATORS	2	14	70	37	16	207	346
PRODUCTION SUPERVISORS AND FOREMEN	172	218	128	105	1	34	658
MAINTEN. TECH. AND REPAIRMEN	680	427	171	172	--	26	1476
SALESMEN AND PURCHASERS	6	26	136	3	16	22	209
CLERICAL	--	2	92	4	52	8	158
SERVICE WORKERS	17	2	12	1	2	5	39
TOTAL	881	697	689	327	157	451	3202

SOURCE: Institute of Development Research (IDR). (1983) "Manpower Requirements in Manufacturing Industries in Ethiopia, Problems and Issues," Proceedings of the Seminar on Industrial Transformation in Ethiopia, Held in Nazareth, January 18-20, 1980. Addis Ababa: IDR, pp.123-132 (p.129).

a = 1-8 elementary, 9-12 secondary (GE), 9-14 technical and commercial, 13-18 university or college.

b = Engineers and Economists deployed in their profession



TABLE 4.13

## ENROLMENT RATIOS IN SOME AFRICAN COUNTRIES

REGION AND LEVEL	1960	1965	1970	1975	1976
ANGOLA					
Primary	21.0	39.0	59.0	--	--
Secondary	2.0	5.0	7.0	--	--
Vocational (as % of Secondary)	38.2	46.2	21.0	--	--
CHAD					
Primary	17.0	34.0	35.0	35.0	35.0
Secondary	0.4	1.0	2.0	3.0	3.0
Vocational (as % of Secondary)	21.0	8.2	9.7	4.4	3.3
ETHIOPIA					
Primary	7.0	11.0	16.0	24.0	25.0
Secondary	0.4	2.0	4.0	6.0	8.0
Vocational (as % of Secondary)	20.3	6.2	4.5	--	--
GHANA					
Primary	38.0	69.0	64.0	70.0	71.0
Secondary	5.0	13.0	14.0	36.0	36.0
Vocational (as % of Secondary)	12.6	19.3	23.3	3.4	3.7
KENYA					
Primary	47.0	54.0	61.0	100.0	97.0
Secondary	2.0	4.0	9.0	13.0	15.0
Vocational (as % of Secondary)	12.2	2.3	1.8	2.3	--
SOMALIA					
Primary	9.0	10.0	11.0	59.0	45.0
Secondary	1.0	2.0	5.0	6.0	--
Vocational (as % of Secondary)	26.4	25.0	3.1	5.7	--
SUDAN					
Primary	25.0	29.0	38.0	47.0	48.0
Secondary	3.0	4.0	7.0	14.0	14.0
Vocational (as % of Secondary)	3.4	5.3	1.4	3.2	3.0

CONTND.

REGION AND LEVEL	1960	1965	1970	1975	1976
<b>TANZANIA</b>					
Primary	25.0	32.0	39.0	69.0	70.0
Secondary	2.0	2.0	3.0	3.0	4.0
Vocational (as % of Secondary)	22.6	--	--	--	2.6
<b>TOGO</b>					
Primary	44.0	55.0	69.0	95.0	99.0
Secondary	2.0	5.0	7.0	18.0	22.0
Vocational (as % of Secondary)	10.1	13.6	9.6	7.9	8.0
<b>UGANDA</b>					
Primary	49.0	67.0	39.0	45.0	47.0
Secondary	3.0	4.0	4.0	4.0	4.0
Vocational (as % of Secondary)	11.6	13.4	7.4	6.0	5.5
<b>ZAMBIA</b>					
Primary	42.0	53.0	89.0	95.0	95.0
Secondary	2.0	7.0	13.0	15.0	16.0
Vocational (as % of Secondary)	27.0	14.7	3.2	3.3	2.8

SOURCE: The World Bank. (1983) World Table. London: Johns Hopkins University press, Vol. 3 - Social Data.

productive at worst. In this respect, it is not only traditional values dominating attitudes towards occupations, but also educational policies and schools that are the villains of the piece. Policies have often failed to put the expansion of education in gear with demand trends for different categories of manpower. But even if policies were right, the problem would persist for as long as schools fail to operate on the basis of well-designed and appropriate curricula.

It seems clear that mass unemployment among school-leavers in many African nations is due to dysfunctions



existing between the gross rate of school output and the slow expansion of occupational opportunities of all types. The lack of educational policy and planning is to match supply of educated labour force with demand. For if it is easy to increase the output of schools it is far more difficult to expand employment opportunities. As it is, schools have, irrespective of what they teach, been shrewdly used as the gateway into modern sector employment. And agricultural and vocational and technical schools have not had much influence on occupational aspirations and the employment opportunities guaranteed by VTE have been considered wanting and unattractive in the sector (Foster, 1966, pp.142-158).

The question thus arises as to how best to ensure that there is an adequate supply of the so badly needed middle level technical manpower, or, alternatively, as to what the optimal mix between VTE and GE should be in the school curriculum. Responses to this are varied. Indeed, the question has provoked debate as to the significance of VTE in relation to GE in both advanced and developing countries. The evidence from a series of evaluations in developed and developing countries show that VTE programmes are generally more costly than non-VTE, programmes. On the basis of the data on TABLE 4.11, it would take about 14 times more to train one on VTE than on GE lines. Moreover, due to limited future prospects, VTE graduates do not always stick to careers for which



they were trained, and it is impossible to predict the number of VTE graduates needed in the economy, given the shift from VTE to other skills. VTE is said to be more efficient and successful when provided at the place of employment and when privately financed (Unesco, 1988, pp.143-145). A major aspect of the debate on VTE relates to the social benefits deriving from such education. Is there any evidence to suggest that the social benefits of VTE would be more than offset by the relatively high cost of training?

From the point of view of the student, the cost of attending VTE or GE programmes or schools should, in theory, consist of the out-of-pocket costs for tuition, books, materials, transport to and from school, etc. as well as the opportunity costs in terms of wages and other benefits foregone while in pursuit of VTE. These costs are to be diminished by any scholarships and allowances received from outside the household. Thus:

$(\text{Out-of-pocket costs} - \text{Scholarship}) + \text{Opportunity cost} = \text{Private costs.}$

From society's point of view, one must add to private costs all institutional costs, i.e., public spending for teacher salaries, administration and operation of the school system, scholarships, and the amortisation of buildings and equipment. Thus:

$\text{Institutional costs} + \text{private costs (except tuition)} = \text{Social costs.}$



In the case of Ethiopia, the student does not incur any direct costs to attend schools (with the exception, perhaps, of minimal transport costs). Moreover, there are hardly any missed opportunities in terms of jobs that can be secured as job security itself depends on some level of educational qualification. There are no private costs since the government covers all the expenses of schooling in government schools for both sectors. The programmes of VTE and GE are normally given before the working age of the students which, therefore, excludes the opportunity costs mentioned above from being considered. The Internal Rate of Return (IRR) was calculated for both sectors. TABLES 13 and 14 shows the benefit and social costs for VTE and GE respectively in Ethiopia.

The benefit streams are the streams of salary resulting from the received education (the salary scale of the schools in the private sector are not considered). The benefit streams were computed from the salary scale in TABLE 4.16. When computing the benefit stream, duration of unemployment spells before the first employment of graduates of both sectors were taken into account. In the case of VTE, it is assumed that, on average, it would take one year before all the graduates of a particular year are productively used in the wage sector. In the case of GE, it was further assumed that it would take about two years before all graduates are absorbed in some form of employment.



TABLE 4.14

BENEFIT AND COST STREAMS FOR VTE GRADUATES IN  
ETHIOPIA (IN BIRR)

		SECONDARY VTE
<b>BENEFITS</b>		
From Salary		
1981/82		118,811.00
1986/87		118,811.00
Duration of benefit stream (Years)		35 <sup>a</sup>
<b>COSTS</b>		
Social costs		
1981/82		2,829.00
1986/87		3,151.00
Duration of cost stream (Years)		13 <sup>a</sup>

TABLE 4.15

BENEFIT AND COST STREAMS FOR GE GRADUATES  
IN ETHIOPIA (IN BIRR)

		SECONDARY GE
<b>BENEFIT</b>		
From salary		
1981/82		78,056.00
1986/87		78,056.00
Duration of benefit stream (Years)		36 <sup>a</sup>
<b>COSTS</b>		
Social costs		
1981/82		1,150.00
1986/87		1,276.00
Duration of cost streams (Years)		12 <sup>a</sup>

a: the difference of one year between GE and VTE is due to duration of training time.

TABLE 4.16

GOVERNMENT SALARY SCALE BY LEVEL OF EDUCATION  
IN ETHIOPIA (IN BIRR)

LEVEL	SALARY
SECONDARY (GE)	182.00
SECONDARY (VTE)	285.00
POST SECONDARY (GE)	347.00
POST SECONDARY (VTE)	347.00
B.A. (ACADEMIC)	500.00
B.SC. (TECHNOLOGY)	600.00
B.SC. (MEDICINE)	600.00

SOURCE: Imperial Ethiopian Government. (June, 1972)  
Negarit Gazeta. Addis ababa: Berhanena Selam Printing  
press, No. 15.

TABLE 4.17

REGISTERED JOB SEEKERS AND PLACEMENT BY EDUCATIONAL  
QUALIFICATION IN ETHIOPIA

YEAR	REGISTERED		PLACEMENT		PLACEMENT AS % OF REGISTERED	
	GE	VTE	GE	VTE	GE	VTE
1978/79	19245	3054	1091	869	5.7	28.5
1979/80	13808	1944	2038	900	14.8	46.3
1980/81	16599	2868	1805	689	10.9	24.0
1981/82	19898	2513	5024	764	29.7	30.4
1982/83	20559	3274	2837	771	13.8	23.6
1983/84	18645	2973	4097	613	22.0	20.6
1984/85	22605	4407	2194	786	9.7	17.8
1985/86	20822	4668	2406	885	11.6	19.0
1986/87	25539	2897	2148	622	8.4	21.5

SOURCE: Compiled from Ministry of Labour and Social  
Affairs, Department of Labour. Employment Services  
Information (1978/79 - 1986/87). Addis Ababa: Employment  
Research Section (mimeograph).



Therefore, the VTE benefit stream for the first year is discounted by 74 per cent, while GE benefit were discounted by 86 per cent for the first two years. The discounting factors were computed from TABLE 4.16. The duration of the benefit stream depends on the average age at graduation and the statutory retirement age. In Ethiopia, the latter is 55 years for all employees. We, therefore, assumed 55 years to apply to graduates of senior secondary VTE and GE.

The Internal Rate of Return (IRR) is that rate of discount which equates the present value of cost and benefit streams. It reflects the return over the life time of the investment in education made by the individual and by the society. The IRR can be calculated by solving the following equation for r:

$$\sum_{i=1}^j \frac{C_i}{(1+r)^i} = \sum_{i=j+1}^n \frac{B_i}{(1+r)^i}$$

where  $C_i$  = Cost  
 $B_i$  = Benefit  
 $i$  = the number of years 1, ..., j, ..., n  
with j being the number of years until graduation, and n being the number of years between retirement and the start of the curriculum in question.

The result in TABLE 4.18 reveals the IRR of VTE, taking the price of 1981/82 as a base, to be 32.44 per cent while for GE it is 33.56 per cent. The results when using 1986/87 prices are 30.34 per cent and 31.29 per cent for VTE and GE respectively.

TABLE 4.18

INTERNAL RATE OF RETURN FOR VTE AND GE  
IN ETHIOPIA

YEAR	TYPE OF EDUCATION	RATE (%)
1981/82	VTE	32.44
	GE	33.56
1986/87	VTE	30.34
	GE	31.29

The Return (IRR) to VTE is marginally lower than the return to GE, indicating the relative significance of VTE and suggesting the need for more investment in the area. The only factor considered in the calculation to show social benefit is the salary factor, assuming that remunerations are, generally speaking, in accord with productivity. Imperfections in the labour market however see to it that this is not the case. Indeed, where the labour union factor operate or where efficiency considerations are not taken seriously as is often the case in the public sector, remunerations could overstate productivity and the IRR is bound to be high. But this problem is common to both VTE and GE, and would not affect their relative positions in terms of IRR. But there could be a string of indirect social benefits deriving from the application of VTE skills, and these indirect benefits are not necessarily commonly shared with GE. Indeed, it would not be very much wide of the mark to argue that the indirect benefits deriving from VTE would outweigh those, if any, deriving from GE. These



indirect benefits, such as general externalities deriving from having a pool of vocationally and technically trained manpower are, however, difficult to quantify; and to that extent our estimates of IRR for VTE and GE may not be robust. But then, they are not useless either insofar as they reflect the significant role VTE plays in the process of development. It is also clear from the IRR analysis above that the IRR to investment in VTE can be significantly enhanced if cost-effective measures were adopted to run the VTE system.

At the general level, it is obvious that the labour market is not presenting prospective VTE students with the proper signals. A careful policy to introduce more flexibility into the market clearing mechanisms, in combination with possible increases in private costs, could help to strike a balance between the supply of and demand for VTE graduates. Clearly, such a policy involves issues that are beyond the scope of the VTE system and must be co-ordinated with the overall employment, and educational policies of the country.

## REFERENCES

- Balogh, T. (1962) "Catastrophe in Africa," Times Educational Supplement, January 5, 1962, p.8.
- Balogh, T. (1962) "Catastrophe in Africa," Times Educational Supplement, February 9, 1962, p.241.
- Bennett, W.S. Jr. (1967) "Educational Change and Economic Development," Sociology of Education, 40, 2, pp.101-114.
- Foster, P.J. (1966) "The Vocational School Fallacy in Development Planning," Education and Economic Development, London: Frank Cass and Co., Ltd.
- Imperial Ethiopian Government. (1958) First Five Year Development Plan (FFYP). Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1962) Second Five Year Development Plan (SFYP). Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1968) Third Five Year Development Plan (SFYP). Addis Ababa: Berhanena Selam Printing Press.
- Metcalf, David H. (1985) The Economics of Vocational Training, Past Evidence and Future Consideration. Washington, D.C.: World Bank Staff Working Papers, No. 713.
- Psacharopoulos, G. (1984) "The Contribution of Education to Economic Growth, International Comparisons", In John Kendrick (ed.) International Comparisons of Productivity and causes of the Slowdown. Cambridge: American Enterprise Institute/Ballinger Publishing Company, pp.335-60.
- UNESCO. (1988) International Review of Education. Hamburg: Institute for Education, 34, 2.
- Write, Cream. (1988) Unfulfilled Promises and the Fading Future - Renewed Challenges for Education in Africa. Edinburgh, Scotland: Centre of African Studies (mimeograph).



## CHAPTER V

### POLICY FRAMEWORK OF AND RESOURCE CONSTRAINT ON THE EXPANSION OF VOCATIONAL AND TECHNICAL EDUCATION (VTE) IN ETHIOPIA

#### 5.1. INTRODUCTION

The persistence of shortage of labour force with VTE qualification constitutes as shown in chapter IV an underlying feature of the labour market in Ethiopia. Under the ideal circumstances of neo-classical labour market operation, skill supply-gaps will not persist. Shortage in supply will be followed by an increase in wage levels and before too long, the excess of demand over supply will be cleared. In the Ethiopian context, however, automatic adjustment of supply and demand is out of the question since the problem is structural and not one that can be settled on the margin. In the first place, the labour market is imperfect. Moreover, it would take long for the required skill to be formed and then be readily available for employment. This is further complicated by social and traditional factors that influence the values people hold about the relationship between formal education and economic opportunity.

Not surprisingly, supply shortage with respect to VTE skills is observed in the face of a vast pool of unemployed labour force, albeit mostly with skills deriving from general education with little or no

technical orientation. This situation of poor adjustment of skills to employment requirements, which is the hallmark of structural unemployment, derives, as discussed earlier in this study, partly from misplaced priorities of educational policy in Ethiopia with respect to skill development, partly from the fact that the cost per student is much higher in the case of vocational and technical education than in the case of general education, and partly from society's weak preference for vocational and technical education in relation to general/academic education. The aim of this chapter is to look into the first two propositions. The third one will be investigated at length in the next chapter.

## 5.2. POLICY CONCERN FOR THE DEVELOPMENT OF VTE

VTE qualified skills can play a crucial role in the process of socio-economic development in Ethiopia as discussed in chapter III. The recognition of this fact has not, however, been complemented by policy commitment. Indeed, little has been done to neutralise, as it were, the social stigma associated with the occupation of the 'modern artisan' - the VTE graduate. The educational structure has consequently remained predominantly elitist.

The traditional bias against VTE has been reinforced by the fact that VTE consumes a lot more resources per student than non-VTE. TABLE 5.2 shows that, on average,



it would cost about seven times more per annum to train a student in VTE than in non-VTE. This is based on consideration of only recurrent expenditures. During the period 1974 to 1985, the average annual recurrent expenditure was about 1,562 Birr for VTE and 225 Birr for non-VTE at 1980 prices. If capital cost is to be included in the analysis, VTE would be even more expensive than non-VTE. This can be demonstrated as follows.

A typical VTE programme accommodating 150 students and offering six areas of specialisation (ie. automechanics, business, drafting, electricity, metal technology, wood technology), will have the following capital and recurrent cost structure under Ethiopian circumstances.\*

a) Capital Cost: including class room and laboratory facilities	US\$ 1,500,000
b) Recurrent Cost/annum	US\$ 253,600
Administrative cost =	US\$ 33,600
Instruction and other operating cost =	US\$ 220,000

This means that the investment in the VTE project, evaluated over a 15 year period at a realistic discount rate of 15 per cent per annum will yield a present value cost (PVC) of 2,982,893 Birr: That is:

$$PVC = K_0 + \sum \frac{C_1}{(1 + r)^t}, \text{ where}$$

$K_0$  = initial investment cost

$C_1$  = annual recurrent cost

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\* Based on work experience in Ethiopia.

r = discount rate

t = economic life of the scheme

Over the 15 year period, there will be five batches of 150 VTE graduates, giving rise to a total of 750 graduates. This means the investment in VTE will involve a cost per head ( $PVC/750 = 2,982,893/750$ ) of US\$ 3,977.00

If the 150 students were to opt for non-VTE, what would be the investment implication?

- |   |             |
|---|-------------|
| a) Capital cost including class room facilities | US\$ 10,000 |
| b) Recurrent cost                               | US\$ 36,232 |

Thus:

$$PVC = 10,000 + \sum \frac{36,232}{(1 + 0.15)^{15}} = 221,862.00$$

and PVC per student =  $PVC/1,050 = US\$ 211.00$

This means that VTE is about 19 times more expensive per student than non-VTE when capital cost is considered - a figure somewhat comparable to the observation of the Education Sector Review report in 1972.\*

In view of cost differential of this magnitude, the apparent policy bias against VTE is not perhaps surprising. But the benefit streams will also need to be considered. The long run social benefit streams deriving from VTE and non-VTE training are certainly difficult to

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\* In 1970/71 academic year, total expenditure per student was 2,879 Birr for VTE and 206 Birr for non-VTE. This makes VTE about 14 times more expensive than non-VTE. (see, Imperial Ethiopian Government, Education Sector Review, 1972, p.II-10).



isolate and quantify directly in a discounting framework. Suffice it to say that given the cost per student for non-VTE to be X Birr, the benefits deriving from VTE training per student must be greater than 19X Birr to make VTE an economically attractive proposition. The fact that the shortage of VTE qualified personnel has become a chronic problem in the Ethiopian labour market, however, suggests that policy towards VTE is largely conditioned by cost constraints, apparently irrespective of the potential gains to the economy. Perhaps the cost per student may outweigh the gains per student, in which case it would be proper to seek alternative strategies minimising cost per student or to explore the extent to which - and the conditions under which - VTE and non-VTE graduates are and can be made substitutable in the labour market. If VTE and non-VTE graduates were highly substitutable for one another, VTE programmes would be redundant; and the ambivalence of policy towards VTE, as at present, would not be a cause for any surprise. In effect, however, it is easier for VTE graduates to operate as substitutes for non-VTE graduates, and not the other way around (see TABLE 5.1). But There is no need for this type of substitution as the going demand is anyway stronger for VTE than it is for non-VTE skills. Although VTE is more costly than non-VTE, there are indications deriving from the experience of a wide range of countries that the former is economically more

TABLE 5.1

## VTE GRADUATES TEACHING ACADEMIC EDUCATION, ETHIOPIA, 1979

PROVINCE	INDUSTRIAL	COMMERCIAL	H. ECONOMICS	AGRICULTURE	TOTAL
ADDIS ABABA	0	0	0	4	4
ARSSIE	1	4	1	2	8
ERETREA	2	0	0	0	2
GOJJAM	3	1	0	0	4
GONDAR	0	0	0	1	1
HARARGE	5	0	0	2	7
SHOA	9	0	0	2	11
TIGRAY	2	0	0	1	3
WOLLEGA	4	1	0	1	6
WOLLO	7	4	1	1	13
TOTAL	33	10	2	14	59

SOURCE: MOE. (1979) "A Study Presented to Strengthen Technical Vocational Education. Addis Ababa: MOE, Table 7, p.15, (mimeograph).

beneficial in the long run than the latter (Bennett, 1967, pp.104-109). Indeed, the Ethiopian experience shows the latter to be more vulnerable to unemployment spells of high frequency and long duration than the former. Educational policy priorities have not, however, been structured in keeping with this underlying trend of the labour market. Consider for instance, the data on TABLE 5.2. Between 1974 and 1985, average annual expenditure per student is observed to have declined for all educational categories. But the average annual rate of decline was more pronounced in VTE (-10.5 per cent in real terms) than in non-VTE (-7.7 per cent in real terms).



TABLE 5.2

## ANNUAL RECURRENT EXPENDITURE PER STUDENT OF THE MINISTRY OF EDUCATION, ETHIOPIA AT 1980 PRICES (IN BIRR)

YEAR	VTE (9-12) A	NON- VTE (9-12) B	A/B
1974	2685.2	340.1	7.9
1975	—	477.7	—
1976	—	324.5	—
1977	2495.5	273.7	9.1
1978	2295.3	260.7	8.8
1979	4131.0	167.4	24.7
1980	3019.7	166.0	18.2
1981	1064.3	124.9	8.5
1982	581.9	138.1	4.2
1983	889.0	147.6	6.0
1984	792.5	140.2	5.7
1985	792.9	140.8	5.6
AVERAGE/STUDENT	1562.3	225.1	6.9
AVERAGE ANNUAL GROWTH RATE OF EXPENDITURE/STUDENT (%)	-10.5	-7.7	

SOURCE: Based on Table 4.7 and Provisional Military Government, "Budget Proclamation," Negarit Gazetta, Addis Ababa: Berhanena Selam Printing Press (Various issues) and Ministry of Education. (June, 1984 and 1985) Educational Statistics, 1967/68-1982/83. Addis Ababa: MOE, Planning and External Services. The figures at current prices obtained from these sources were reduced to 1980 prices using relevant deflators for Ethiopia. See World Bank. (1987) World Tables.

Stretched for resources and given society's preference for non-VTE rather than VTE, it is not surprising that government effort has hitherto been directed more towards the former than the latter. Hence the policy reluctance towards - if not neglect of - VTE. In the absence of any policy commitment, the attempts made to expand VTE have for the most part, been rather ad hocish. Consider, for instance, the following case relating to the circumstances about the establishment of the Agarffa Peasant Training Centre in the Bale region.

This centre was established in 1983 with the aim to equip young peasants with basic vocational and technical skills related to peasant agriculture so that consequent upon training they could operate as agents animateurs for peasant associations in different parts of the country. The curriculum was carefully drawn up for the various disciplines - namely, poultry, bee farming, weaving and textile, modern farming, fattening of beef animals, dairy farms, and supporting technical skills like blacksmithing, welding, agro-mechanics, basic metal works and electricity - to be offered at the centre. Also the relevant teaching materials were identified, adapted to Ethiopian circumstances and translated into Amharic. The cost of procuring and installing the machinery and equipment that would be needed for the technical training programme alone was estimated at a minimum of 3 million Birr. The relevant decision makers considered this to be



too costly and shelved the technical aspect of the training programme. In the event, the teaching materials produced at the cost of about one million Birr, have not been able to see the light of day.

Resource wastes on this scale have a significant bearing on prospects for the expansion of the educational sector in general and VTE in particular. But there is hardly any popular pressure on the government to expand VTE facilities. As shown in previous chapters, the bulk of the demand, indicated by the proportion of total enrolment, is for non-VTE. Indeed, VTE is generally considered to be capable of delivering occupations that are nothing more than a modern extension of the much despised traditional artisan trade. There is, therefore, a stigma attached to it. But it has yet to be investigated whether those who enrol in VTE do so unwillingly, and consequently whether this can be reckoned to have a bearing on the choice of public investment decision as between VTE and non-VTE. Government policy for non-VTE has generally been somewhat permissive. This has been enhanced by the heavy cost the provision of VTE involves and society's low preference for VTE in relation to non-VTE.

The ad hoc manner in which VTE has been administered explains the absence of any serious effort on the side of the government to match the rhetoric on VTE with performance. Thus to date, VTE is limited to only 12 per

cent of the total number of secondary schools in Ethiopia.

VTE was first launched in Ethiopia in 1942 as a component of modern education with the establishment of the Addis Ababa Technical School. This was in response to the need to produce technical personnel to man the few industrial enterprises established soon after the Italian occupation. As if to compensate for the stigma attached to the occupation of the technician and the manual worker, a string of incentives - like pocket money, free board, free clothing, and promises of good salaries and job security - were provided to make enrolment in the VTE schools attractive. Moreover, there was virtually no competition from non-VTE at the time, as college and university education were not available locally, and as there were not as many non-VTE secondary institutions then as there are today.

The technical education programme was formalised in 1954 with the introduction of the 'eight-plus-four' system. After 23 years of experience, the 'eight-plus-four' system was changed to 'ten-plus-two' with the presumption that intakes from grade ten rather than eight would improve the quality of technical graduates. The 'twelve-plus-two' system was adopted in 1967 by the Education Faculty of Addis Ababa University exclusively



for purposes of training VTE teachers for the lower end of the 'eight-plus-four' comprehensive schools.\*

The limitation of technical education to two years certainly reduced the cost of training. But the presumption that quality of graduates would improve by upgrading the level of intake and shortening the duration of study by half was found wanting. Indeed, by 1986 it was found necessary to extend the duration by one more year, thus adopting the 'ten-plus-three' system.

The level of intake is certainly crucial for the effectiveness of training. The lower the level at which intake is made, the longer the study duration will be. And the higher the level at which intake is made, the shorter the duration, all other factors remaining unchanged. But this assumption is often unrealistic. Upgrading the level of intake does not necessarily help to reduce the duration of study and/or yield good quality graduates. Among other things, the standard of teachers available to VTE schools has not been consistently high. In the event of the endemic problem of shortage of VTE teachers, those who were trained to teach at lower grades in comprehensive schools would be assigned to teach at higher grades in technical and vocational schools. This

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\* The plan was to extend the 'twelve-plus-two' programme into 'twelve-plus-four' in order to produce competent graduates that could handle the teaching responsibilities at every level of the VTE programme. But this plan has not fully materialised yet, and the shortage of adequately trained teachers remains a major constraint on the expansion of VTE in Ethiopia.

would affect the effectiveness of VTE-training and hence the effective supply of VTE graduates.

TABLES 5.3 and 5.4 show the problem of inadequate supply of VTE teachers in qualitative and quantitative terms. In 1979, for instance, the total teacher requirement for the 'ten-plus-three' VTE and the 'eight-

TABLE 5.3

TEACHER REQUIREMENTS IN THE SELECTED VTE SCHOOLS AS COMPARED TO COMMON STANDARD AND PRESENTLY EMPLOYED, ETHIOPIA

SCHOOL*	INDUSTRIAL			BUSINESS		
	STANDARD	PRESENT	SHORTAGE	STANDARD	PRESENT	SHORTAGE
ASMARA	19	0	19	6	11	-5
ARBA MINCH	19	3	16	6	3	3
ASELLA	19	12	7	6	8	-2
AWASSA	19	1	18	6	3	3
BAHAR DAR	19	7	12	6	4	2
BATTU TERARA	19	0	19	6	0	6
DESSIE	19	14	5	6	3	3
DIRE DAWA	19	9	10	6	3	3
ENTOTO	19	7	12	6	4	2
GONDAR	19	6	13	6	5	1
JIMMA	19	7	12	6	3	3
MEDHANE ALEM	19	8	11	6	5	1
MEKELLE	19	6	13	6	4	2
METTU	19	2	17	6	1	5
MISRAK	19	6	13	6	3	3
NATHERETH	19	10	9	6	4	2
NEKEMTE	19	6	13	6	3	3
NIFAS SILK	19	9	10	6	5	1
TOTAL	342	113	229	108	72	36

SOURCE: Adapted from MOE. (August, 1979) A Study Produced to Strengthen Technical Vocational Education. Addis Ababa: MOE, Table 12, p.21, (mimeograph, Amharic version).

\* - These are the schools recommended in the study with a possibility of worthy VTE training with some investment. industrial disciplines, was 185, which represents about



plus-four' comprehensive schools was 450. But the total number of teachers available, trained in business and industrial disciplines, was 185, which represents about 40 per cent of the total requirement. The effective rate is, in fact, 25 per cent, because as can be seen from TABLE 5.3, only 115 of the 185 were properly qualified to teach at comprehensive and 'ten-plus-three' levels; and only 29 of the 115 were qualified to teach at the 'ten-plus-three' level according to the policy of Ministry of Education. In such cases the teaching load on the available teachers would be unduly heavy, thus reducing their teaching effectiveness. Alternatively, people with no VTE teaching qualifications could be recruited to fill the teacher supply-gap. But such recruitment policy has the unsalutary effect of reducing the quality of VTE graduates.

TABLE 5.4

LEVEL OF EDUCATION OF VTE TEACHERS, ETHIOPIA

FIELD OF STUDY	12	12+2	12+4	12+6	OTHER	TOTAL
AUTOMECHANICS	--	13	--	1	1	15
BUSINESS	--	27	4	4	2	37
DRAFTING	--	8	--	--	1	9
ELECTRICITY	1	22	4	4	2	33
METAL TECHNOLOGY	1	10	2	1	1	15
WOOD TECHNOLOGY	--	6	--	1	1	8
TOTAL	2	86	10	11	8	117

SOURCE: Adapted from MOE. (August, 1979) A Study Produced to Strengthen Technical Vocational Education. Addis Ababa: MOE.

The persistence of the problem of adequate VTE teacher supply shows, inter alia, the government's reluctance, if not inability, to meet the cost of VTE teacher training. The problem of shortage of well qualified VTE teachers is further compounded by the poor supply of teaching materials and facilities including, inter alia, the machinery and equipment that constitute the bulk of the capital cost of VTE schemes.

The persistence of resource constraint on investment in VTE expansion and improvement has had the effect of undermining the quality of vocational and technical education. Moreover, it was found generally expedient to provide vocational and technical training less rigorously and hence at less cost per student through the establishment of 'eight-plus-four' comprehensive schools. Less cost per student does not, however, correlate positively with effectiveness of VTE programmes. Cost-wise, the operation of comprehensive schools may be attractive. The question, however, is whether the comprehensive school system can, under the circumstances, deliver graduates adequately equipped with technical skills for employment.

All comprehensive schools claimed the ability to produce technically qualified personnel for industry and business. While the number of comprehensive schools increased, a significant proportion of those graduates from such schools were, however, found to possess skills



not required by the market. Nor were they adequately trained either to qualify as technical personnel with middle level VTE skill or to be able to pass the Ethiopian School Leaving Certificate Examination (ESLCE) and pursue higher education at college or university level and improve their chances of employment.

However, the expansion of comprehensive schools in the face of acute budgetary constraint thinly spread the resources and hence undermined the quality of VTE training programmes. Moreover, the advent of higher education leading to the award of degrees, marginalised VTE. VTE was generally considered - however erroneously - to be inferior to non-VTE, and enrolment grew faster in the latter than in the former. Employers too appeared to be somewhat suspicious of the quality of VTE graduates and some like Ethiopian Electric Light and power Authority, Ethiopian Air Lines, Ethiopian Telecommunications, etc. even had to start their own training schemes to meet their needs. Thus the expansion of the 'eight-plus-four' comprehensive school system proved to be not capable of producing VTE graduates of the right type in the right quality and quantity demanded by the market.

More recently, the 'education for production' slogan was invoked as a turning point for a national educational policy in which VTE was to be given pride of place on the educational agenda. VTE was since 1977 made mandatory to

all primary and secondary students. This policy was motivated by the need to remedy the deficiencies of the 'eight-plus-four' comprehensive system in view of the growing supply-gap for middle level technical manpower.

The new approach to VTE involved three stages: a) grades 1-8 for general polytechnic education that would help in vocational identification, b) grades 9-10 for higher general polytechnic that would help create vocational awareness, and c) grades 11-12 for specialisation in the various areas of technical training. In the first two stages, the provision of general education is to be preponderant, but steady exposure to basic VTE applicable to agriculture, industry and services was expected to improve the marketable skills of students. By the time they complete grade ten, they would find themselves in a relatively comfortable position to go for full-fledged two year course in VTE - that is, if they do not either opt out of the educational system to take up jobs that may be on offer or choose to go for non-VTE courses that would prepare them for education at college and university levels. By the time students have passed through the third stage, the expectation is that they will have acquired the necessary skills of a middle level technician to be able to enter the labour market with confidence. Such a strategy for VTE provision is presumed to be capable of remedying the weaknesses suffered by the 'eight-plus-four'



comprehensive school system.

But this strategy, however appealing, has taken time to implement and in some cases did not materialise for lack of qualified teachers, teaching aids, machinery, floor space, etc. - problems relating to the cost implication of the programme. Other than the cost constraint, the implementability of the programme also depends on the administrative effectiveness of the Ministry of Education.

The Ministry of Education is not an efficient organisation. It is nonetheless charged with the responsibility: a) to establish and control technical and vocational schools and training institutions, as may be necessary, to satisfy the relevant skill needs of the country; b) to ensure that the technical and vocational education given maintains the required variety and quality; c) to set standards for and license training centres; d) to co-ordinate and control technical and vocational training centres run by governmental and non-governmental organisations; and e) to control the type of certificates or diplomas conferred on students and the standard and qualifications of teachers (Negarit Gazette, August, 1977, p.270).

A major problem faced by the Ministry of Education is that it does not have at its disposal the flexible resources it needs to meet these responsibilities effectively. There have been suggestions to assign the

responsibility to a specialised autonomous body that could be set up as Commission for Vocational and Technical Education and Training (MOE, 1986; Education Challenge to the Nation, 1972), but this did not find place in the educational policy agenda.

VTE has consequently, if inadvertently, been treated by the Ministry of Education as a foster child. Not surprisingly, there are no national curricula for VTE, and even if there were, the lack of qualified teachers, training aids and recurrent budget would have frustrated their effective implementation. There is no policy provision for regular interaction between employers and those responsible for the provision of VTE. Schools operate with the implicit assumption, albeit misconceived, that supply of VTE skill will create its own demand. VTE schools are consequently rarely bothered as to the relevance of what is taught and the cost effectiveness of the training programmes. This is evident from the report of the 35th Policy Suggestive Committee of the Ministry of Education pointing out scores of problems in most of the VTE schools that would need to be rectified before the schools can be considered to be worthy of training centres. The initial 'ten-plus-two' system had to be raised to 'ten-plus-three' level. Moreover, the training programmes had to be streamlined, such that resources could be concentrated effectively in a limited range of disciplines. Thus, for instance,

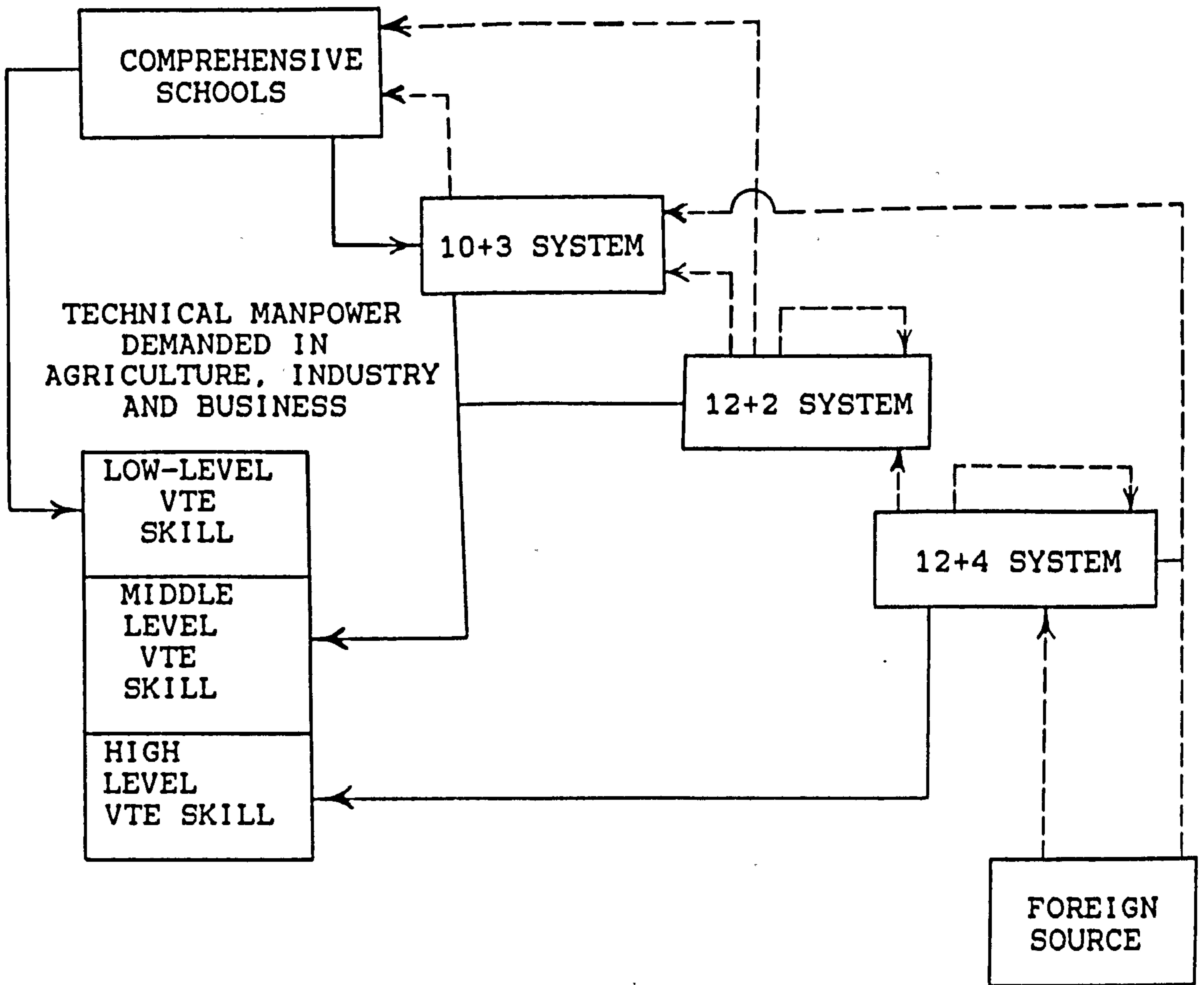


Wingate Construction School in Addis Ababa, Arbaminch Technical School, Dilla Agricultural School, Awassa Technical School, Meki Catholic Technical School, Buré Agricultural School, among others, would, according to the 35th Policy Suggestive Committee, need to shed marginal disciplines to operate as efficient training institutions. Rationalisation of this type is necessary in view of the resource constraint faced by the Ministry of Education.

Often, resources are not available to training institutions in time in order to enable them make proper preparation and see the smooth operation of the training programmes. In the event of irregular supply of resources, the practical aspect of the VTE curriculum is bound to suffer since teaching aids cannot be made readily available to students. This problem of materials procurement and management is a major cause behind the underlying deterioration in the quality of VTE in Ethiopia. In the absence of teaching aids, the teacher will be obliged to fill the time with theoretical instructions; and where theory constitutes an overwhelming proportion of VTE training, the students will have been inadequately equipped with VTE skills, and upon graduation, they would need further training to be worthy of employment. In other words, VTE graduates such as these would fall outside the effective supply function of the relevant skills in the labour market.

FIGURE 5.1

END-USE PATTERN OF VTE GRADUATES AT DIFFERENT LEVELS



\_\_\_\_\_> FLOW OF GRADUATES  
 - - - - -> FLOW OF TEACHING STAFF



The growth in the supply of adequately trained VTE teachers has been constrained by the limited resources in the hands of the Ministry of Education. As shown in FIGURE 5.1, comprehensive schools draw their supplies mostly from the 'twelve-plus-two' system, and where this is not enough, as often is the case, from the 'ten-plus-three' system. But graduates of the 'ten-plus-three' system are specifically trained to work in industry and are not qualified to teach. Graduates of comprehensive schools do not have rigorous technical training. Nor can they be considered to be suitable for occupations falling beyond the low end of the VTE skill spectrum. On the other hand, they might as well decide to upgrade their VTE skill at the 'ten-plus-three' level, or else to relinquish VTE altogether in favour of non-VTE education.

The 'ten-plus-three' system produces graduates with middle level VTE skill, which constitute the bulk of the demand for skilled and semiskilled manpower in Ethiopia. They are specifically trained to work in industry, although at times they are also observed to work as teachers in comprehensive schools. They draw their teacher supplies mainly from the 'twelve-plus-two' system and also from abroad.

Graduates of the 'twelve-plus-two' system are trained with the aim to teach mainly in the low level VTE comprehensive schools. In practice, though, they are

mostly engaged in the 'ten-plus-three' system, where there is shortage of well qualified VTE teachers. Almost all teachers available to the system are themselves trained abroad. Where graduates of the 'twelve-plus-two' VTE system have managed to escape from the teaching assignment - which is for them mandatory - they operate as middle level technical personnel in industry. The general tendency of the graduates is indeed to go to industry where prospects for promotion are brighter than in teaching. This tendency is reinforced by the ever growing demand for graduates with such skills. Hence the problem of shortage of VTE teachers.

In an attempt, inter alia, to overcome the problem of deteriorating quality of VTE graduates due to the shortage of well qualified teachers, the government, in co-operation with the World Bank, recently adopted a 'twelve-plus-four' VTE scheme. The scheme was originally aimed to start operation in 1989, but operation has not yet started for reasons pertaining to delays in the construction of buildings, the procurement of relevant machinery and equipment as well as other teaching aids, and the staffing of the college.

The operation of the 'twelve-plus-four' VTE scheme is crucial for the supply of adequately trained teachers for the 'ten-plus-three' and 'twelve-plus-two' VTE categories. These Categories are the source for the supply of the badly needed middle level vocational and



technical manpower for agriculture, industry and services. The effective operation of the 'ten-plus-three' and 'twelve-plus-two' VTE categories also depends on the provision of equipment and teaching materials, which, however, contribute to making average training cost per student for VTE some nineteen times higher than the average for non-VTE.

### 5.3. CONCLUSION

In poor countries like Ethiopia where the resource constraint of planning at all levels of the economy is severe, it is the investment cost of VTE training and not the long run possible benefits deriving from the investment in VTE that forms the basis of decision. The flow of benefits is subject to risks and uncertainty factors. For instance VTE graduates could in the end choose to take up jobs totally unrelated to their training, and the expected flow of benefits may not arise. In the event, decision makers with limited resources at their disposal would go for options that would minimise cost. On the other hand, if VTE were to be taken seriously, it would absorb a good part of the resources available to the educational sector. Little wonder, therefore, that poor countries shy away from investing in VTE.

But the significance of the role that VTE plays in fostering the process of development is not always lost

on policy makers. For instance, in early 1974, the now defunct Imperial Government of Ethiopia came up with a plan for radical educational reform after a thorough review of the education sector in the country. It was proposed that education be oriented to emphasise practical as against academic education. According to the plan, the primary level was to become the terminal level of education for most young people. Secondary education, rather than expanding, would remain at the level it had reached, and university education would grow only slightly. The curriculum at the post-primary level was to be explicitly tied to the country's manpower needs. Moreover, it was suggested that the financing of education beyond the primary level would cease to be the responsibility of the government (Education Sector Review, 1974). This would by definition reduce the cost burden on society due to the expansion of VTE. The report thus featured VTE into prominence, but its explicit aim to undermine the elitist tradition of education was found unpalatable by the public, and was naively - indeed ironically - used as a political argument against the government of the day.

In the event of the policy reluctance towards VTE, conditioned, inter alia, by high cost per student, resources available to the education sector in Ethiopia have largely been concentrated on non-VTE. This translates into the persistence of the supply-gap for VTE



skill in two ways. First, the resource constraint on the expansion of VTE facilities in Ethiopia means the annual rate of growth of enrolment in VTE cannot be expected to be impressive. Indeed, the absolute size of annual intake has been small and declining over the years. This means that the output readily available for the labour market would be small in relation to the demand for such skill, even when assuming a zero rate of attrition. Secondly, the limited resources available to VTE have the effect of constraining growth in the supply of adequately qualified VTE teachers. Consequently, VTE graduates would be inadequately trained and unable to meet the requirements of employers without undergoing further training, thus making the absolute size of VTE graduates small in relation to the demand for such graduates. Also, ineffective training makes the effective supply of VTE skills even smaller.

It must be noted, however, that there can be other factors - for instance, the individuals preference function for VTE in relation to other educational categories - to explain the persistence of the supply-gap of VTE skills. This is the point of departure for our discussion in the next chapter.

## REFERENCES

Ministry of Education (MOE). (1986) General Evaluation of Education. Addis Ababa: MOE (Mimeographed Amharic version).

Ministry of Education (MOE) (August, 1986) Major problems and Future Directives of Technical Vocational Education. Presented on the 19th Seminar for Educational Planning and Administration. Addis Ababa: MOE, Office of Technical Vocational Education Council (Mimeographed Amharic Version).

Provisional Military Government of Ethiopia. "Budget Proclamation," Negarit Gazetta, Addis Ababa: Berhanena Selam Printing Press (Various Issues).

Provisional Military Government of Ethiopia. (August, 1977) Negarit Gazetta. Addis Ababa: Berhanena Selam Printing Press, Proclamation No. 127.



## CHAPTER VI

# FACTORS AFFECTING THE CHOICE OF VOCATIONAL AND TECHNICAL EDUCATION IN ETHIOPIA, AND IMPLICATIONS FOR SUPPLY OF TECHNICAL SKILLS

### 6.1. INTRODUCTION

In the previous chapter, the chronic shortage in the supply of middle level technical manpower in Ethiopia was explained partly by the declining rate of growth in VTE enrolment and partly by the ineffectiveness of VTE training in relation to employers' needs. These in turn were attributed to the lack of policy commitment to VTE, the high cost of training per student in VTE and the prevalence of severe resource constraint on the provision and administration of educational programmes in general and VTE in particular.

The aim of this chapter is to further explain the persistent problem of VTE skill supply shortfalls in terms of the preference of individuals for VTE vis a vis non-VTE courses, and to analyse the implication of this for the state of VTE enrolment and for the decision of VTE trainees and graduates to pursue their careers along lines calling for VTE-related skills. The chapter will therefore be addressed to analysing the relationship between individuals who make the choice between VTE and non-VTE, the education sector offering the choice, and the labour market absorbing the output of the educational

sector. Three broad questions are bound to arise in this respect:

a) Is the shortage in the supply of middle level technical manpower embodying VTE skill due to i) declining flow of students into the VTE stream, or ii) dissatisfaction of the graduates in the sense that upon graduation, they do not - or are reluctant to - stick to VTE related occupations, or iii) ineffectiveness of the manner in which VTE training is geared to the needs of employers, or iv) all of these?

b) What are the factors that determine the choice between VTE and non-VTE streams? That is, are the VTE and non-VTE options significantly differentiated on the choice profile or is the choice between the two usually made casually or randomly?

c) How does the 'labour market' in Ethiopia respond to the growing demand for middle level technical manpower? How does the wage structure corresponding to VTE skills reflect changing circumstances in demand for such skills? And how does the behaviour of the labour market affect the rate of supply of VTE skills by way of feedback?

In order to investigate these questions, the remainder of this chapter is organised in three parts. The first part will discuss the procedure adopted to obtain the data required to answer the questions raised above. In the second part, the data obtained will be



analysed in the context of the general problem based on the relationship between the individuals who make the choice, the educational institutions who offer the choice, and the job market where income opportunities are sought. The third part will draw some conclusions based on the results of the analysis.

## 6.2. METHODOLOGY

### 6.2.1. SOURCE OF DATA

Investigation of the questions raised in this chapter will be based on data obtained from a fieldwork survey in Addis Ababa conducted between September and December 1987. Schools and institutions of vocational and technical nature - including the 'eight-plus-four' comprehensives, 'ten-plus-three' and 'twelve-plus-two' VTEs were sampled and a total of 513 questionnaires were administered to students, teachers and non-teacher employees corresponding to VTE and non-VTE categories. The questionnaire addressed itself to eliciting data relating to: a) the general background of the individual respondent - that is, age, sex, income, educational and/or occupational status, and social background; b) circumstances that led to choice of field of study and educational and occupational aspirations; and c) the degree of satisfaction with the field of study chosen and occupation assumed thereof. The questionnaire was

pretested on a group of twenty Ethiopian postgraduate students studying at Strathclyde University in Glasgow, and the feedback from this exercise was used to enhance the structure of the questionnaire (see Appendix 1).

The sampling was designed in such a way as to allow a representative cross section of both the VTE and non-VTE categories, and within each category that of students, and employees. Thus, the sample population at each of the four levels was drawn at random.

For reasons of time and resource constraint on the administration of the research project, the survey was limited to the categories of some of the employing institutions and schools in Addis Ababa. To the extent that most of the schools and employers in Ethiopia are in Addis ababa, the sample cannot be said to be unrepresentative as far as the Ethiopian situation as a whole is concerned. Virtually all of the VTE schools in Addis Ababa have been covered. Most schools in Addis Ababa are organised incorporating both VTE and non-VTE streams; and this helped much to expedite the survey procedure. For the effective administration of the questionnaires in the schools, the co-operation of teachers and school directors was solicited; and the non-VTE students were told that the questionnaire would help them with their preparation for the School Leaving Certificate so that they would respond to it seriously and refrain from being unduly casual about their



response. The questionnaires were distributed randomly to students while classes were in session.

For VTE and non-VTE employees institutions were identified, and questionnaires were then distributed to graduates of the relevant categories after having randomly selected their names from employers' payrolls.

As shown in TABLE 6.1, a total of 513 questionnaires were distributed. But 420 responded to the questionnaire, and this amounts to a handsome response rate of 82 per cent.

TABLE 6.1

QUESTIONNAIRE DISTRIBUTION AND RESPONSE RATES			
SAMPLE CATEGORIES	TOTAL NUMBER APPROACHED	NUMBER OF THOSE WHO RESPONDED	RATE OF RESPONSE(%)
VTE STUDENTS	145	128	88.3
NON-VTE STUDENTS	85	73	84.9
VTE EMPLOYEES	180	143	79.4
NON-VTE EMPLOYEES	103	76	73.8
TOTAL	513	420	81.9

Vocational and Technical Education (VTE) can be applied to a wide spectrum of activities across the various sectors of the economy. In view of the limited time and resources allotted to the survey, coverage of the survey was concentrated on a narrow range of specific VTE programmes including automotive technology, business/commerce, electrical technology, drafting technology, metal technology, and wood technology. These

were selected insofar as they apply to a wide range of activities including, inter alia, trade and industry, agriculture as well as business and office activities.

The conceptual difficulties envisaged in the definition of vocational education have been already discussed in earlier chapters. For the purpose of our analysis in this chapter, educational programmes that contain the disciplines like the ones itemised above which, are strictly non-academic, are considered to be vocational and technical.

VTE unlike the non-VTE academic programmes generate applied technical skills. A major purpose of the analysis below is to show using the survey data the distribution of demand for education as between VTE and non-VTE, and to identify the dominant factors governing demand for VTE vis a vis demand for general academic education.

#### 6.2.2. METHOD OF ANALYSIS OF DATA

The data obtained from the survey have been grouped in four categories as shown in TABLE 6.1. Relevant statistical methods are then used to cross-tabulate and correlate variables, and also to investigate any evidence of differences between and within groups as regards factors influencing choice of and aspiration for education and occupations. The sample of 420 respondents is broadly grouped in two sets as VTE and non-VTE



categories, and the respondents in each set are further regrouped into two - those who joined their fields of study (be it VTE or non-VTE) with interest, and those who did so without interest.

### 6.3. ANALYSIS OF DATA

#### 6.3.1. CHARACTERISTICS OF INDIVIDUALS IN THE SAMPLE

The first task in our analysis is to broadly characterise the individuals in the different strata of our sample with the aim to examine whether there are significant differences between those who opted for VTE and those in non-VTE streams. The broad characterising factors considered here are age, sex, and the socio-economic background of the individuals. Consideration of these factors is based on certain presumptions which however have yet to be put to the test. For instance, it is generally thought that, all other things being equal, mature students are more likely to opt for VTE than for non-VTE since the former offers a short training duration and better opportunities for quick employment. It is also presumed that since it calls for short training duration, VTE - particularly the business studies aspect of it - is a more attractive proposition for female students than non-VTE. Not many female students can afford to go for long training periods because of traditional pressures like early marriage and subsequent family

responsibilities. As regards the factor relating to the socio-economic background of students, the popular belief is that VTE is the natural choice of students with relatively poor social and economic status. So, if the above presumptions were to hold, there would be more mature students in VTE than in non-VTE; more female students in VTE than in non-VTE, and more students with poor socio-economic background in VTE than in non-VTE streams. But does this square well with the evidence?

#### 6.3.1.1. THE AGE FACTOR

TABLE 6.2 shows the distribution of our sample population grouped in two categories across the various age groups. In the case of the employees, (VTE and non-VTE), it is shown that there is no particular age group in which there is concentration in one category of occupation as against the other. The age distributions of the VTE and non-VTE employees are fairly comparable and hardly differentiated. The Chi-square for this category is 5.265 which is not significant at 10 per cent. This suggests that contrary to the popular belief, the age factor did not matter in the choice between VTE and non-VTE at the time when the employees covered in the sample were students. It should be noted, however, that there is no reason to presume that the pattern which prevailed in the past will continue to do so in the present. Indeed, the category of current VTE and non-VTE students appear to be



well differentiated on the age profile. The Chi-square (20.883) is significant at less than one per cent. In the sample of the VTE students, almost all belong to the 16-25 age group. In the case of the non-VTE students also, the majority (82.2 per cent) belong to this age group. But there are also non-VTE students of other age groups; and this is indicative of the possibility open in non-VTE rather than in VTE for people to quit their jobs and go back to school at later ages. That more mature students are observed in the non-VTE rather than in the VTE category also suggests that economic opportunities are perceived to be better with non-VTE than with VTE qualification.

TABLE 6.2

THE AGE FACTOR AS A DETERMINANT OF CHOICE BETWEEN VTE AND NON-VTE

GROUP	AGE	16-25	26-35	36-45	46-55	TOTAL	CHI-SQUARE	LEVEL OF SIGNIFICANCE
VTE STUDENTS		127 (98.2)	1 (0.8)	0	0	128 (100.0)	20.883	SIGNIFICANT AT LESS THAN 0.05%
NON-VTE STUDENTS		60 (82.2)	10 (13.7)	3 (4.1)	0	73 (100.0)		
VTE EMPLOYEES		8 (5.6)	53 (37.1)	70 (49.0)	12 (8.4)	143 (100.0)	5.265	15.3% (NOT SIGNIFICANT)
NON-VTE EMPLOYEES		2 (2.6)	22 (28.9)	39 (51.3)	13 (17.1)	76 (100.0)		

(The figures in parentheses are percentages)

### 6.3.1.2. THE SEX FACTOR

TABLE 6.3 shows that in both the student and employee categories, the size of the male population is much

greater than that of the female. Although the proportion of female students and employees is higher in VTE than in non-VTE, the general picture is such that the participation of women in schools and in employment is still too low to diminish the dominance of the male population in VTE and non-VTE enrolment and employment. According to the evidence shown in TABLE 6.3, VTE and non-VTE students and employees can hardly be differentiated on the sex profile. For the student population, the Chi-square is 0.066 which is not significant. For the employees too, the Chi-square, 0.471, is not significant. It can be concluded from this that sex is not a statistically significant factor influencing the choice between VTE and non-VTE education.

TABLE 6.3

THE SEX FACTOR AS AN INFLUENCE ON CHOICE BETWEEN VTE AND NON-VTE

GROUP	SEX	MALE	FEMALE	TOTAL	CHI-SQUARE	LEVEL OF SIGNIFICANCE
VTE STUDENTS		111	17	128	0.066	79.7% (NOT SIGNIFICANT)
		(86.7)	(13.3)	(100.0)		
NON-VTE STUDENTS		65	8	73	0.471	49.3% (NOT SIGNIFICANT)
		(89.0)	(11.0)	(100.0)		
VTE EMPLOYEES		126	17	143	0.471	49.3% (NOT SIGNIFICANT)
		(88.1)	(11.9)	(100.0)		
NON-VTE EMPLOYEES		70	6	76	0.471	49.3% (NOT SIGNIFICANT)
		(92.1)	(7.9)	(100.0)		

(The figures in parentheses are percentages)



### 6.3.1.3. SOCIO-ECONOMIC BACKGROUND OF INDIVIDUALS

The socio-economic background of individuals in the sample is investigated in TABLES 6.4 - 6.6. In all these cases, there is no evidence to suggest that most of those who opt for VTE, unlike those who opt for non-VTE, come from relatively poor socio-economic background. The Chi-squares are all insignificant indicating that VTE and non-VTE populations cannot be differentiated well on this profile. In other words, a similar pattern of socio-economic status applies to individuals in both VTE and non-VTE. TABLE 6.4, for instance, shows that most of the individuals considered in the sample to have come from families with monthly income of less than 600 Birr per month. Families with income above this level are rare anyway.

TABLE 6.4

#### CLASSIFICATION ACCORDING TO FATHER'S INCOME PER MONTH

GROUP	FATHER'S INCOME						TOTAL	CHI-SQUARE	LEVEL OF SIGNIFICANCE
	BELOW 30	30-150	151-300	301-600	600-1000	1001-2000			
VTE STUDENTS	13 (10.2)	25 (19.5)	36 (28.1)	40 (31.1)	11 (8.6)	3 (2.3)	128 (100.0)	3.781	58.1% (NOT SIGNIFICANT)
NON-VTE STUDENTS	5 (6.8)	18 (24.7)	26 (35.6)	22 (30.1)	1 (1.4)	1 (1.4)	73 (100.0)		
VTE EMPLOYEES	8 (5.6)	64 (44.7)	46 (32.2)	12 (8.4)	9 (6.3)	4 (2.8)	143 (100.0)	8.835	18.3% (NOT SIGNIFICANT)
NON-VTE EMPLOYEES	10 (13.2)	30 (39.5)	18 (23.7)	10 (13.2)	4 (5.3)	4 (5.3)	76 (100.0)		

(The figures in parentheses are percentages)

Most of the respondents in the VTE and non-VTE categories come from the higher rather than the lower end of the 30-600 Birr income range. This is consistent with the general view that higher income families are generally in a better position than lower income families to afford higher education for their children. This general position does not, however, preclude individuals from relatively low income families to avail themselves of opportunities for higher education. The social grouping indicated in TABLE 6.5 confirms the observation

TABLE 6.5

CLASSIFICATION ACCORDING TO FATHER'S OCCUPATION

GROUP	FATHER'S OCCUPATION					TOTAL	CHI-SQUARE	LEVEL OF SIGNIFICANCE
	CIVIL SERVANT	FARMER	MILITARY	SELF EMPLOYED	OTHER			
VTE STUDENTS	42 (32.8)	28 (21.9)	16 (12.5)	27 (21.1)	15 (11.7)	128 (100.0)	2.715	60.7% (NOT SIGNIFICANT)
NON-VTE STUDENTS	26 (35.6)	18 (24.7)	13 (17.8)	10 (13.7)	6 (8.2)	73 (100.0)		
VTE EMPLOYEES	31 (21.7)	65 (45.4)	18 (12.6)	15 (10.5)	14 (9.8)	143 (100.0)	2.753	60.0% (NOT SIGNIFICANT)
NON-VTE EMPLOYEES	21 (27.6)	31 (40.8)	5 (6.6)	11 (14.5)	8 (10.5)	76 (100.0)		

(The figures in parentheses are percentages)



TABLE 6.6

## CLASSIFICATION ACCORDING TO SOCIAL CLASS

GROUP	SOCIAL CLASS				TOTAL	CHI-SQUARE	LEVEL OF SIGNIFICANCE
	RICH	MIDDLE CLASS	POOR	DON'T KNOW			
VTE STUDENTS	2 (1.6)	64 (50.0)	62 (48.4)	0	128 (100.0)	0.247	88.4% (NOT SIGNIFICANT)
NON-VTE STUDENTS	1 (1.4)	34 (46.6)	38 (52.0)	0	73 (100.0)		
VTE EMPLOYEES	1 (0.7)	55 (38.5)	86 (60.1)	1 (0.7)	143 (100.0)	2.325	50.8% (NOT SIGNIFICANT)
NON-VTE EMPLOYEES	0	32 (42.1)	42 (55.3)	2 (2.6)	76 (100.0)		

(The figures in parentheses are percentages)

made above that most of the respondents in each group are of middle class or poor origin - ie. below 600 Birr per month. It also reflects the general economic condition in Ethiopia that the vast majority of the population is characterised with low income status.

It can be seen from the discussion above that the sample population grouped according to VTE and non-VTE categories cannot be effectively differentiated on the profiles of age, sex, and socio-economic background. It should be noted, however, that the age factor has a limited role in defining the distribution of the VTE and non-VTE student population across the various age groups. More mature students tend to enrol in non-VTE than in VTE. But the fact remains that in both VTE and non-VTE,

the student populations are concentrated in the 16-25 age cohort as shown in TABLE 6.2.

If the sample population cannot be differentiated on the basis of the broad factors discussed above, how then can one account the choice made by individuals between VTE and non-VTE? Or is the choice between the two usually made casually or randomly?

### 6.3.2. REASONS FOR CHOICE OF FIELD OF STUDY

It can be postulated that individuals choose their respective field of study in VTE and non-VTE for reasons of interest, good salary prospect, quick employment, and competitiveness of educational status at the secondary level, among other factors.

TABLE 6.7 shows the distribution of the sample population of students and employees grouped according to VTE and non-VTE categories across the various factors considered to influence the choice of field of study. In the case of the population of employees, except for the 'other factors' category (relating to lack of guidance, peer group and family influence, and random choice), there is no evidence of any one factor having more important say for VTE than for non-VTE. This is shown by the Chi-square (6.333) which is not significant at 10 per cent. This is, however, at variance with the situation corresponding to the student population where the Chi-square, 14.569, is significant at less than one per cent.



TABLE 6.7

## REASONS FOR CHOICE OF FIELD OF STUDY

GROUP	REASON FOR CHOICE						CHI-SQUARE	LEVEL OF SIGNIFICANCE
	GOOD INTEREST	GOOD SALARY	QUICK EMPLOYMENT	CHOICE OF LAST RESORT	OTHER FACTORS	TOTAL		
VTE STUDENTS	23 (18.0)	3 (2.3)	26 (20.3)	31 (24.2)	45 (35.2)	128 (100.0)	14.569	SIGNIFICANT AT LESS THAN 0.05%
NON-VTE STUDENTS	12 (16.4)	5 (6.9)	16 (21.9)	6 (8.2)	34 (46.6)	73 (100.0)		
VTE EMPLOYEES	78 (54.5)	3 (2.1)	46 (32.2)	16 (11.2)	0	143 (100.0)	6.333	17.6% (NOT SIGNIFICANT)
NON-VTE EMPLOYEES	32 (42.1)	1 (1.3)	16 (21.0)	10 (13.2)	17 (22.4)	76 (100.0)		

(The figures in parentheses are percentages)

It can be seen from TABLE 6.7 that 'interest' is an important factor influencing the choice of field of study in the case of both VTE and non-VTE groups - more so for employees at the time they had to decide on their field of study than for students. About 18 per cent of VTE students and 16 per cent of non-VTE students joined their respective fields of study out of interest.

On the other hand, about 55 per cent of VTE employees and 42 per cent of non-VTE employees joined their respective fields out of interest. This gives the impression that the earlier more than the present generation of students took education as a whole with interest. The interest they indicated for the fields of their choice is, however, by no means an indicator for the satisfaction they got out of it.

Income appears least important as a factor influencing the quest for education with respect to all groups. Salary does not feature prominently as a motivating factor for joining any particular field of study except in few cases - 2.3 per cent of VTE students, 6.9 per cent of non-VTE students, 2.1 per cent of VTE employees and 1.3 per cent of non-VTE employees.

TABLE 6.8 shows non-VTE graduates to have a slight edge over VTE graduates in terms of income earning capability. Hence the observation in TABLE 6.7 that the income factor is relatively less attractive for VTE than

TABLE 6.8

INCOME CHARACTERISTICS OF VTE AND NON-VTE EMPLOYEES					
GROUP	INCOME PER MONTH				
	150-350	351-550	551-1000	1001-2000	TOTAL
JOINED VTE WITH INTEREST	3 (3.9)	49 (62.8)	26 (33.3)	0	78 (100.0)
JOINED VTE WITHOUT INTEREST	2 (3.1)	41 (63.1)	19 (29.2)	3 (4.6)	65 (100.0)
TOTAL	5 (3.5)	90 (62.9)	45 (31.5)	3 (2.1)	143 (100.0)
JOINED NON-VTE WITH INTEREST	0	15 (46.9)	14 (43.8)	3 (9.3)	32 (100.0)
JOINED NON-VTE WITHOUT INTEREST	1 (2.2)	20 (45.5)	19 (43.2)	4 (9.1)	44 (100.0)
TOTAL	1 (1.3)	35 (46.1)	33 (43.4)	7 (9.2)	76 (100.0)

(The figures in parentheses are percentages)



for non-VTE students. It can be observed in TABLE 6.8 that VTE graduates are less evenly spread out than non-VTE graduates across the income categories specified. The variance is 5047 in the case of the former and 920 in the case of the latter. VTE graduates are highly concentrated in the 351-550 income group. In the case of the non-VTE graduates, on the other hand, there are as many individuals in the 551-1000 group as there are in 351-550 group. About 66 per cent of VTE graduates in the sample earn income below 550 Birr per month. The corresponding figure for non-VTE is about 47 per cent. Given that there is relatively wider scope for high income earning with non-VTE than with VTE, it is surprising that income does not emerge as an important factor in the decision of choice of field of study in the case of non-VTE students.

But there is more to this than meets the eye. Upon close investigation, the income factor cannot be relegated as being unimportant in decision making. Certainly, the majority of the respondents in the sample do not associate VTE training with good salary prospects. Indeed, in the majority of cases - 121 (94.5 per cent) in the case of the students and 135 (95.4 per cent) in the case of employees - what we observe is aspiration for higher degrees which, in fact, is a good proxy for their aspiration to acquire higher income. Thus where the VTE option is adopted as a 'stepping stone' for further

education, the role of income in decision making cannot be under-rated.

Unlike the income factor, quick employment stands out as a prominent factor influencing choice decision in both VTE and non-VTE cases. TABLE 6.7 shows the 'quick employment' factor to have been more important in the past than it is at present. This implies that the prospect for employment was more favourable for VTE in the past than it is at present, perhaps for reasons that employment prospects then were not as bleak as they are at present. Certainly employment has become more and more competitive over the years, and with the job market becoming increasingly tight, one would require higher levels of educational qualification to be able to stand up to the competitive pressure with confidence.

The choice of field of study as between VTE and non-VTE is also made in a somewhat desperate mood. Thus where the first, second and third areas of choice cannot be obtained for reasons of inadequacy of educational records of students or limited supply of educational facilities constraining the expansion of enrolment, individuals will be forced to resort to making choices of fields of study that do not necessarily fall in their areas of interest. From TABLE 6.7, it can be seen that the constraints forcing unintended choices on individuals have, over the years, relaxed in the case of non-VTE students and become more acute than ever in the case of



VTE students. At the time the now non-VTE employees in the sample had to make the choice between the VTE and non-VTE options, the constraints appear to have applied to 13.2 per cent of the total in this particular category. This proportion has now declined to 8.2 per cent, reflecting the limited constraints on the expansion of non-VTE enrolment. On the other hand, the proportion of individuals affected by the constraints on choice is shown to have increased from 11 per cent in the past to 24 per cent at present in the case of VTE, suggesting that more and more of those who opt for VTE do so as a matter of last resort. This situation may be corroborated by the observation in TABLE 6.7 that whereas in the past about 55 per cent of those who opted for VTE did so out of interest, at present this proportion has declined significantly to 18 per cent. This does not, however, mean that a growing proportion of those who chose to enrol in non-VTE made their decisions out of interest. In fact, the proportion of those who opted for non-VTE out of interest has also declined from 42 per cent in the past to 16 per cent now.

Considering the situation at present with respect to both VTE and non-VTE enrolment, the 'other factors' category is shown to be important in motivating choice, followed by 'choice of last resort', 'quick employment'

TABLE 6.9

PROVISION OF GUIDANCE AS A FACTOR INFLUENCING CHOICE  
OF AREA OF STUDY, VTE STUDENTS

		G U I D A N C E   O B T A I N E D			
GROUP	FACTORS	ENOUGH GUIDANCE	VERY LITTLE GUIDANCE	NO GUIDANCE	TOTAL
	INTEREST	11 (47.8)	6 (26.1)	6 (26.1)	23 (100.0)
	GOOD SALARY	1 (33.3)	1 (33.3)	1 (33.3)	3 (100.0)
VTE	QUICK EMPLOYMENT	11 (42.3)	9 (34.6)	6 (23.1)	26 (100.0)
STUDENTS	CHOICE OF LAST RESORT	8 (25.8)	1 (3.2)	22 (71.0)	31 (100.0)
	OTHER FACTORS	19 (42.2)	2 (4.4)	24 (53.3)	45 (100.0)
	TOTAL	50 (39.1)	19 (14.8)	59 (46.1)	128 (100.0)
	INTEREST	3 (25.0)	6 (50.0)	3 (25.0)	12 (100.0)
	GOOD SALARY	2 (40.0)	2 (40.0)	1 (20.0)	5 (100.0)
NON-VTE	QUICK EMPLOYMENT	6 (37.5)	4 (25.0)	6 (37.5)	16 (100.0)
STUDENTS	CHOICE OF LAST RESORT	2 (33.3)	2 (33.3)	2 (33.3)	6 (100.0)
	OTHER FACTORS	13 (38.2)	8 (23.6)	13 (38.2)	34 (100.0)
	TOTAL	26 (35.6)	22 (30.1)	25 (34.3)	73 (100.0)



CONTND.

		G U I D A N C E O B T A I N E D			
GROUP	FACTORS	ENOUGH GUIDANCE	VERY LITTLE GUIDANCE	NO GUIDANCE	TOTAL
		36	18	24	78
	INTEREST	(46.2)	(23.1)	(30.8)	(100.0)
		1	1	1	3
	GOOD SALARY	(33.3)	(33.3)	(33.3)	(100.0)
VTE		14	9	23	46
	QUICK EMPLOYMENT	(30.4)	(19.6)	(50.0)	(100.0)
EMPLOYEES		2	2	12	16
	CHOICE OF LAST RESORT	(12.5)	(12.5)	(75.0)	(100.0)
		0	0	0	0
	OTHER FACTORS				
		53	30	60	143
	TOTAL	(37.0)	(21.0)	(42.0)	(100.0)
		6	11	15	32
	INTEREST	(18.8)	(34.4)	(46.9)	(100.0)
		0	0	1	1
	GOOD SALARY			(100.0)	(100.0)
NON-VTE		5	5	6	16
	QUICK EMPLOYMENT	(31.2)	(31.2)	(37.5)	(100.0)
EMPLOYEES		2	1	7	10
	CHOICE OF LAST RESORT	(20.0)	(10.0)	(70.0)	(100.0)
		2	4	11	17
	OTHER FACTORS	(11.8)	(23.5)	(64.7)	(100.0)
		15	21	40	76
	TOTAL	(19.8)	(27.6)	(52.6)	(100.0)

(The figures in parentheses are percentages)

TABLE 6.10

## SOURCE OF GUIDANCE FOR VTE AND NON-VTE STUDENTS AND EMPLOYEES

GROUP	SOURCE OF GUIDANCE					TOTAL		
	FAMILY	FRIEND	TEACHER	GUIDANCE COUNSELLOR	DIDN'T GET ANY			
STUDENTS	JOINED VTE WITH INTEREST	10 (43.5)	3 (13.0)	4 (17.4)	0	6 (26.1)	23 (100.0)	
	JOINED VTE WITHOUT INTEREST	16 (15.2)	9 (8.6)	24 (22.9)	3 (2.9)	53 (50.5)	105 (100.0)	
	TOTAL	26 (20.3)	12 (9.4)	28 (21.9)	3 (2.3)	59 (46.1)	128 (100.0)	
	JOINED NON-VTE WITH INTEREST	3 (25.0)	4 (33.3)	0	2 (16.7)	3 (25.0)	12 (100.0)	
	JOINED NON-VTE WITHOUT INTEREST	16 (26.2)	9 (14.8)	7 (11.5)	7 (11.5)	22 (36.0)	61 (100.0)	
	TOTAL	19 (26.0)	13 (17.8)	7 (9.6)	3 (12.3)	25 (34.3)	73 (100.0)	
	JOINED VTE WITH INTEREST	3 (3.9)	27 (34.6)	12 (15.4)	4 (5.1)	32 (41.0)	78 (100.0)	
	JOINED VTE WITHOUT INTEREST	5 (7.7)	14 (21.5)	16 (24.6)	2 (3.1)	28 (43.1)	65 (100.0)	
	TOTAL	8 (5.6)	31 (21.6)	28 (19.6)	6 (4.2)	60 (42.0)	143 (100.0)	
	EMPLOYEES	JOINED NON-VTE WITH INTEREST	1 (4.5)	4 (18.2)	4 (18.2)	0	13 (59.1)	22 (100.0)
		JOINED NON-VTE WITHOUT INTEREST	1 (1.9)	10 (18.5)	14 (25.9)	2 (3.7)	27 (50.0)	54 (100.0)
		TOTAL	2 (2.6)	14 (18.4)	18 (23.7)	2 (2.6)	40 (52.7)	76 (100.0)

(The figures in parentheses are percentages)



and 'interest' in the case of VTE, and 'quick employment', 'interest', and 'choice of last resort' in the case of non-VTE. In the past, the hierarchy of choice motivating factors were 'interest' in both VTE and non-VTE, followed by 'quick employment' and 'choice of last resort' in the case of the former and 'other factors', 'quick employment' and 'choice of last resort' in the case of the latter.

The provision of some form of guidance is important for individuals to make up their minds faced with a range of options to choose from. Short of proper guidance, decisions of choice are likely to be made randomly - and possibly badly into the bargain. From TABLES 6.9, it can be seen that a sizeable proportion of individuals covered in the sample of VTE and non-VTE students and employees had little or no guidance to help them evaluate the fields of study they opted for in the light of their personal circumstances. The provision of guidance could be formal and/or informal. Formal guidance is dispensed by vocational counsellors; but there are to date no guidance counsellors for schools in Ethiopia. In the event, guidance is given to students informally by teachers, friends and family members (see TABLES 6.10). Often, however, informally dispensed guidance is casual and arbitrary and hence is no better substitute for choices being made randomly. From the data in TABLE 6.9, random choice of fields of study can be inferred to apply

to at least 19 per cent, 18 per cent, and 15 per cent in the case of VTE students, non-VTE students and non-VTE employees respectively. This is, of course, based on the charitable assumption that the guidance offered to students is consistent and reliable.

### 6.3.3. WHY SHORTAGE IN THE SUPPLY OF VTE SKILLS?

Shortage in the supply of VTE skills is, as already discussed, broadly attributable to three factors - namely, the low rate of enrolment in relation to demand for such skills; the dissatisfaction of VTE graduates in the sense that upon graduation they tend to be reluctant to stick to occupations that are in line with their training; and the ineffectiveness of vocational/technical training to the needs of employers. The aim in this section is to examine these factors seriatim in the light of the data obtained from the sample survey.

#### 6.3.3.1. INDIVIDUALS' PREFERENCE FOR VTE

VTE, it is generally considered, prepares students for the less-preferred 'blue collar' jobs; and in a society where traditional values put stigma on manual work in general, as appears to be the case in Ethiopia, it would not be surprising if individuals preferred non-VTE to VTE. As will be discussed in more detail in the next section, not only is VTE considered to be associated with



manual work, unlike non-VTE, it provides little or no prospects for income and occupational improvements. In chapter IV, we saw the flow of students into the VTE stream increasing but very slowly compared to that of students in the non-VTE stream. While facility constraint, as discussed in chapter V, can be held responsible for the slow down in enrolment expansion, no less significant in explaining the situation is also the weakness of individuals' preference for VTE. Most would opt for non-VTE where the opportunities for material gains are perceived to concentrate. It can be argued that the prevalence of weak preference of individuals for VTE can reduce the pressure on educational planners and policy makers in Ethiopia to be less concerned with the, somewhat formidable task of mobilising resources for the expansion of VTE, which as shown in chapter V is 14 to 19 times more expensive per student than non-VTE.

Does this mean that all those who enrol in VTE do so unwillingly, apparently in desperation? The evidence borne out by our sample data does not support this to hold in all cases considered. It can be seen from TABLE 6.7 that among the 128 students in the sample, 18 per cent joined VTE with interest which is, surprisingly enough, more than the proportion of those who chose their fields of studies in non-VTE with interest. That only 16 per cent of the non-VTE students made their choices according to interest does not, however, necessarily mean

that the 84 per cent would have opted for VTE. It means that in the non-VTE category subsuming social science and science, only 16 per cent have managed to find a place in the departments of their first and second choices.

TABLE 6.7 also shows that in earlier years, the proportion of students who joined VTE (55 per cent) was much higher than at present (18 per cent), and suggests the 'unwillingly to VTE' trend to be a rather recent development. The development of this trend can be accounted partly by the expansion of non-VTE facilities - a responsibility less challenging for the government than VTE expansion in view of the high cost burden per VTE student - and partly by the expansion of university enrolment and the growing emphasis in the labour market of university diploma as a basis for employment.

In the non-VTE case also, the probability of being placed in the areas of interest appears to have deteriorated over the years. Whereas in the past, there was a 42 per cent chance of being placed according to interest, now the probability has fallen to 16 per cent. There is, however, little for surprise in this development. The growing demand for the acquisition of non-VTE qualification has led to a rapid expansion of non-VTE enrolment straining the accommodative capacity of the various departments in the non-VTE area. Growing competition for enrolment has subsequently meant that students have had to adopt areas of study which do not



necessarily correspond to their choice of interest. At the 'ten-plus-three' level, entry to VTE is no less competitive than entry to the non-VTE streams, so that VTE cannot be considered to be a repository for those who satisfy their choice in non-VTE. Not so, however, at the 'twelve-plus-two' level where those who are edged out by competitive pressures in the search for a place in non-VTE could - as often is the case - end up enrolling in VTE.

About 80 per cent of the students in VTE are not happy with their areas of study and would have opted for non-VTE streams like agriculture, engineering, medicine and social science among others (see TABLES 6.11 and 6.12). The implication of this for the rate of flow of VTE graduates will be discussed in 6.3.3.2 below. What needs to be noted here is that there is clear evidence of weak preference for VTE. This weak preference is at the heart of the slow rate of expansion of VTE enrolment, and also of VTE graduates. Given the slow rate of VTE enrolment expansion and all other factors remaining unchanged, the supply of VTE graduates could further be constrained by factors affecting the rate of attrition. But as shown below, other things cannot be readily assumed to remain unchanged.

TABLE 6.11

DISTRIBUTION OF VTE STUDENTS ACROSS AREAS OF STUDY

AREA OF STUDY	P R E F E R E N C E		
	YES	NO	TOTAL
AUTOMECHANICS	19 (76.0)	6 (24.0)	25 (100.0)
BUSINESS	31 (81.6)	7 (18.4)	38 (100.0)
DRAFTING	14 (93.3)	1 (6.7)	15 (100.0)
ELECTRICITY	17 (85.0)	3 (15.0)	20 (100.0)
METAL	10 (66.7)	5 (33.3)	15 (100.0)
WOOD	14 (93.3)	1 (6.7)	15 (100.0)
TOTAL	105 (82.0)	23 (18.0)	128 (100.0)

(The figures in parentheses are percentages)

6.3.3.2. ATTITUDES OF VTE GRADUATES TOWARDS VTE-RELATED OCCUPATIONS

From TABLE 6.7, it can be observed that a substantial proportion of those who opted for VTE do so with interest. Their motives may be suspect at times, but the evidence deriving from the sample data suggest that for the most part they could be opportunistic and cannot, therefore, be trusted to pursue their occupation along areas circumscribed by VTE qualifications. In the circumstances, the small size of VTE graduate turnover every year could be further diminished by the graduates

TABLE 6.12

## PREFERRED AREAS OF CHOICE FOR VTE STUDENTS

AREA OF STUDY	PREFERRED AREA OF STUDY					TOTAL
	AGRICULTURE	ENGINEERING	MEDICINE	SOCIAL SCIENCE	OTHER	
AUTOMECHANICS	0 (0.0)	16 (84.2)	2 (10.5)	0	1 (5.3)	19 (100.0)
BUSINESS	2 (6.5)	1 (3.2)	3 (9.7)	24 (77.4)	1 (3.2)	31 (100.0)
DRAFTING	0	6 (42.9)	3 (21.4)	3 (21.4)	2 (14.3)	14 (100.0)
ELECTRICITY	0	16 (94.1)	1 (5.9)	0	0	17 (100.0)
METAL	2 (20.0)	4 (40.0)	2 (20.0)	0	2 (20.0)	10 (100.0)
WOOD	1 (7.1)	8 (57.1)	2 (14.4)	3 (21.4)	0	14 (100.0)
TOTAL	5 (4.8)	51 (48.5)	13 (12.4)	30 (28.6)	6 (5.7)	105 (100.0)

(The figures in parentheses are percentages)

themselves opting out of the VTE system where and when this is possible. Where venues for opting out are difficult to negotiate, as is the situation in Ethiopia at present, the unattractiveness of VTE prospects could translate into dissatisfaction and frustration of individuals with VTE qualification, thus reducing the size of effective supply of VTE skills in the Ethiopian labour market.

In both the student and employee cases, interest in VTE is central to the question as to whether they will



stick to VTE occupations or opt out of VTE altogether when the opportunities arise. For instance, TABLE 6.13 shows that of the 23 students who said they joined VTE out of interest, only four or (17.4 per cent) would happily settle with diploma. The rest express their aspirations for higher degrees, mostly at the post-graduate level. A similar pattern also holds for the VTE employees as shown in TABLE 6.13.

This aspiration for higher degrees would cast some doubts as to whether the 19 students and the 73 employee respondents in TABLE 6.13 did really join VTE out of interest in first place. VTE is specifically designed for the supply of middle level technical skill for business, industry and educational services; and there is to date no scope in Ethiopia for VTE training at degree level, except in the case of the business education department of the Faculty of Education at Addis Ababa University which was launched in 1987.

So, it can be surmised that these degree seekers are either: a) really interested in VTE as they indicated, but that they would rather upgrade their vocational/technical skills later on by seeking higher educational opportunities in relevant areas; or b) their choice for VTE, far from being based on interest, is random at best and opportunistic at worst. The empirical validity of these propositions can be examined with reference to the experience of those already in employment.

TABLE 6.13

EXPRESSED DESIRE OF LEVEL OF EDUCATION FOR VTE STUDENTS AND EMPLOYEES

	DESIRED LEVEL OF EDUCATION			ACHIEVED LEVEL OF EDUCATION			
	WITH INTEREST	WITHOUT INTEREST	TOTAL	WITH INTEREST	WITHOUT INTEREST	TOTAL	
VTE STUDENTS	DIPLOMA	4 (17.4)	10 (9.5)	14 (10.9)			
	BA	2 (8.7)	12 (11.4)	14 (10.9)			
	MA	8 (34.8)	26 (24.8)	34 (26.6)			
	PHD	9 (39.1)	56 (53.3)	65 (50.8)			
	OTHER	0	1 (1.0)	1 (0.8)			
TOTAL	23 (100.0)	105 (100.0)	128 (100.0)				
VTE EMPLOYEES	DIPLOMA	5 (6.4)	3 (4.6)	8 (5.6)	58 (74.4)	46 (70.7)	104 (72.7)
	BA	34 (43.6)	23 (35.4)	57 (39.8)	8 (10.8)	7 (10.5)	15 (10.5)
	MA	18 (23.1)	18 (27.7)	36 (25.2)	8 (10.3)	5 (7.7)	13 (9.1)
	PHD	16 (20.5)	15 (23.1)	31 (21.7)	0	2 (3.1)	2 (14.0)
	OTHER	5 (6.4)	6 (9.2)	11 (7.7)	4 (5.1)	5 (7.7)	9 (6.3)
TOTAL	78 (100.0)	65 (100.0)	143 (100.0)	78 (100.0)	65 (100.0)	143 (100.0)	

CONTND.

		DESIRED LEVEL OF EDUCATION			ACHIEVED LEVEL OF EDUCATION		
		WITH INTEREST	WITHOUT INTEREST	TOTAL	WITH INTEREST	WITHOUT INTEREST	TOTAL
	DIPLOMA	2 (6.2)	0	2 (2.6)	9 (28.1)	28 (63.6)	37 (48.7)
	BA	6 (18.8)	16 (36.4)	22 (29.0)	12 (37.5)	9 (20.5)	21 (27.6)
NON-VTE	MA	11 (34.4)	12 (27.3)	23 (30.3)	5 (15.6)	3 (6.8)	8 (10.5)
	PHD	5 (15.6)	9 (20.5)	14 (18.4)	3 (9.4)	1 (2.3)	4 (5.3)
EMPLOYEES	OTHER	8 (25.0)	7 (28.0)	15 (19.7)	3 (9.4)	3 (6.8)	6 (7.9)
	TOTAL	32 (100.0)	44 (100.0)	76 (100.0)	32 (100.0)	44 (100.0)	76 (100.0)

(The figures in parentheses are percentages)

Of those VTE employees who said they joined VTE out of interest, 74.4 per cent have non-degree qualifications (see TABLE 6.13). Although this appears to square with their expressed reason for opting for VTE, it is not consistent with the data relating to their educational aspiration. In fact only 6.4 per cent would be happy with middle level qualification, and the other 93.6 per cent would rather pursue further education leading to the achievement of higher degrees.

TABLE 6.13, comparing the desired and achieved level of educational qualifications for VTE employees shows the prevalence of unfulfilled educational objectives among



the majority of the respondents. Underfulfilment of educational objectives can be a cause for frustration; and labour force given to frustration is generally unstable and cannot, therefore be expected to provide a sound basis for productivity improvement and technological development. What is the extent of frustration in VTE and how does this compare with that applying to the relevant non-VTE population in the sample?

TABLE 6.14 (derived from TABLE 6.13) compares the shortfalls in the level of educational achievement from the desired level of educational qualification for

TABLE 6.14

RATIO OF ACHIEVEMENT TO EXPECTATION OF VTE AND NON-VTE EMPLOYEES				
RATIO OF ACHIEVEMENT TO EXPECTATION FOR				
LEVEL OF EDUCATION	THOSE WHO JOINED VTE WITH INTEREST	THOSE WHO JOINED VTE WITHOUT INTEREST	THOSE WHO JOINED NON-VTE WITH INTEREST	THOSE WHO JOINED NON-VTE WITHOUT INTEREST
DIPLOMA	11.60	15.30	4.50	a
BA	0.24	0.30	2.00	0.56
MA	0.44	0.27	0.45	0.25
PHD	0.00	0.13	0.60	0.11
OTHER	0.80	0.83	0.38	0.43
RATE OF ASPIRATION FOR HIGHER DEGREES	0.872	0.862	0.687	0.841
RATE OF ACHIEVEMENT	0.235	0.250	0.909	0.351
RATE OF 'FRUSTRATION'	0.637	0.612	-0.222	0.490

VTE and non-VTE employees in terms of the ratio of achievement to expectation. It can be seen that generally the shortfalls at the various levels of qualification are more pronounced in the case of VTE than they are in the case of non-VTE. The 'rate of aspiration' for higher degrees is higher for VTE than for non-VTE. On the other hand, the 'rate of achievement' of higher degrees is lower for VTE than for non-VTE. The 'rate of frustration', which is the difference between the 'rate of aspiration' and the 'rate of achievement', is markedly lower in non-VTE than in VTE. Indeed, in the case of those who joined non-VTE with interest, the 'rate of frustration' is less than zero implying the absence of any frustration. Frustration is evident in the case of those who joined non-VTE without interest. The observation that the rate of frustration for VTE is higher than it is for non-VTE is not, however, surprising in view of the fact that those who opt for non-VTE with or without interest have, generally speaking, a better chance to further their education and enhance their income earning opportunities than those who opt for VTE.

The attitude of VTE graduates towards VTE-based occupations are in the final analysis influenced by the income and promotion prospects associated with such occupations. Poor prospects in VTE as against non-VTE, mean that VTE graduates would be least inclined to stick

to VTE-related occupations. Under such circumstances, they would hold on to their occupations only reluctantly, hankering for other opportunities to arise for them, so that they can opt out of the VTE system altogether.

We have seen earlier in this chapter (see TABLE 6.7) that income has not been a factor in both the VTE and non-VTE categories of the sample with immediate influence on individuals' choice of field of study. It has also been shown that the income factor cannot be duly written off as a factor influencing decisions as income opportunities can be expected to expand in the future with improvements in work experience and educational qualification. But from TABLE 6.15, it is apparent that dissatisfaction with income and promotion prospects, though common to both VTE and non-VTE related occupations, is nonetheless relatively more wide spread in the former than in the latter. Whereas 51 per cent of the VTE employee respondents consider income and promotion prospects to be 'below average' by the Ethiopian standard, 45 per cent do so in the case of non-VTE employees. About 42 per cent of the VTE respondents in TABLE 6.15 consider their income improvement prospect to be 'average' as against 45 per cent of the non-VTE respondents. About 8 per cent of the VTE respondents consider their prospects to be 'above average' as against 11 per cent for non-VTE.



TABLE 6.15

## INCOME AND PROMOTION PROSPECT FOR VTE AND NON-VTE EMPLOYEES

IS INCOME AND PROMOTION PROSPECT				
GROUP	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	TOTAL
JOINED VTE WITH INTEREST	38 (48.7)	32 (41.0)	8 (10.3)	78 (100.0)
JOINED VTE WITHOUT INTEREST	35 (53.8)	26 (40.0)	4 (6.2)	65 (100.0)
TOTAL	73 (51.0)	48 (40.6)	12 (8.4)	143 (100.0)
JOINED NON-VTE WITH INTEREST	15 (46.9)	14 (43.8)	3 (9.3)	32 (100.0)
JOINED NON-VTE WITHOUT INTEREST	19 (43.2)	20 (45.5)	5 (11.3)	44 (100.0)
TOTAL	34 (44.7)	34 (44.7)	8 (10.6)	76 (100.0)

(The figures in parentheses are percentages)

TABLE 6.16

## JOB SATISFACTION EXPRESSED BY VTE EMPLOYEES

QUALIFIED FOR BETTER JOB?				
GROUP	YES	NO	DON'T KNOW	TOTAL
JOINED WITH INTEREST	67 (85.9)	9 (11.5)	2 (2.6)	78 (100.0)
JOINED WITHOUT INTEREST	55 (84.6)	7 (10.8)	3 (4.6)	65 (100.0)
TOTAL	122 (85.3)	16 (11.2)	5 (3.5)	143 (100.0)

(The figures in parentheses are percentages)

These observations are suggestive - not, however, conclusive - of the possibility that those destined to take up jobs in VTE-related areas and those who are already in such jobs might not, given the opportunity, opt to remain wedded to VTE related occupations for long. This view is reinforced by the observation in TABLE 6.16 that 85 per cent of VTE employees are not happy with their present jobs and feel that they are qualified for better jobs.

#### 6.3.3.3. EMPLOYMENT EFFECTIVENESS OF VOCATIONAL/TECHNICAL TRAINING

The effectiveness of vocational/technical training to the needs of employers in the labour market depends directly on the availability of well qualified teachers and adequate teaching facilities. It was shown in chapter V that the limited availability of educational finance for VTE has not only constrained the expansion of VTE enrolment but also reduced the quality of VTE graduates, who, despite formal qualification, would still need to be further retrained in their specific skill categories before they can be effectively employed.

An attempt has been made in the sample survey to determine the extent of ineffectiveness of vocational/technical training to employers' requirements by eliciting relevant information from VTE employees. As regards the usefulness of VTE for current employment, 15

per cent of the 143 VTE employees surveyed considered their respective qualifications to be of little or no use; and only 14 per cent felt that they are over-qualified for the current job (see TABLE 6.17). Also about 74 per cent of those in VTE - 68 per cent of VTE

TABLE 6.17

RELEVANCE OF VTE QUALIFICATION TO EMPLOYMENT

GROUP	VTE USEFULNESS TO CURRENT EMPLOYMENT			CAN PRESENT EMPLOYMENT BE OBTAINED WITH LESS QUALIFICATION?			
	USEFUL	LITTLE OR OF NO USE	TOTAL	YES	NO	DON'T KNOW	TOTAL
JOINED WITH INTEREST	71 (91.0)	7 (9.0)	78 (100.0)	10 (12.8)	57 (73.1)	11 (14.1)	78 (100.0)
JOINED WITHOUT INTEREST	50 (76.9)	15 (23.1)	65 (100.0)	10 (15.4)	50 (76.9)	5 (7.7)	65 (100.0)
TOTAL	121 (84.6)	22 (15.4)	143 (100.0)	20 (14.0)	107 (74.8)	16 (11.2)	143 (100.0)

(The figures in parentheses are percentages)

TABLE 6.18

QUALIFICATION TO WORK IN INDUSTRY FOR VTE STUDENTS AND EMPLOYEES

GROUP	TRAINING QUALIFY YOU FOR INDUSTRY?			
	YES	NO	DON'T KNOW	TOTAL
VTE EMPLOYEES	114 (79.7)	17 (11.9)	12 (8.4)	143 (100.0)
VTE STUDENTS	87 (68.0)	47 (23.4)	11 (8.6)	128 (100.0)
TOTAL	201 (74.2)	47 (17.3)	23 (8.5)	115 (100.0)

(The figures in parentheses are percentages)



TABLE 6.19

## RETRAINING NEEDS FELT BY VTE EMPLOYEES

GROUP	IS THERE A NEED FOR RETRAINING?				FREQUENCY AND DURATION OF RETRAINING				
	YES	NO	DON'T KNOW	TOTAL	EVERY YEAR	EVERY FIVE YEARS	EVERY TEN YEARS	OTHER	TOTAL
JOINED WITH INTEREST	62 (79.5)	16 (20.5)	0	78 (100.0)	32 (51.6)	24 (38.7)	2 (3.2)	4 (6.5)	62 (100.0)
JOINED WITHOUT INTEREST	53 (81.5)	12 (18.5)	0	65 (100.0)	19 (35.8)	32 (60.4)	0	2 (3.8)	53 (100.0)
TOTAL	115 (80.4)	18 (19.6)	0	143 (100.0)	51 (44.3)	56 (48.7)	2 (1.7)	6 (5.2)	115 (100.0)

(The figures in parentheses are percentages)

students and about 80 per cent of VTE employees - had no doubt that their training would qualify them to work in industry (see TABLE 6.18). This means the usefulness of VTE qualification for employment application is generally recognised. Recognition of its usefulness, as evidenced in the majority of the VTE employees surveyed, does not, however, mean that the respective graduates are adequately equipped with the required skills. TABLE 6.19 for instance shows 80 per cent of VTE employees who said they would need retraining on top of their formal VTE qualification. Of these, 44 per cent felt the need for retraining on a yearly basis, 49 per cent on a once every five year basis, and 2 per cent on a once in ten year basis. Not all of the 115 who felt the need for retraining, however, had the chance to be retrained. This is because facilities for informal training are in short supply in the country as a whole. Few employing agencies

like the Ethiopian Airlines and the commercial banks would provide facilities for retraining employees with prior formal VTE qualification; and some others - also the Ethiopian Airlines itself - like the Ethiopian Road Authority, the Ethiopian Electric light and power Authority, the Ethiopian Telecommunications would rather train their technical employees in the first place, thus expressing their doubts about the effectiveness of formal VTE qualification for their respective needs.

This situation is, however, at odds with the survey result whereby about 94 per cent of the VTE teachers said their training would qualify them to teach in VTE programmes, and felt to be competent enough to teach in such programmes (see TABLE 6.20). To the extent that these responses are not objectively constrained, they cannot be taken at face value as conclusive evidence to the argument which puts the burden of lack of rigour in VTE training on the quality of teachers. They nonetheless would suggest the major constraint on the rigour of VTE training to derive from inadequate provision of teaching facilities - namely, machinery and equipment and teaching materials.

According to TABLE 6.20, which is based on information obtained from 118 VTE teachers, the major constraints on the effectiveness of vocational/technical training include inadequacy of the VTE curriculum, shortage of supply of teaching materials and teaching

TABLE 6.20

## RESPONSE OF VTE TEACHERS ON CONSTRAINTS ON THE PROVISION OF VTE

CONSTRAINTS	NUMBER OF VTE TEACHERS WHO SAID			TOTAL
	YES	NO	DON'T KNOW	
1. CURRICULUM CONSTRAINT: IS INDUSTRIAL TRAINING PART OF VTE TRAINING?	14 (11.9)	104 (88.1)	0	118 (100.0)
2. IS VTE PROVISION CONSTRAINED BY BUDGETARY ALLOCATION?	82 (69.5)	28 (23.7)	8 (6.7)	118 (100.0)
3. IS VTE TRAINING CONSTRAINED BY SHORTAGE OF SUPPLY OF TEACHING AIDS - MACHINERY AND EQUIPMENT?	80 (67.8)	38 (32.2)	0	118 (100.0)
4. IS VTE TRAINING CONSTRAINED BY SHORTAGE IN SUPPLY OF TEACHING MATERIALS?	92 (78.0)	25 (21.2)	1 (0.8)	118 (100.0)
5. IS TEACHER QUALIFICATION AND COMPETENCE A SERIOUS CONSTRAINT?	6 (5.1)	111 (94.1)	1 (0.8)	118 (100.0)

(The figures in parentheses are percentages)

TABLE 6.21

## VTE TEACHERS' RESPONSE ON THE NUMBER OF STUDENTS IN PRACTICAL CLASSES

CASES: NUMBER OF VTE STUDENTS IN PRACTICAL CLASSES	NUMBER OF VTE TEACHERS REPORTING CASES	% OF TOTAL
1 - 5	14	11.9
16 - 25	77	65.3
26 - 35	23	22.8
TOTAL	118	100.0



TABLE 6.22

## VTE TEACHERS' RESPONSE ON THE NUMBER OF STUDENTS IN PRACTICAL CLASSES

CASES: NUMBER OF VTE STUDENTS PER MACHINE	NUMBER OF VTE TEACHERS REPORTING CASES	% OF TOTAL
1 - 3	29	24.6
4 - 7	79	66.9
6 - 12	10	8.5
TOTAL	118	100.0

aids including machinery and equipment and inadequate budgetary allocations to VTE. This is largely corroborated by the data on TABLE 6.21 and 6.22 showing respectively that in the majority of cases of vocational/technical training, practical classes involve large number of students, and the student/machine ratio in such classes is high, thus reducing the effectiveness of the training. Teacher qualification and competence does not appear to be a serious problem at all; But, of course, there is possible ground to doubt the weight of this evidence insofar as it originates from the teachers themselves.

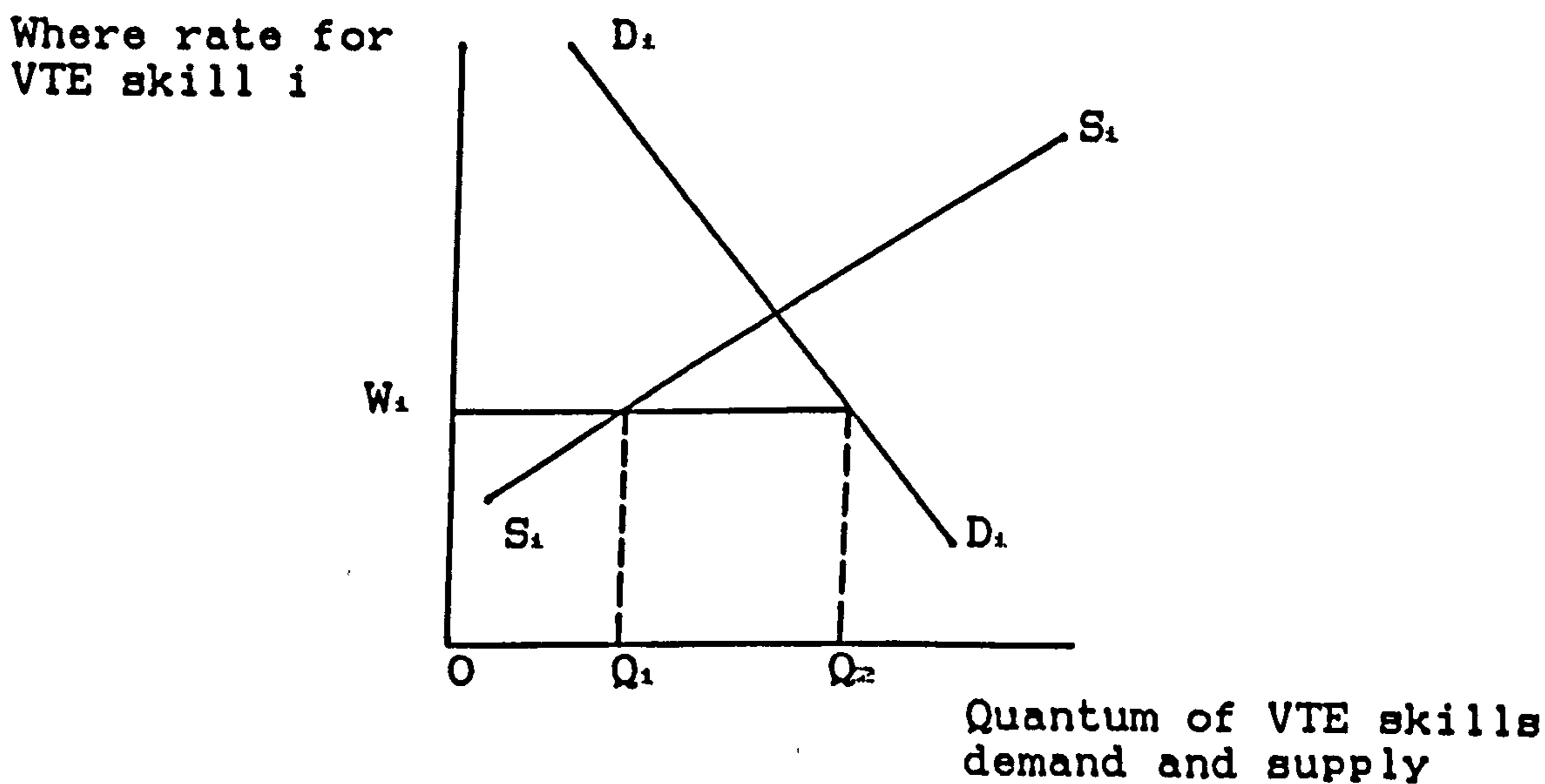
#### 6.3.4. EMPLOYERS RESPONSE TO GROWING DEMAND FOR VTE, AND ITS EFFECT ON VTE SUPPLY

In this section, we intend to explore the question as to how the labour market in Ethiopia responds to the growing demand for middle level technical manpower; how the

prevailing wage structures relate to the changing circumstances in the supply of and demand for VTE skills, and the implication of present labour market conditions for the future supply of VTE skills.

The condition of the labour market in Ethiopia with respect to VTE skills can conceptually be represented by FIGURE 6.1. The problem with the labour market in Ethiopia is that it is not operating at all. Social barriers and institutional constraints abound, making it difficult for the demand and supply functions to be clearly expressed as shown in FIGURE 6.1.

FIGURE 6.1. DEMAND FOR AND SUPPLY OF VTE SKILLS OF THE  $i$ th CATEGORY; (Where  $i = 1 \dots n$ )



- $D_1 D_1$  - demand for VTE skills of the  $i$ th category
- $S_1 S_1$  - Supply of VTE skills of the  $i$ th category
- $W_1$  - Wage rate applying to VTE skills of category  $i$

FIGURE 6.1 shows that the various categories of VTE skills ( $i = 1 \dots n$ ) are characterised with excess of demand over supply. Given the supply and demand functions, the excess of demand over supply persists - a real problem indicated in chapter IV - because corresponding wage rates are inflexible being bureaucratically determined. Thus the starting monthly salary for the 'ten-plus-three' VTE graduates is fixed at 285 Birr and that for the 'twelve-plus-two' VTE graduates at 347 Birr, irrespective of changes in the labour market conditions.\* The labour market in Ethiopia is at present dominated by the public sector, and a free interaction between the forces of demand and supply is out of the question. The range of employers of VTE graduates is limited, and, what is more, most of these are in the public sector. VTE graduates have the options either to settle at the going wage rate and perhaps count on the prospects of future improvement depending on years of experience, or, should they find this unsatisfactory, to withdraw from public sector employment altogether with the aim to be set up in their own business or to pursue other lines of training.

In the context of FIGURE 6.1,  $OQ_1$  will settle with going wage rate, leaving a supply gap of  $Q_1Q_2$ . To the extent that wages are not determined by market forces and the Central Personnel Agency (CPA) rates are to apply

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\*See TABLE 4.16 in chapter IV



instead, the supply gap is bound to persist. The dominance of bureaucratic orders in the rigidly defined Ethiopian labour market means that supply cannot be properly adjusted to changing demand conditions. Instead, wages would remain unchanged in the face of supply shortages, and employers would, in the circumstances, either end up recruiting people with skills unsuitable to meet their specific needs - hence giving rise to a mismatch between skill supply and demand\* - or be left to operate at slow pace for lack of the relevant skills.\*\* Nor is it within the employers' jurisdiction to bid up wages in order to attract the relevant skills. At best what they can do is to ask the Central Personnel Agency to recruit the relevant skill for them, and where the CPA cannot do this and delegates the recruitment task to the employers themselves, the employers would still need the

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\*This problem may not, however, be preponderant. For instance, according to TABLE 6.17, only 15 per cent of the VTE employees covered in the sample appear to find their formal training to be of little or no use to their current employment.

\*\*Overtime work by those already in employment could be used to make up for the shortage of supply of relevant skills. But this is not an easy option for employers in the context of the Ethiopian labour market. In the first place, overtime rates are expensive. Moreover, meeting the expenses for overtime employment would require approval by relevant authorities, which, however, often involves lengthy procedures. Where the overtime payments cannot be committed for reasons of budgetary constraint, overtime work is compensated by paid holidays. This does not, however, solve the problem of shortage of skills.

CPA to approve the credentials of the individuals to be recruited, and the salary are then be set according to CPA scales. CPA scales are basically determined by years of schooling across the various disciplines, and subsequent changes in salaries are based on years of work experience, albeit often qualified by competence.

Given the shortage in the supply of middle level technical skills provided by VTE graduates and felt in the various sectors of the Ethiopian economy, one would expect wage rates to be higher than at present if the labour market was operating free of social barriers and institutional constraints. Alternatively, the effect of the social stigma attached to VTE qualification can be substantially eroded if wages of VTE graduates are made to incorporate a social premium in order to make VTE attractive. Neither of these, however, obtains to date in Ethiopia. Indeed, from TABLE 6.15, it can be noticed that the dissatisfaction with income is more widespread among individuals with VTE qualification than among those with non-VTE qualification.

The question now arises: what is the feedback effect of the prevailing labour market conditions on the flow of the supply of VTE skills? The degree of satisfaction or dissatisfaction of VTE employees with their jobs and their incomes can be expected to have a bearing on the disposition of individuals towards VTE, particularly at the point where choice has to be made between VTE and



non-VTE in the determination of broad fields of study. Frustration among VTE employees in general is, for example, likely to reduce the interest of prospective members of the educated labour force in VTE; so, they would in most cases, either avoid VTE or adopt it unwillingly.

It can be seen from TABLE 6.7 that attitudes towards VTE have changed much over the years. In the past, about 55 per cent of those who opted for VTE did so with interest. The proportion has now sharply declined to 18 per cent. Insofar as this decline corresponds to the depressed state of VTE prospects, one can risk the hypothesis that interest in VTE would have remained high had it not been for restrictive labour market conditions, and the pariah status society arrogates to VTE. TABLE 6.7 also shows that whereas in the past 42 per cent of those who went for non-VTE lines of study did so out of interest, only 16 per cent do so now. Thus, in non-VTE, as in the case of VTE, interest-based choice of fields of study has markedly declined over the years. But, of course, this is not the end of the story. It is shown in TABLES 6.14-6.16 that VTE graduates are generally more frustrated than their non-VTE counterparts in terms of fulfilling their aspiration for higher education, income and promotion prospects, and job satisfaction. This is so because venues for improvement and for the correction of choice of field of study once made without interest are



more wide open in non-VTE than in VTE.

#### 6.4. CONCLUSION

In the foregoing analysis, an attempt has been made to explain the persistence of supply shortfalls in vocational and technical skills by looking into the relationship between individuals with respect to their preference between VTE and non-VTE courses, the educational institutions, and the labour market absorbing the output of the education sector.

It was found out that individuals' preference for VTE as against non-VTE cannot be explained thoroughly in terms of differences in the age, sex and socio-economic background of individuals. Individuals opt for VTE mainly for reasons of interest in the area of study, quick employment, lack of alternative options, and other factors including, inter alia, lack of guidance, and peer group and family influence. The majority of those already in VTE do not appear to have their choice directly influenced by the immediate salary prospects. What interests them instead is the long term income prospects they envisage through prospects for further education. This is also the case with those in non-VTE. But the evidence deriving from the analysis of the survey data suggests that prospects for further education, better income and employment conditions and subsequent job satisfaction are wider in non-VTE than in VTE cases. This

situation appears to have had the effect of reducing the proportion of those who joined VTE with interest. Where VTE is picked up with reluctance in the first place, and there is no evidence of interest in VTE emerging during the course of study, VTE graduates are more likely to default in favour of other non-VTE lines of training and occupation. In the case of those already in VTE-related employment, there is evidence of frustration. VTE qualifications are nonetheless generally recognised to be well suited to employment needs in principle. In practice, the rigour of training appears to leave much to be desired; and most of the VTE-employees covered in the sample felt the need for retraining thus indicating that formal training, in the manner hitherto practised, is not enough to enable individuals to take up VTE job responsibilities with confidence.

The supply shortfall with respect to middle level technical/vocational skills can, on the basis of our analysis above, be attributed to the declining interest in VTE, the lack of career improvement prospects in VTE-related occupations, and the lack of rigour in formal VTE. Militating against prospects for overcoming this problem of supply shortfall is the rigidly defined labour market where wages are determined according to bureaucratic dictates rather than by the interplay of the forces of supply and demand.

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

In the foregoing chapters of this study, attempt has been made to discuss broadly the importance of vocational and technical education in poor but growing economies, and to investigate in detail the factors behind the demand for and supply of middle level technical skills in the context of the Ethiopian economy. The definition of education as between vocational and non-vocational general academic has been a point of debate in recent years. This growing concern for a fresh look at the issue of education and development reflects the underlying difficulty of striking a balance between vocational and general academic education in educational planning. It also calls to question the dash for the strategy of 'vocationalising' schools subscribed by the 'moderate-reformist' approach to educational planning. It does not, however, amount to writing off the importance of the role that vocational technical skills play in the development process.

The empirical analysis of this study turns on the propositions that a) vocational and technical education (VTE) in Ethiopia has traditionally been a neglected sector in relation to non-vocational, general academic education; and b) this neglect of VTE has persisted over the years not because of the lack of demand for people



with technical skills in the economy, but for reasons relating partly to cultural ethos reflected in the reluctance - indeed disdain - of individuals to opt for education that would give them manipulative skills, and partly to the lack of commitment, on the side of policy, to make more funds available for teaching staff development as well as for the expansion of relevant facilities.

These hypotheses were tested against relevant data obtained from secondary published and unpublished sources and from a sample survey conducted in Addis Ababa, covering 420 individuals; and the evidence deriving from the results of the analysis of the data, was found to be consistent with the hypotheses of the study.

The major contributions of the study are embodied in chapters V and VI. The first four chapters of the study set the background to the problem subject to investigation. Crudeness of available data on skills supplied and demanded notwithstanding, it was shown in chapter IV that there is a chronic shortage of supply of middle level vocational and technical skills of various categories in Ethiopia. Ironically enough, this shortage prevails in the face of declining rates of growth as regards VTE enrolment and expenditures on VTE. Chapter V and VI investigate why this should be so. Chapter V explains the problem in terms of the constraints on educational planners. For a start, planners are

constrained by the limited supply of investment resources at their disposal. Insofar as this constraint derives from the poverty of the Ethiopian economy, it is a problem which is not exclusive to VTE. But the fact that the provision of VTE per student is 14 to 19 times more expensive than non-VTE is not likely to make it popular among planners operating subject to acute resource constraint. In the circumstances, VTE institutions have been vulnerable to shortages of qualified teachers, and teaching aid facilities and teaching materials. This has had a direct bearing not only on the expansion of VTE enrolment and subsequent turnover of VTE graduates, but also on the effectiveness of vocational technical training and, subsequently, on the quality of the graduates themselves. A second factor constraining the operation of educational planners in Ethiopia has been the absence of robust data on the relevant fields of planning. In consequence, the allocation of funds between VTE and non-VTE is bound to be determined arbitrarily, depending on the political whims of the policy makers. This problem is further complicated by the absence of any clear perspective of educational planning - a problem which has nonetheless been at the heart of the failure of educational plans in many developing countries.

Chapter VI like chapter V also explains the problem of persistent shortage in the supply of VTE skills, but from the point of view of the attitudes of individuals

towards VTE and their demand for VTE. On the basis of the survey data, it is shown that there is an underlying decline of interest in VTE precipitated mainly by the socially and economically unattractive career prospects associated with VTE-related occupations. This means that less and less people would opt for VTE and those enrolling in VTE unwillingly, as it were, would constitute a growing proportion of total VTE enrolment every year. The 'unwillingly to VTE' trend is exacerbated by the absence of institutionalised mechanisms of career guidance and counselling. The guidance hitherto offered by friends, families, and teachers is often casual, and is hence no better substitute for the random choice of options.

It is also shown that those already in VTE-related employment are, in contrast to their non-VTE counterparts, given to a high 'rate of frustration' arising from unfulfilled educational and occupational aspirations. This means that, given the opportunity, quite a sizeable proportion of VTE employees at present would relinquish their VTE-related employment in favour of either the pursuit for higher education - possibly in altogether different fields - or non-VTE related employment, thus diminishing the size of effective supply of VTE skills in the labour market. Undermining prospects for overcoming this problem of supply shortfall is the rigidly defined labour market where wages are determined



according to bureaucratic dictates rather than by the free interplay of supply and demand.

It may now be asked: what are the major policy measures that will need to be adopted to resolve the problem of excess demand over supply with respect to VTE skills? One possible way of overcoming the chronic shortfall in the supply of VTE skills is to liberalise the market for skills, so that wages corresponding to the various skill categories will be determined freely on the basis of the relevant supply and demand functions. This will, however, call for a root and branch change of economic policy, and may be considered a tall order in the light of present political circumstances in Ethiopia.

The high cost per student in VTE has hitherto been the major argument against the allocation of increased investment fund to this sector. But it should be noted that the cost argument, however legitimate, can only be judged in the light of returns to investment in VTE. Insofar as there is scope for cost-effective operation, however, measures will need to be devised for reducing the cost per head that the provision of VTE involves. One such measure is streamlining the task of materials procurement and management which has hitherto been open to gross abuse. Inefficient materials procurement and management is certainly a major factor behind the high cost of education. Another possible cost-reducing measure is the substitution of locally available materials for

imported teaching materials. This may be possible to a certain extent like in the provision of work benches, films, slides, etc. But even then, there is no a priori reason to believe that the cost of domestic production of wide range of teaching materials will be competitive in relation to imported ones. The cost factor notwithstanding, the import substitution of teaching materials has the advantage of creating demand for the application of VTE skills.

Resources that could be saved from the efficient organisation of the VTE system can be used for purposes of facility improvement and expansion and teaching staff development.

It is also important that the VTE curricula are streamlined to make the training process effective and well geared to the needs of employers. In this respect, it would be profitable to involve prospective employers of VTE graduates in the process of curricular development, and to provide provisions for VTE students to be able to gain practical experience with their prospective employers as part and parcel of the training process. This arrangement will also help reduce the retraining costs incurred by employers and increase employers' confidence in the training programmes offered by VTE schools.

VTE programmes should be designed to appeal not only to prospective employers of students, but also to the

students themselves. This will require the adoption of a wide range of measures for improving the employment, income and promotion prospects of VTE graduates. One such measure is to create provisions for VTE graduates to have further formal education. This will help undermine the traditional belief that VTE is inferior to non-VTE. Another possible measure is the creation of conditions for VTE graduates to apply their skills gainfully in self employment enterprises. This will certainly call for the adoption of a set of policies encouraging the growth of the private sector in business and industry. VTE skills are generally capable of providing the basis of lucrative business enterprises, which, starting on the back of domestically generated demand, can, under ideal circumstances, develop into export success stories. A possible case in point in this respect is the development of computer soft-wares industry. This industry is skill-intensive in character. Its skill-intesiveness does not, however, disqualify its relevance since the required skills can be produced at the 'ten-plus-three' and 'twelve-plus-two' levels of VTE programmes.

It is important that individuals seeking education and, beyond that, better prospects for employment and income, consider VTE in its proper perspective shaking themselves out of traditional stereotypes that have more often than not been responsible for the relegation of VTE to the choice of last resort. The restoration of VTE from



the relegation inflicted on it by the pride and prejudice of tradition can be achieved, inter alia, by the provision of a well oriented and well structured career guidance and counselling service to students, on the one hand, and by the liberalisation of the market for skills, on the other.

## APPENDIX I

Girma Molla  
David Livingstone Institute of  
Overseas Development Studies  
University of Strathclyde  
16 Richmond Street  
Glasgow G1 1XQ  
United Kingdom

Dear Sir or Madam,

I am reading for a Doctorate at David Livingstone Institute of Overseas Development Studies, University of Strathclyde. My research topic is "The State of Vocational and Technical Education in Ethiopia". As part of the study, I am conducting a sample survey of people and institutions involved in academic and Vocational and Technical Education in the Addis Ababa area. This is being done on a random basis, so that you have been chosen purely by chance. The aim of the survey is to elicit attitudes to the Vocational and Technical sector, in order that I may come to a judgement on the present status of the sector in Ethiopia and on the extent to which this could be an impediment to its future development.

As noted above, your name has been selected at random from the population of Academic and Vocational/Technical oriented people in Addis Ababa area. I should be very grateful if you were able to complete this questionnaire and return it to me in person when I come to your place of work or study. It should take not more than 30 minutes of your time to complete it. By doing so you would render a great service to the development of the profession, Vocational and Technical Education, and the researcher.

The answers that you give would be kept entirely confidential, and would be used for research purpose only. You will notice that your name does not appear anywhere on the questionnaire.

Thank you very much in anticipation.

Yours faithfully

Girma Molla

## QUESTIONNAIRE

This questionnaire is addressed to high school and college students as well as employees already in the profession of Business/Commerce and Industrial education (Automechanics, Drafting, Electricity/Electronics, Metal Technology and Wood Technology), conventionally known as Vocational and Technical Education (VTE).

Please put a CHECK MARK(\_/) in front of the response category which characterises most closely your feeling about the issue. Make sure that you choose ONE AND ONLY ONE response to each question. If you have a response different from the given choices, please write it in the space provided. The answers that you give will be kept confidential and will not be used in such a way as to make it possible to identify you or to know that you have participated in this survey. My sample is a relatively large one, and my findings will only have weight if they reflect numerous responses taken together. Please respond.

Thank you.

\*\*\*\*\*  
\*  
\* PART I. PERSONAL DATA \*  
\*  
\*\*\*\*\*

### 1. Sex

- 1.1. Male \_\_\_\_\_  
1.2. Female \_\_\_\_\_

### 2. Age

- 2.1. Between 16 to 25 years \_\_\_\_\_  
2.2. Between 26 to 35 years \_\_\_\_\_  
2.3. Between 36 to 45 years \_\_\_\_\_  
2.4. Between 46 to 55 years \_\_\_\_\_

### 3. Level of education

- 3.1. 12 \_\_\_\_\_  
3.2. 12+1 \_\_\_\_\_  
3.3. 12+2 (Diploma) \_\_\_\_\_  
3.4. 12+4 (B.A or B.Sc.) \_\_\_\_\_  
3.5. 12+6 (M.A or M.Sc.) \_\_\_\_\_  
3.6. Other (please specify) \_\_\_\_\_



4. What is your present occupation?

- 4.1. Administrator \_\_\_\_\_
- 4.2. Dean \_\_\_\_\_
- 4.3. Director \_\_\_\_\_
- 4.4. Supervisor \_\_\_\_\_
- 4.5. Teacher \_\_\_\_\_
- 4.6. Unit leader \_\_\_\_\_
- 4.7. Student \_\_\_\_\_
- 4.8. Other (please specify) \_\_\_\_\_

5. What is your major area of responsibility or area of study?

- 5.1. Automechanics \_\_\_\_\_
- 5.2. Business/Commerce \_\_\_\_\_
- 5.3. Drafting \_\_\_\_\_
- 5.4. Electricity/Electronics \_\_\_\_\_
- 5.5. Metal Technology \_\_\_\_\_
- 5.6. Wood Technology \_\_\_\_\_
- 5.7. Other (please specify) \_\_\_\_\_

6. What is your minor area of responsibility or area of study?

- 6.1. Automechanics \_\_\_\_\_
- 6.2. Business/Commerce \_\_\_\_\_
- 6.3. Drafting \_\_\_\_\_
- 6.4. Electricity/Electronics \_\_\_\_\_
- 6.5. Metal Technology \_\_\_\_\_
- 6.6. Wood Technology \_\_\_\_\_
- 6.7. Other (please specify) \_\_\_\_\_
- 6.8. No minor \_\_\_\_\_

7. What is the amount of your monthly salary at present?  
(skip if student)

- 7.1. 150 to 350 Birr \_\_\_\_\_
- 7.2. 351 to 550 Birr \_\_\_\_\_
- 7.3. 551 to 1000 Birr \_\_\_\_\_
- 7.4. 1001 to 2000 Birr \_\_\_\_\_
- 7.5. Over 2000 Birr (please specify) \_\_\_\_\_

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 \* PART II. BACKGROUND ON EDUCATION, WORK, AND INCOME \*  
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8. Why did you choose your present occupation or study?  
 (please, check one only)

- 8.1. Interest in the field \_\_\_\_\_
- 8.2. Good prospect of employment \_\_\_\_\_
- 8.3. Good Salary \_\_\_\_\_
- 8.4. Family influence \_\_\_\_\_
- 8.5. To get quick employment and help dependents \_\_\_\_\_
- 8.6. Didn't have a choice \_\_\_\_\_
- 8.7. Other factor (please specify) \_\_\_\_\_

9. Would you have got your present employment if you had received LESS education? (skip if student or unemployed)

- 9.1. Yes \_\_\_\_\_
- 9.2. No \_\_\_\_\_
- 9.3. Don't know \_\_\_\_\_

10. Do you believe your education would qualify you for a job better than the one you have now? (skip if student)

- 10.1. Yes \_\_\_\_\_
- 10.2. No \_\_\_\_\_
- 10.3. Don't know \_\_\_\_\_

11. What do you think of your salary as compared to that of graduates of other programmes? (skip if student)

- 11.1. Below average \_\_\_\_\_
- 11.2. Average \_\_\_\_\_
- 11.3. Above average \_\_\_\_\_

12. What do you think about the promotion prospect of your present occupation or study as compared to that of graduates of other programmes?

- 12.1. Below average \_\_\_\_\_
- 12.2. Average \_\_\_\_\_
- 12.3. Above average \_\_\_\_\_

13. How far do you expect/hope to proceed with your education?

- 13.1. Diploma \_\_\_\_\_
- 13.2. Bachelor's degree \_\_\_\_\_
- 13.3. Masters degree \_\_\_\_\_
- 13.4. Doctoral degree \_\_\_\_\_
- 13.5. Other (please specify) \_\_\_\_\_
- 13.6. Doesn't apply \_\_\_\_\_

14. What is the major objective you expect your pursuit of education would serve?

- 14.1. Aquisition of credentials \_\_\_\_\_
- 14.2. Job entitlement \_\_\_\_\_
- 14.3. Psychological satisfaction \_\_\_\_\_
- 14.4. Better earning \_\_\_\_\_
- 14.5. Doesn't apply \_\_\_\_\_

15. How many years of work experience do you have as a teacher?

- 15.1. 1 to 5 years \_\_\_\_\_
- 15.2. 6 to 10 years \_\_\_\_\_
- 15.3. 11 to 15 years \_\_\_\_\_
- 15.4. 16 to 20 years \_\_\_\_\_
- 15.5. 21 to 25 years \_\_\_\_\_
- 15.6. Other (please specify) \_\_\_\_\_
- 15.7. Doesn't apply \_\_\_\_\_

16. How long is your work experience in business?

- 16.1. 1 to 5 years \_\_\_\_\_
- 16.2. 6 to 10 years \_\_\_\_\_
- 16.3. 11 to 15 years \_\_\_\_\_
- 16.4. 16 to 20 years \_\_\_\_\_
- 16.5. 21 to 25 years \_\_\_\_\_
- 16.6. Other (please specify) \_\_\_\_\_
- 16.7. Doesn't apply \_\_\_\_\_

17. How long is your work experience in industry?

- 17.1. 1 to 5 years \_\_\_\_\_
- 17.2. 6 to 10 years \_\_\_\_\_
- 17.3. 11 to 15 years \_\_\_\_\_
- 17.4. 16 to 20 years \_\_\_\_\_
- 17.5. 21 to 25 years \_\_\_\_\_
- 17.6. Other (please specify) \_\_\_\_\_
- 17.7. Doesn't apply \_\_\_\_\_



18. Have you had any occupational guidance/information at any time prior to your present field of work/study?

18.1. Very little \_\_\_\_\_

18.2. Enough \_\_\_\_\_

18.3. Not at all \_\_\_\_\_

19. How did you get the occupational guidance/information to join vocational and technical education programme? (please, check one only)

19.1. Family \_\_\_\_\_

19.2. Friends \_\_\_\_\_

19.3. Teachers \_\_\_\_\_

19.4. Guidance counsellor \_\_\_\_\_

19.5. Others (please specify) \_\_\_\_\_

19.6. Didn't get any guidance \_\_\_\_\_

19.7. Doesn't apply \_\_\_\_\_

20. Would you have preferred to study along areas other than you have studied/studying?

20.1. Yes \_\_\_\_\_

20.2. No \_\_\_\_\_

20.3. Doesn't apply \_\_\_\_\_

21. If YES to question 20, what was your preferred area of study (please, check one only)

21.1. Agriculture \_\_\_\_\_

21.2. Engineering \_\_\_\_\_

21.3. Medicine \_\_\_\_\_

21.4. Social science \_\_\_\_\_

21.5. Other (please specify) \_\_\_\_\_

22. Is your preference stated in question 21 determined by

22.1. Earning factors \_\_\_\_\_

22.2. Factors related to social status \_\_\_\_\_

22.3. Psychological factors \_\_\_\_\_

22.4. Don't know \_\_\_\_\_

23. Do you feel you need retraining?

23.1. Yes \_\_\_\_\_

23.2. No \_\_\_\_\_

24. How often do you think is retraining necessary for people with your level of qualification?
- 24.1. Every year \_\_\_\_\_
- 24.2. Every five years \_\_\_\_\_
- 24.3. Every ten years \_\_\_\_\_
- 24.4. Other (please specify) \_\_\_\_\_
25. Do you prefer to work in
- 25.1. A laboratory (work shop) \_\_\_\_\_
- 25.2. An office \_\_\_\_\_
- 25.3. In class rooms \_\_\_\_\_
- 25.4. Field \_\_\_\_\_
- 25.5. Other (please specify) \_\_\_\_\_
26. What is/was your father's occupation?
- 26.1. Civil servant (please specify) \_\_\_\_\_
- 26.2. Farmer \_\_\_\_\_
- 26.3. Military \_\_\_\_\_
- 26.4. Self employed (please specify) \_\_\_\_\_
- 26.5. Other (please specify) \_\_\_\_\_
27. On average, how much is/was your father's salary per month?
- 27.1. 30 to 150 Birr \_\_\_\_\_
- 27.2. 151 to 300 Birr \_\_\_\_\_
- 27.3. 301 to 600 Birr \_\_\_\_\_
- 27.4. 601 to 1000 Birr \_\_\_\_\_
- 27.5. 1001 to 2000 Birr \_\_\_\_\_
- 27.6. Over 2000 Birr (please specify) \_\_\_\_\_
- 27.7. Other (please specify) \_\_\_\_\_
28. By Ethiopian standards, would you consider your parents to be
- 28.1. Rich \_\_\_\_\_
- 28.2. Middle class \_\_\_\_\_
- 28.3. Poor \_\_\_\_\_
- 28.4. Don't know \_\_\_\_\_

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 \* PART III. INFORMATION ON VOC./TECH. EDUCATION \*  
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29. At present, what do you think is the prospect of vocational and technical education as compared to other fields of study?

- 29.1. Excellent prospect \_\_\_\_\_
- 29.2. Very good prospect \_\_\_\_\_
- 29.3. Good prospect \_\_\_\_\_
- 29.4. Poor prospect \_\_\_\_\_
- 29.5. Very poor prospect \_\_\_\_\_
- 29.6. Don't know \_\_\_\_\_

30. Does your training qualify you to work in industry/factory?

- 30.1. Yes \_\_\_\_\_
- 30.2. No \_\_\_\_\_
- 30.3. Doesn't apply \_\_\_\_\_

31. Does your training qualify you to be vocational and technical education teacher?

- 31.1. Yes \_\_\_\_\_
- 31.2. No \_\_\_\_\_
- 31.3. Doesn't apply \_\_\_\_\_

32. Do you think you are competent enough to teach in vocational and technical education programmes?

- 32.1. Yes \_\_\_\_\_
- 32.2. No \_\_\_\_\_
- 32.3. Doesn't apply \_\_\_\_\_

33. What is the average number of students in your practical classes?

- 33.1. 5 to 15 students \_\_\_\_\_
- 33.2. 16 to 25 students \_\_\_\_\_
- 33.3. 26 to 35 students \_\_\_\_\_
- 33.4. Doesn't apply \_\_\_\_\_

34. On average, how many students are allocated per machine/equipment at any one time?

- 34.1. 1 to 3 students \_\_\_\_\_
- 34.2. 4 to 7 students \_\_\_\_\_
- 34.3. 8 to 12 students \_\_\_\_\_
- 34.4. Doesn't apply \_\_\_\_\_



35. Is industrial training (work experience in office or factory in related field of study before graduation) included as part of the curriculum in the institution/school you work/study?

- 35.1. Yes \_\_\_\_\_
- 35.2. No \_\_\_\_\_
- 35.3. Don't know \_\_\_\_\_

36. Does your institution/school have financial problem for the day to day running of the programme?

- 36.1. Yes \_\_\_\_\_
- 36.2. No \_\_\_\_\_
- 36.3. Don't know \_\_\_\_\_

37. Are there enough machine/equipment to give the required training in your institution/school?

- 37.1. More than enough \_\_\_\_\_
- 37.2. Adequate \_\_\_\_\_
- 37.3. Not enough \_\_\_\_\_
- 37.4. None at all \_\_\_\_\_
- 37.5. Don't know \_\_\_\_\_
- 37.6. Doesn't apply \_\_\_\_\_

38. Are there enough teaching materials for the training in your institution/school?

- 38.1. More than enough \_\_\_\_\_
- 38.2. Adequate \_\_\_\_\_
- 38.3. Not enough \_\_\_\_\_
- 38.4. None at all \_\_\_\_\_
- 38.5. Don't know \_\_\_\_\_
- 38.6. Doesn't apply \_\_\_\_\_

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\* IV. INFORMATION ON ADMINISTRATION \*  
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39. Is there any link of feedback between industries and vocational and technical schools?

- 39.1. Yes \_\_\_\_\_
- 39.2. No \_\_\_\_\_
- 39.3. Don't know \_\_\_\_\_

40. Do vocational and technical schools and industries cooperate to appraise and improve the curriculum?

- 40.1. Yes \_\_\_\_\_
- 40.2. No \_\_\_\_\_
- 40.3. Don't know \_\_\_\_\_

41. Is there cooperation ON SELECTION of students between vocational and technical schools and industries?

- 41.1. Yes \_\_\_\_\_
- 41.2. No \_\_\_\_\_
- 41.3. Don't know \_\_\_\_\_

42. Is there cooperation ON TRAINING of students between vocational and technical schools and industries?

- 42.1. Yes \_\_\_\_\_
- 42.2. No \_\_\_\_\_
- 42.3. Don't know \_\_\_\_\_

43. Is there cooperation ON PLACEMENT of students between vocational and technical schools and industries?

- 43.1. Yes \_\_\_\_\_
- 43.2. No \_\_\_\_\_
- 43.3. Don't know \_\_\_\_\_

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Thank you very much for the time and effort you have devoted to answering this questionnaire.

APPENDIX II

EXPENDITURES ON GOVERNMENT SCHOOLS 1965/66 - 1979/80  
(EXCLUDING HIGHER EDUCATION) (IN '000 ETH. \$ TILL  
1973/74 AND IN BIRR THERE AFTER)

1965/66	SALARY	OTHER	CAPITAL	TOTAL	AS % OF TOTAL
HEAD OFFICE	3,026	1,269	777	5,072	15.96
PRIMARY	13,787	1,509	163	15,459	48.63
SECONDARY	4,537	728	21	5,286	16.63
VTE AND TTI-	1,790	809	55	2,654	8.35
MISCELLANEOUS	--	--	--	3,316	10.43
TOTAL	23,140	4,315	1,016	31,787	100.00
-----					
1966/67					
HEAD OFFICE	2,493	1,521	2,500	6,514	17.25
PRIMARY	16,162	1,561	401	18,124	47.99
SECONDARY	5,986	1,143	--	7,129	18.88
VTE AND TTI	2,134	1,323	17	3,474	9.19
MISCELLANEOUS	--	--	--	2,528	6.69
TOTAL	26,775	5,548	2,918	37,769	100.00
-----					
1967/68					
HEAD OFFICE	2,546	1,325	--	3,871	9.33
PRIMARY	18,586	1,219	191	19,996	48.24
SECONDARY	7,693	1,181	2,333	11,207	27.04
VTE AND TTI	2,851	1,052	--	3,903	9.42
MISCELLANEOUS	--	--	--	2,476	5.97
TOTAL	31,676	4,777	2,524	41,453	100.00
-----					
1968/69					
HEAD OFFICE	2,540	758	--	3,298	6.26
PRIMARY	23,220	935	2,071	26,226	49.78
SECONDARY	9,308	1,213	4,691	15,212	28.87
VTE AND TTI	3,359	1,372	--	4,731	8.98
MISCELLANEOUS	104	3,069	44	3,217	6.11
TOTAL	38,531	7,347	6,806	52,684	100.00
-----					
1969/70					
HEAD OFFICE	2,988	975	147	4,110	7.40
PRIMARY	29,107	888	77	30,072	54.13
SECONDARY	11,119	1,404	173	12,696	22.85
VTE AND TTI	3,887	1,445	73	5,405	9.73
MISCELLANEOUS	3,014	221	39	3,274	5.89
TOTAL	50,115	4,933	509	55,557	100.00



CONTND.

1970/71	SALARY	OTHER	CAPITAL	TOTAL	AS % OF TOTAL
HEAD OFFICE	3,197	678	23	3,898	5.38
PRIMARY	33,315	3,037	1,158	37,510	54.03
SECONDARY	13,046	3,671	1,694	18,411	26.52
VTE AND TTI	4,508	491	1,842	6,841	9.85
MISCELLANEOUS	503	28	2,402	2,933	4.22
TOTAL	54,082	7,267	8,081	69,430	100.00
-----					
1971/72					
HEAD OFFICE	3,197	678	23	3,898	4.80
PRIMARY	37,30	2,080	8,220	48,230	59.37
SECONDARY	14,482	1,769	1,911	18,162	22.36
VTE AND TTI	4,820	2,082	458	7,360	9.05
MISCELLANEOUS	681	2,839	68	3,588	4.42
TOTAL	61,110	9,448	10,680	81,238	100.00
-----					
1972/73					
HEAD OFFICE	3,340	32	770	4,142	4.26
PRIMARY	44,659	11,376	2,673	58,711	60.37
SECONDARY	16,409	1,713	2,791	20,913	21.50
VTE AND TTI	4,824	2,881	1,918	9,623	9.90
MISCELLANEOUS	822	283	2,756	3,861	3.97
TOTAL	70,054	16,288	10,908	97,250	100.00
-----					
1973/74					
HEAD OFFICE	3,743	822	--	4,565	4.20
PRIMARY	51,518	2,184	11,987	65,689	60.38
SECONDARY	20,953	2,970	3,361	27,284	25.08
VTE AND TTI	4,948	2,089	2,655	9,692	8.91
MISCELLANEOUS	650	912	--	1,562	1.44
TOTAL	81,812	8,977	18,003	108,792	100.00
-----					
1974/75					
HEAD OFFICE	3,908	1,391	--	5,299	4.38
PRIMARY	47,561	2,592	13,777	63,930	52.85
SECONDARY	34,853	2,851	3,722	41,426	34.24
VTE AND TTI	4,803	1,037	2,146	7,986	6.60
MISCELLANEOUS	679	950	714	2,340	1.93
TOTAL	91,801	8,821	20,359	120,981	100.00
-----					
1975/76					
HEAD OFFICE	3,552	840	--	4,392	3.68
PRIMARY	46,867	2,089	14,157	63,113	52.91
SECONDARY	37,715	2,891	2,354	42,960	36.01
VTE AND TTI	4,624	66	1,596	6,885	5.77
MISCELLANEOUS	781	740	419	1,940	1.63
TOTAL	93,539	7,225	18,526	119,290	100.00

CONTND.

1976/77	SALARY	OTHER	CAPITAL	TOTAL	AS % OF TOTAL
HEAD OFFICE	4,455	1,714	--	6,169	4.84
PRIMARY	53,228	3,076	6,629	62,933	49.71
SECONDARY	38,332	5,164	2,959	46,455	36.70
VTE AND TTI	4,082	915	1,820	6,817	5.34
MISCELLANEOUS	1,408	1,146	1,679	4,233	3.34
TOTAL	101,505	12,015	13,087	126,607	100.00
-----					
1977/78					
HEAD OFFICE	4,434	1,646	--	6,080	5.06
PRIMARY	57,400	2,421	101	59,922	49.92
SECONDARY	38,629	3,521	1,490	43,640	36.35
VTE AND TTI	3,783	1,437	757	5,977	4.98
MISCELLANEOUS	1,385	1,217	1,827	4,429	3.69
TOTAL	105,631	10,242	4,175	120,048	100.00
-----					
1979/80					
HEAD OFFICE	3,960.4	2,384.3	23.8	6,368.5	3.64
PRIMARY	82,585.5	4,278.6	80.5	86,944.6	49.64
SECONDARY	56,610.6	4,545.2	163.8	61,319.6	35.00
VTE AND TTI	5,059.4	3,203.5	58.3	8,321.2	4.75
MISCELLANEOUS	2,780.6	9,229.2	195.0	12,204.8	6.97
TOTAL	150,996.5	23,640.8	521.4	175,158.7	100.00

SOURCE: Central Statistics Office, Ethiopian Statistical Abstract. Various issues, and Office of the National Committee for Central Planning. Various documents.

a = Teacher Training Institute

-- = Data not available

## BIBLIOGRAPHY

- Adams, Don A. (1971) Education in National Development. London: Routledge and Kegan Paul.
- Adedeji, Abebayo. (ed.) (1981) Indiginisation of African Economics. London: Hutchinson and Co., Ltd.
- Aggarwal, J.C. (no date) Development and Planning of Modern Education, With Special Reference to India. Delhi: Vikas Publishing House Pvt., Ltd.
- Agusibo, O.N. (1973) "Implication of Vocational Education Programmes for the Nigerian School System", West African Journal of Education, 17, pp.159-164.
- Ahmed, Manzoor. (1975) The Economics of Non-formal Education: Resources, Costs and Benefits. New York: Praeger Publishers.
- Anderson, C. Arnold and M.J. Bowman. (eds.) (1966) Education and Economic Development. London: Frank Cass and Co., Ltd.
- Artz, Frederick B. (1966) The Development of Technical Education in France: 1500-1850. London: The M. I. T. Press.
- Balogh, T. (1962) "Catastrophe in Africa", Times Educational Supplement, January 5, 1962 and February 9, 1962.
- Becker, Gary S. (1964) Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. New York: National Bureau of Economic Research.
- Begg, David, et al. (1984) Economics. London: McGraw-hill Book Co. (U.K) Ltd.
- Bekerman, Willfred. (1968) An Introduction to National Income Analysis. 2nd. ed. London: Weidenfeld and Nicolson.
- Bennet, Charles A. (1937) History of Manual and Industrial Training. Peoria, Illinois: The Manual Arts Press.
- Bennett, William S. Jr. (1967) "Educational Change and Economic Development", Sociology of Education, 40, 2, pp.101-114.



Blackhurst, Richard, et al. (1978) Adjustment, Trade and Growth in Developed and Developing Countries. Geneva: GATT.

Blaug, Mark, et al. (1969) The causes of Graduate Unemployment in India. London: Allen Lane, Penguin Books.

Blaug, Mark. (1970) An Introduction to the Economics of Education. London: Allen Lane The Penguin Press.

Blaug, Mark. (1972) "Economics and Educational Planning in Developing Countries", Prospects, 2, 4, pp.431-441.

Blaug, Mark. (1972) "The Correlation Between education and Earnings: What does it signify?", Higher Education, 1, 1, pp.53-76.

Blaug, Mark. (1980) The Methodology of Economics. London: Cambridge University Press.

Blaug, Mark, et al. (1982) "The Distribution of Schooling and the Distribution of Earnings: Raising the School Leaving Age in 1972", The Manchester School of Economics and Social Studies, 50, pp.24-40.

Blaug, Mark. (1982) "Economics and Educational Planning in Developing Countries", Prospects, 12, 4.

Blaug, Mark. (1985) "Where are We Now in the Economics of Education", Economics of Education Review, 4, 1, pp.17-28.

Blaug, Mark. (1987) The Economics of Education and the Education of an Economist. England: Edward Elgar Publishing Ltd.

Blumenthal, Irene and Charles Benson. (1976) Educational Reform in the Soviet Union, Implication for Developing Countries. World Bank Staff Working Paper, No.246.

Borus, Micheal E. (1977) "A Cost-Effectiveness Comparison of Vocational Training for Youth in Developing Countries: A Case Study of Four Training Models in Israel", Comparative Education Review, 21, 1, pp.1-13.

/ Bowles, Samuel. (1971) "Cuban Education and the Revolutionary Ideology", Harvard Educational Review, 41, 4, pp.473-500.

- Bowman, Mary Jean. (1964) "Schultz, Denison, and the Contribution of 'EDS' to National Income Growth", The Journal of Political Economy, 72, 1.
- Boyd, William and Edward J. King. (1975) The History of Western Education. 11th ed., London: Adam and Charles Black.
- Broekmeijer, M.W.J.M. (1966) Fiction and Truth About the Decade of Development. Leyden: A.W. Sijthoff.
- Burgess, Tyrell and John Pratt. (1971) Technical Education in the United Kingdom. Paris: OECD.
- Burgess, Tyrell, et al. (no dat) Manpower and Educational Development in India 1961-1968. London: Oliver and Boyd.
- Carnoy, Martin. (1975) "The Role of Education in a Strategy for Social Change", Comparative Education Review, 19, 3, pp.393-402.
- Carnoy, Martin and Kenneth King. (1980) Education, Work and Employment. Paris: Unesco.
- Cartter, Allan M. (ed.) (1975) Assuring Academic Progress Without Growth. London: Jossey-Bass Inc.
- Carter, Charles. (1980) Higher Education for the Future. Oxford: Basil Blackwell Publisher.
- Castles, Stephen and Wiebke Wustenberg. (1979) The Education of the Future, an Introduction to the Theory and Practice of Socialist Education. London: Pluto Press.
- Castro Mouro, C. De. (1979) "Vocational Education and the Training of Industrial Labour in Brazil", International Labour Review, 118, 5, pp.617-629.
- Central Statistics Office. Ethiopia, Statistical Abstract. Various issues.
- Cermin, Lawrence A. (1961) The Transformation of the School. New York: Alfred A. Knopf Inc.
- Cohn, Elchanan. (1979) The Economics of Education. Toronto: D.C. Heath and Co.
- Commission of the European Communities. (1975) The Evaluation of Vocational Education Training. U.K.: Reports of a Seminar Held in the University of Manchester.



- Cocombs, Philip H. (1968) The World Educational Crisis: A System Analysis. New York: Oxford University Press.
- Cocombs, Philip H. (1970) What is Educational Planning? Paris: Unesco.
- Cotgrove, Stephen F. (1958) Technical Education and Social Change. London: George Allen and Unwin Ltd.
- Cremin, Laurence A. (1962) The Transformation of the School: Progressivism in American Education. New York: Alfred A. Knopf Inc.
- Dale, Roger. (ed.) (1985) Education, Training and Employment: Towards New Vocationalism? Oxford: Pergamon Press.
- Dave, R.H. (1973) Lifelong Education and School Curriculum. Hamburg: Unesco, Institute for Education.
- Davis, J. Ronnie and John F. Morrall. III. (1974) Evaluating Educational Investment. London: D.C. Heath and Co.
- Day, Norman L. (1972) Further Education and Employment: A Case Study of Technical Education and Industrial Employment. London: Society for Research into Higher Education.
- Denison, E.F. (1967) Why Growth Rates Differ: Post War Experience in Nine Western Countries. Washington: Brookings Institute.
- Dore, Ronald. (1976) The Diploma Disease: Education, Qualification and Development. London: George Allen and Unwin Ltd.
- Dore, Ronald. (1980) "The Diploma Disease Revisited", in Selection for Employment Versus Education?, Sussex: Institute of Development Studies, 11, 2, pp.55-61.
- Ducray, Gabriel. (1979) "Vocational Training Today: the Changing Relationship Between Training and Employment". International Labour Review, 118, 3, pp.265-281.
- ECA. (1985) Survey of Economic and Social Conditions in Africa 1983-1984. Addis Ababa: ECA, NO. E/ECA/CH.11/16.
- Edwards, E.G. (1982) Higher Education for Everyone. Nottingham: Russell Press Ltd.



- Edwards, E.O. and H.P. Todaro. (1973) "Educational Demand and Supply in the Context of Growing Unemployment in Less Developed Countries". World Development, 1, pp.107-117.
- Enthoven, Adolf J.H. (1981) Accounting Education in Economic Development Management. Amsterdam: Oxford North Holland.
- Eshete, Alemo. (1982) The Cultural Situation in Socialist Ethiopia. Paris: Unesco.
- Esterlin, Richard A. (1981) "Why Isn't the Whole World Developed?". The Journal of Economic History, 41, 11, pp.1-18.
- European Centre for the Development of Vocational Training (ECDVT). (1980) Vocational Training to Improve Opportunities For Migrant Workers. Berlin: ECDVT.
- FAO. (1975) Higher Education and Third World Development Issues-an International Comparative Study-Action for Development. Rome: FAO.
- Fein, Rashi. (1968) "Brookings Institution Conference on Vocational Education: Introduction". The Journal of Human Resources, Supplement. 3, pp.1-16.
- Finch, Janet. (1984) Education as Social Policy. London: Longman.
- Fishwick, Wilfred. (1983) Strengthening Co-operation Between Engineering Schools and Industry 8. Switzerland: Unesco.
- Foster, Philip. (1965) Education and Social Change in Ghana. London: Routledge and Kegan Paul Ltd.
- Foster, Philip. (1966) "The Vocational School Fallacy in Development Planning". Education and Economic Development. London: Frank Cass And Co., Ltd.
- Foster, Philip. (1975) "Dilemma of Educational Development: What We Might Learn From the Past". Comparative Education Review, 19, 3, pp.375-392.
- Fox, Karl A. (ed.) (1972) Economic Analysis for Educational Planning: Resource Allocation in Nonmarket Systems. London: The John Hopkins University Press.

- Fransman, Martin and Kenneth King. (1984) Technological Capability in the Third World. London: Macmillan.
- French, H.W. (1981) Engineering Technicians: Some Problems of Nomenclature and Classification 7. Switzerland: Unesco.
- Fuller, William P. (1976) "More Evidence Supporting the Demise of Pre-Employment Vocational Trade Training: A Case Study of a Factory in India", Comparative Education Review, 20, 1, pp.30-39.
- Gallaway, Lowell E. (1971) Manpower Economics. Illinois: Richard D. Irwin, Inc.
- Gelpi, Ettore. (1985) Lifelong Education and International Relations. London: Croom Helm.
- Gersovitz, Mark. (1983) Selected Economic Writings of W. Arthur Lewis. New York: New York University Press.
- Gillis, Malcolm, et al. (1983) Economics of Development. New York: W. W. Norton and Co.
- Girling, D.A. (ed.) (1978) Everyman's Encyclopaedia. 6th. ed., London: J. M. Dent and Sons Ltd., 4.
- Ginzberg, Eli. (1975) The Manpower Connection: Education and Work. Massachusetts: Harvard University Press.
- Good, Carter V. (ed.) (1973) Dictionary of Education. 3rd. ed., New York: McGraw-Hill Book Co.
- Godfery, Martin. (1977) "Education, Training and Productivity: A Kenyan Case Study", Comparative Education Review, 21, 1, pp.29-36.
- Green, T. L. (1973) "Comments on the Implications of Vocational Problem in Education", West African Journal of Education, 17, pp.159-164.
- Gregoire, Roger. (1971) Vocational Education. Paris: OECD.
- Grootaert, Christian. (1978) Vocational and Technical Education in Côte d'Ivoire, An Economic Assessment. England: Development Economics Research Centre, University of Warwick.
- Gross, B. M. (1967) Action Under Planning: the Guidance of Economic Development. New York: McGraw-Hill.



- Grubb, W. Norton. (1985) "The Convergence of Educational Systems and the Role of Vocationalism", Comparative Education Review, 29, 4, pp.507-525.
- Gumbel, Peter, et al. (1983) Education in Ethiopia: 1974-1982. Sweden: SIDA, Education Division, Doc. No.11.
- Halsey, A.H., et al. (1961) Education, Economy, and Society: A Reader in the Sociology of Education. New York: The Free Press of Glencoe, Inc.
- Halsey, William D., et al. (ed.) (1978) Collier's Encyclopaedia. New York: Macmillan Educational Corporation, 8.
- Harbison, Frederick and Charles A. Myers. (1964) Education, Manpower, and Economic Growth: Strategies of Human Resource Development. New York: McGraw-Hill Book Co.
- Heidenheimer, Arnold J. (1978) Major Reforms of the Swedish Education System: 1950-1975. World Bank Staff Working Paper, No.290.
- Henninger, G. Ross. (1959) The Technical Institute in America. New York: McGraw-Hill Book Co., Inc.
- Heyneman, Stephen P. (1983) "Improving the Quality of Education", Finance and Development. pp.18-21.
- Heyneman, S. (1985) "Diversifying Secondary School Curricula in Developing Countries: An implementation History and some Policy Options", International Journal of Education, 5, 4, pp.283-288.
- Heyneman, S. (1986) "The Nature of 'Practical' Curriculum", Education with Production, 4, 2, pp.91-103.
- Hough, J.R. (1987) Education and the National Economy. London: Croom Helm Ltd.
- Hutchings, Donald. (ed.) (1986) Education for Industry. London: Longman.
- IBRD. Teaching Industrial Skills in Developing Countries. World Bank, No.21.
- ILO. (1958) African Labour Survey. Geneva: ILO.
- ILO. (1973) Employment and Unemployment in Ethiopia. Report of the Exploratory employment policy Mission Organized by the International Labour Office and Financed by the UNDP, Geneva: ILO.



- ILO. (1973) Towards Self-Reliance: Development, Employment and Equity Issues in Tanzania. Addis Ababa: ILO, Job and Skills Program for Africa.
- ILO. (1979) Training Systems in Eastern Europe: A Study of Change in the Organisation of Training in the USSR, Poland and Democratic Republic of Germany. Geneva: ILO.
- Imperial Ethiopian Government. (1958) First Five Year Development Plan (FFYP). Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1962) First Five Year Development Plan (SFYP). Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Government. (1968) First Five Year Development Plan (TFYP). Addis Ababa: Berhanena Selam Printing Press.
- Imperial Ethiopian Governemnt. (1972) Reports of the Education Sector review, Education: Challenge to the Nation. Addis Ababa: Ministry of Education and Fine Arts.
- Institute of Development Research (IDR). (1983) Proceedings of the Seminar on Industrial Transformation in Ethiopia, held in Nazareth, January 18-20, 1980. Addis Ababa: IDR.
- International Institute for Educational Planning (IIEP). (1981) Planning Education for Reducing Inequalities: an IIEP Seminar. Paris: The Unesco Press.
- Jaffe, A.J. and Charles D. Stewart. (1951) Manpower Resources and Utilisation: Principle of Working Force Analysis. New York: John Wiley and Sons, Inc.
- Jahoda, Marie. (1963) The Education of Technologists. London: Tavistotock Publications Ltd.
- Jones, T.J. (1925) Education in East Africa: A Study of East, Central, and South Africa by the Second African Education Commission Under the Auspices of the Phelps-Stokes Fund in Co-operation with the International Board. New York: phelps-stokes Fund.
- Kaplan, Irving, et al. (eds.) (1981) Ethiopia: A Country Study. Washington, D.C.: American University.

- Keller, J. Edmond, Jr. (1980) Education, Manpower and Development: The Impact of Educational Policy in Kenya. Nairobi: Kenya Literature Bureau.
- Kenney, John P., et al. (1972) Manpower Training and Development. U.K.: George G. Harrap and Co., Ltd.
- Kiker, B.F. (1971) "The Historical Roots of the Concepts of Human Capital," Human Capital Formation and Manpower Development, New York: The Free Press.
- Killick, T. (1978) Development Economics in Action: A Study of Economic Policies in Ghana. Heinemann.
- King, A. (1985) "Educational Needs of Society in Transition", European Journal of Education, 20, 2-3, pp.233-242.
- King, Kenneth. (1977) The African Artisan: Education and the Informal Sector in Kenya. London: Heinemann.
- King, Kenneth. (1984) The Planning of Technical and Vocational Education. Edinburgh, Scotland: Edinburgh University.
- King, Kenneth. (1985) The Planning of Technical and Vocational Education. Paris: Unesco, IIEP Occasional Papers, No.72.
- Klees, Steven J. (1984) "Planning and Policy Analysis in Education: What Can Economics Tell Us?", Comparative Education Review, 30, 4, pp.574-607.
- Kneller, George F. (ed.) (1971) Foundation of Education. 3rd. ed., New York: John Wiley and Sons Inc., 1971, Part 5, pp.572-591 and part 4, pp.337-359.
- Kodjoe, W. Ofuatey. (1976) "Education and Social Change in African: Some Proposals", Journal of African Studies, 3, 2, pp.229-246.
- Korten, David C. (1972) Planned Change in a Traditional Society: Psychological Problems of Modernisation in Ethiopia. New York: Praeger Publishers.
- Krais, Beate, et al. (1983) Trainers and Teachers in Vocational Training in the Federal Republic of Germany. Berlin: European Centre for the development of Vocational Training.
- Kuznets, S. (1972) Economic Growth of Nations: Total Output and Production Structure. London: Belknap Press.



- Laugos, J. (1985) "Practical Subjects in Academic Secondary Schools: An Evaluation of Industrial Education in Kenya," Institute of Education, University of London (Mimeographed)
- Lee, Kye-Woo. (1983) Human Resources Planning in the Republic of Korea: Improving Technical Education and Vocational Training. World Bank Staff Working Papers, No.554.
- Leite, Manuela Ferreira, et al. (1968) The Economics of Educational Costing Inter-Country and Inter-Regional Comparisons: Costs and Comparisons, a Theoretical Approach. Lisbon: Centro De Economia E Financas, Vol.1,2,3A,3B.
- Lerner, Abba and Haim Ben-Shahar. (1975) The Economics of Efficiency and Growth. Massachusetts: Bellinger Publishing Co.
- Levine, Victor. (1979) "Evaluating Vocational Training Alternatives Using Single-Period Earnings Data: A Technical Note", Comparative Education Review, 23, 1, pp.125-133.
- Lewis, Anne M. (1981) Descriptions of the Vocational Training Systems: United Kingdom. Berlin: European centre for the Development of Vocational Training.
- Lillis, K. and D. Hogan. (1983) "Dilemmas of Diversification Developing Countries", Comparative Education, 19, pp.89-107.
- Lipsky, George A. et al. (1964) Area Hand Book of Ethiopia. Washington D.C.: U.S. Government Printing Office.
- Livingstone, I. and H.W. Ord. (1968) Economics for Eastern Africa. London: Heineman Educational Books Ltd.
- Livingstone, Ian. (ed.) (1982) Approaches to Development Studies. England: Robert Hartnoll Ltd.
- Loken, Robert D. (1969) Manpower Development in Africa. New York: Frederick A. Praeger Inc.
- Lowe, J., et al. (ed.) (1971) Education and Nation Building in the Third World. London: Scottish Academic Press.



- Magnusson, Olav. (1978) Analysis of Vocational Preparation in Member States of European Community. Brussels: CEC.
- Majumdar, Taps. (1983) Investment in Education and Social Choice. London: Cambridge University Press.
- Maliyamkono, T.L., et al. (1982) Higher Education and Development in East Africa, London: Heinemann Educational Books Ltd.
- Markakis, J. (1974). Ethiopia, Anatomy of Traditional Polity. London: Clarendon Press.
- Markakis, J. et al. (1978) Class and Revolution in Ethiopia. Nottingham: The Russell Press Ltd.
- McKenzie, Moira and Wendla Kerning. (1975) The Challenge of Informal Education. London: Darton, Longman and Todd Ltd.
- Meier, Gerald M. (1976) Leading Issues in Economic Development. 3rd. ed. New York: Oxford University Press.
- Metcalf, David H. (1985) The Economics of Vocational Training, Past Evidence and Future Considerations. World Bank Staff Working Papers, No.713.
- Mills, C.T. (1925) Technical Education, its Development and Aims. London: Edward Arnold and Co.
- Ministry of Education and Fine Arts. (1968) Projects for Expansion of Second Level Education in Ethiopia: General Justification and Presentation. Addis Ababa: Ministry of Education and Fine Arts, 1.
- Ministry of Education (MOE). (August, 1979) A Study Produced to Strengthen Technical Vocational Education. Addis Ababa: MOE (Mimeographed Amharic version).
- Ministry of Education (MOE). (1982). Compiled Study of Addis Ababa Technical School. Addis Ababa: MOE (Mimeographed Amharic version).
- Ministry of Education (MOE). (June, 1984) Educational Statistics 1967/68 - 1982/83. Addis Ababa: MOE, Planning and External Relations Services.
- Ministry of Education (MOE). (June, 1985) Educational Statistics for School Year 1983/84. Addis Ababa: MOE, Planning and External Relations Services.

- Ministry of Education (MOE). (1984). Education in Socialist Ethiopia: Origins, Reorientation, Strategy for Development. Addis Ababa: MOE.
- Ministry of Education (MOE) (1986). General Evaluation of Education. Addis Ababa: MOE (Mimeographed Amharic Version).
- Ministry of Education (MOE) (August, 1986) Major Problems and Future Directives of Technical Vocational Education. Presented on the 19th Seminar for Educational Planning and Administration. Addis Ababa: MOE, Office of Technical and Vocational Council (Mimeographed Amharic version).
- Ministry of Education. School Census for Ethiopia. Various issues.
- Ministry of Labour and Social Affairs, Department of Labour. (May, 1986) The Training of Manpower in Ethiopia, 1982/83 (Technical and Vocational Training Facilities Available and the Supply of Trained Personnel. Addis Ababa: The Employment and Manpower Division.
- Ministry of Labour and Social Affairs, Department of Labour. (1987) "Employment Services Information, 1978/79 - 1986/87," Addis Ababa: Employment Research Section (Mimeograph).
- Ministry of Overseas Development (MOD). (1977) A Guide to the Economic Appraisal of Project in Developing Countries. London: Her Majesty's Stationary Office.
- Moore-Rinvoluceri, Mina J. (1973) Education in East Germany. Connecticut: Archon Books.
- Moore, T.W. (1974) Educational Theory: an Introduction. London: Routledge and Kegan Paul.
- Morrish, Ivor. (1967) Discipline of Education. London: George Allen and Unwin Ltd.
- Moumouni, Abdou. (1968) Education in Africa. London: Andre Deutsch Ltd.
- Munch, Joachin. (1984) Vocational Training in the Federal Republic of Germany. Berlin: European Centre for the Development of Vocational Training.
- Musgrave, P.W. (1970) Sociology, History and Education: a Reader. London: Methuen and Co. Ltd.



- National Council of Education Research and Training. (1970) The Concept of Work Experience. New Delhi: Delhi Press.
- National Institute of Basic Education. (1965) Craft in India School System. New Delhi: National Council of Education Research.
- Noah, Harold J. (ed./trans.) (1969) The Economics of Education in USSR. New York: Frederick A. Praeger, Publishers.
- Nove, Alec. (1975) Planning - What, How, and Why. Edinburgh: Scottish Academic Press Ltd.
- Obanya, Pai. (1980) "Nigerians in Search of Suitable Educational System," Journal of African Studies, 7, 1, pp.48-53.
- OECD. (1973) Towards Mass, Higher Education, Issues and Dilemmas. Conference on Future Structures of Post Secondary Education, Paris, 26th-29th June, 1973, Paris: OECD.
- OECD. (1974) Education in OECD Developing Countries, Trends and Perspectives, Paris, OECD.
- OECD. (1974) New Patterns of Teacher Education and Tasks. Paris: OECD.
- OECD. (1975) Recurrent Education: Trends and Issues. Paris: OECD.
- OECD. (1983) The Future of Vocational Education and Training. Paris: OECD.
- Oxtoby, Robert. (1977) "Vocational Education and Development Planning: Emerging Issues in the Common Wealth Caribbean", Comparative Education, 13, 3, pp.223-242.
- Ofautey-Kodjie, W. (1976) "Educational Social Change in Africa: Some Proposals", Journal of African Studies, 3, 2, pp.229-246.
- Office of the National Committee for Central Planning (ONCCP). (1983/84) Ten Year Perspective Plan 1984/85-1993/94, General Education. Addis Ababa: ONCCP (Amharic version)
- Onushkin, Victor G. (ed.) (1971) Planning the Development of Universities. Paris: Unesco, International Institute for Educational Planning, (4 volumes).



- Pankhurst, Sylvia. (1955) Ethiopia: A Cultural History.  
Essex: Lalibela House.
- Parnes, Herbert S. (1962) Forecasting Educational Needs for Economic Development. Paris: Organisation for Economic Co-operation and Development.
- Perlman, Richard. (1973) The Economics of Education: Conceptual Problems and Policy Issues. New York: McGraw-Hill Book Co.
- Pickett, James. (1983) Development, Technology and Employment in Ethiopia. Glasgow: University of Strathclyde, No.4.
- Pickett, James and R. Robson. (1984) Manual on choice of Industrial Technique in Developing Countries. Paris: Development Centre Organisation for Economic Co-operation and Development.
- Porter, D. (1970) Technical and Vocational Education: Six Area Studies. Strasbourg: Council for Cultural Co-operation.
- Pratt, John, et al. (1974) Polytechnics: A Report. London: Pitman Publishing.
- Provisional Military Government of Socialist Ethiopia. "Budget Proclamation," Negarit Gazeta. Addis Ababa: Berhanena Selam Printing Press (various issues).
- Provisional Military Government of Socialist Ethiopia. (August, 1977) Negarit Gazeta. Addis Ababa: Berhanena Selam Printing Press, Proclamation No. 127.
- Psacharopoulos, G. (1970) "Estimating Shadow Rates of Return to Investment in Education," Journal of Human Resources, 5, 1, pp.34-50.
- Psacharopoulos, G. (1971) "Measuring the Marginal Contribution of Education to Economic Growth", Economic Development and Cultural Change, 20, 1, pp.641-658.
- Psacharopoulos, G. (1981) "Returns to Education: An Updated International Comparison", Comparative Education Review, 17, 3, pp.321-341.

- Psacharopoulos, G. (1981) "Education, Employment and Inequality in LDC's", World Development, 9, pp.37-54.
- Psacharopoulos, G. (September, 1982) "Education as an Investment," Finance and Development.
- Psacharopoulos, G. (1984) "Assessing Training Priorities in Developing Countries: Current Practice and Possible Alternatives", International Labour Review, 123, pp.569-583.
- Psacharopoulos, G. (1984) "The Contribution of Education to Economic Growth: International Comparisons", In John W. Kendrick, (ed.) International Comparison of Productivity and Causes of the Slowdown, Cambridge: American Enterprise Institute/Ballinger Publishing Co., pp.335-360.
- Psacharopoulos, G. (1985) "Curriculum Diversification in Colombia and Tanzania: An Evaluation", Comparative Education Review, 29, 4, pp.507-525.
- Psacharopoulos, G. (1985) "Returns to Education: A Further International Update and Implications", The Journal of Human Resources, 20, 4.
- Psacharopoulos, G. and Maureen Woodhall. (1985) Education for Development: An Analysis of Investment Choices. New York: Oxford University Press
- Psacharopoulos, G. (1986) "The Planning of Education: Where Do We Stand?", World Bank Reprint Series, No.401.
- Psacharopoulos, G. (1986) To Vocationalise or not to Vocationalise? That is the Curriculum Question. The World Bank, Education and Training Series, No. EDT31
- Psacharopoulos, G. (1986) Links Between Education and the Labour Market: A Broader Perspective. Paper Presented at the Conference on "Impact of a Changing Labour Force on Post-Secondary Education," Graduate School and University Centre, City University of New York.
- Ramati, Yohanan. (ed.) (1975) Economic Growth in Developing Countries-Material and Human Resources. U.S.A.: Praeger Publishers, Inc.
- Ranson, Baldwin. (1988) "Rural Education and Economic Development in China, Mexico, Japan, and the United States", Comparative Education Review, 32, 3, pp.213-225.



- Richmond, W. Kenneth. (1968) Reading in Education: A Sequence. London: Methuen and Co. Ltd.
- Roberts, Roy W. (1971) Vocational and Practical Arts Education. London: Harper and Row Ltd.
- Robinson, E.A.G. and J.E. Vaizey. (1966) The Economics of Education Proceedings of a Conference Held by the International Economic Association. New York: St. Martins Press.
- Sanders, C. (ed.) (1966) Technical Education for Development. Western Australia: University of Western Australia Press.
- Schein, Edgar H. (1972) Professional Education. New York: McGraw-Hill Book Co.
- Schmitz, Hubert. (1985) Technology and Employment Practices in Developing Countries. London: Croom Helm.
- Schultz, Theodore W. (1963) The Economic Value of Education. New York: Columbia University Press.
- Schumpeter, J.A. (1954) History of Economic Analysis. Princeton: Princeton University Press.
- Selwyn, Percy. (ed.) (1975) Development Policy in Small Countries. London: Croom Helm Ltd.
- Sheehan, John. (1973) The Economics of Education. London: George Allen and Unwin Ltd.
- Shores, Louis. (ed.) (1978) Collier's Encyclopaedia, New York: Macmillan Educational Corporation, 28.
- Silver, Harold. (1980) Education and Social Condition. London: Methuen.
- Solow, R.M. (August, 1957) "Technical Change and Aggregate Production Function", Review of Economic and Statistics, Vol. 39, pp.312-320.
- Squire, Lyn and Herman G. Vander Tak. (1975) Economic Analysis of projects. Baltimore, MD.: Johns Hopkins University Press.
- The World Bank. (1978) Educational Reform in the Soviet Union: Implications for Developing Countries. Staff Working Paper, No.288.



- The World Bank. (1979) Cuba: Economic Change and Education Reform, 1955-1974. Washington, D.C.: The World Bank, Staff Working Paper No. 317.
- The World Bank. (1982) Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Washington, D.C.: The World Bank.
- The World Bank. (1983) World Table. London: Johns Hopkins University Press, 3 - Social Data.
- The World Bank. (1985) Institutional Development in Education and Training in Sub-Saharan Countries. Discussion Paper, Educational and Training Series, Report No. EDT22.
- The World Bank. (1988) Education in Sub-Saharan Africa: Policies for adjustment, revitalisation, and Expansion. Washington, D.C.: The World Bank.
- The World Bank. World Development Report. New York: Oxford University Press (various issues).
- Thias, Hans Heinrich and Martin Carnoy. (1972) Cost-Benefit Analysis in Education: A Case Study of Kenya. London: The Johns Hopkins Press.
- Tinbergen, Jan and H.C. Bos. (1965) "A Planning Model for the Educational Requirements of Economic Development", Econometric Models for Education, Paris: Organisation for Economic Co-operation and Development.
- Tobin, J. S. and J.A. Schumpeter. (1974). The New Economics One Year Older. Princeton: Princeton University Press.
- Todaro, Michell P. (1985) Economic Development in The Third World. 3rd.ed., U.S.A.: The Alpine Press, Inc.
- Toffler, Alvin. (1970) Future Shock. London: The Bodley Head.
- Toffler, Alvin. (1981) The Third Wave. London: Batman.
- Tomiak, J.J. (ed.) (1983) Soviet Education in the 1980s. London: Croom Helm Ltd.
- Ulich, Robert. (1950) History of Educational Thought. New York: American Book Co.
- Unesco. (1959) Secondary Technical and Vocational Education in Underdeveloped Countries. Paris: Educational Studies and Documents.

- Unesco. (1968) Manpower Aspects of Educational Planning. Paris: Unesco, IIEP.
- Unesco. (1973) Technical and Vocational Teacher Education and Training. Paris: John Wright and Son Ltd.
- Unesco. (1979) Development in Technical and Vocational Education: A Comparative Study. Paris: Unesco.
- Unesco. (1979) Development in Technical and Vocational Education. London: Pluto Press.
- Unesco. (1983) Current Surveys and Research in Statistics. Paris: Unesco.
- Unesco. (1983) Technical and Vocational Education in the World, 1970-1980: A Statistical Report. Paris: Unesco, Office of Statistics, CSR-E-47.
- Unesco. (1983) The Transition from Technical and Vocational Schools to Work: Problems, Current Efforts and Innovative Approaches and Measures from Improving the Transition. Paris: Unesco.
- Unesco. (1983) The Organisation of Productive Work in Secondary Technical and Vocational Education in the United Kingdom. Paris: Unesco.
- Unesco. (1983) Policy, Planning and Administration of Technical and Vocational Education in Ghana. Paris: Unesco.
- Unesco. (1984) Policy, Planning and Management of Technical and Vocational Education: A Comparative Study. Paris: Unesco.
- Unesco. (1984) Ethiopia: Tertiary Education and National Development. Paris: Unesco, report No.119.
- Unesco. (1988) International Review of Education. Hamburg: Institute for education, 34, 2.
- Unesco. Statistical Year Books. Various issues.
- UNIDO. (1969) "Monographs on Industrial Development, Industrialisation of Developing Countries: Problems and Prospects", Manpower for Industry, New York: United Nations, Monograph No.14.
- Urevbu, A.O. (1984) "Vocational Education in Nigeria: A Preliminary Appraisal", International Journal of Educational Development, 4, 3, pp.223-229.



- Urquidi, V.L. (1982) "Technical Education in Mexico: A Preliminary Appraisal", Prospects, 12, 1, pp.115-122.
- Vaizey, John. (1962) The Economics of Education. London: Faber and Faber Ltd.
- Vaizey, John. (1966) Education for Tomorrow. U.K.: Penguin Books Ltd.
- Vaizey, John. (1967) Education in the Modern World. London: Weidefled and Nicolson.
- Vaizey, John, et al. (1971) The Costs of New Educational Technologies. Lisbon: Gulbenkain Institute of Science.
- Vaizey, John, et al. (1972) The Political Economy of Education. London: Gerald Duckworth and Co., Ltd.
- Vaizey, John. (1973) The Economics of Education. London: The Macmillan Press Ltd.
- Vaizey, John, et al. (1976) Education: the State of the Debate in America, Britain and Canada. London: Gerald Duckworth and Co., Ltd.
- Vaughan, T.D. (1970) Education and Vocational Guidance Today. London: Routledge and Kegan Paul.
- Venables, P.F.R. (1955) Technical Education: Its Aims, Organisation and Future Development. London: G. Bell and Sons Ltd.
- Wagaw, Teshome G. (1979) Education in Ethiopia: prospect and Retrospect. U.S.A.: The University of Michigan Press.
- Wanasinghe, J. (1982) "A Critical Examination of the Failure of the Junior Secondary School Curriculum and Prevocational Studies in Sri Lanka", International Journal of Educational Development, 2, 1, pp.61-71.
- Weisberg, A. (1983) "What Research Has to Say About Vocational Education in the High Schools", Phi Delta Kappa, 33, pp.335-359.
- Williams, Llewellyn Wynn. (1903) Education: Disciplinary, Civic and Moral. London: Smikin, Marshall, Hamilton, Kent and Co., Ltd.
- Wood, Ethel M. (1965) A History of the Polytechnic. London: Macdonald and Co.



- Woodhead, E. W. (ed.) (1943) Education Handbook. Norwich: Jarrold and Sons Ltd.
- Write, Cream. (1988) Unfulfilled Promises and the Fading Future - Renewed Challenges for Education in Africa. Edinburgh, Scotland: Centre of African Studies.
- Wykstra, Ronald A. (1971) Education and the Economics of Human Capital. New York: The Free Press.
- Wykstra, Ronald A. (ed.) (1971) Human Capital Formation and Manpower Development. New York: The Free Press.
- Zajda, Joseph I. Education in the USSR. New York: Pergamon Press.
- Zymelman, Manuel. (1976) The Economic Evaluation of Vocational Training Programmes. World Bank Staff Occasional Papers, No.21.