

Working Paper Series No. 72

**GENERATING MARKETED SURPLUS OF FOOD
THROUGH STATE FARMS: A CRITICAL EVALUATION
OF THE ETHIOPIAN EXPERIENCE**

Abebe Haile Gabriel
January 1990

Abebe Haile Gabriel was a participant in the MA Programme (Agricultural and Rural Development) at the Institute of Social Studies, 1988/1989.

This paper was submitted in partial fulfilment of the requirements for the Degree of Master of Arts in Development Studies of the Institute of Social Studies.

The Board of Trustees of the Institute of Social Studies awards a maximum of three Prizes each year for the best MA Research Papers. This paper was the recipient of one of the Prizes of the Board of Trustees for the year 1988/1989.

ACKNOWLEDGEMENT

Several persons contributed, in various ways, for the successful completion of my study and of this Research Paper. My thanks are due to all of them. But, if gratitude is the right word to express ones indebtedness to somebody, mine goes with much appreciation and deep sincerity to my supervisor Prof. Ashwani Saith. Not only his unreserved and diligent supervision, but also his advices and encouragement, would if absent have made this paper harder to write, and even less complete.

I would like also to extend my gratitude to the Netherlands Government for offering me the financial support, and to Alemaya University of Agriculture for endorsing my scholarship application, without which my study would not have been realized.

The following individuals have shown their cooperation while I was processing my scholarship applications, ranging from writing letters of recommendations to providing me with the necessary information for this research. Therefore, I would like very much to thank Dr. Dejene Mekonen, Dr. Asfaw Zeleke, prof. H. Storck, Dr. B. Risoud, Ato Shimelis W.H., Ato Ayalneh Bogale, Ato Berhanu G.M., Ato Woubishet, and W/t Martha Tadesse.

To all friends of mine who have remained loyal to me and were consistently encouraging me through letters during my stay in Holland, I am also indebted. I am grateful to Paul Johnson for his willingness to share his word-processing knowledge with me which facilitated the write up of this paper.

Finally, I have benefited greatly from the stimulating environment and the congenial intellectual atmosphere at ISS.

Abebe H. Gabriel
October, 1989
The Hague

TABLE OF CONTENTS

		Pages
CHAPTER I.	INTRODUCTION	1
	1.1. Statement of The Problem	1
	1.2. Objectives and Scope of the Paper	4
CHAPTER II.	THEORETICAL FRAMEWORK OF ANALYSIS	7
	2.1. The Primacy to Industrialization	7
	2.2. The Role of Agriculture in Providing Marketed Surplus of Food During Socialist Transition	9
	2.3. The Question of State Farms	10
CHAPTER III.	THE EMERGENCE AND DEVELOPMENT OF STATE FARMS IN ETHIOPIA	12
	3.1. The Scenario for the Emergence of State Farms	12
	3.2. The Southern Agricultural Development Corporation	15
CHAPTER IV.	ECONOMICS OF STATE FARMS WITHIN A MICRO-FRAMEWORK	21
	4.1. Production Analysis	23
	4.1.1. Degree of Specialization	27
	4.1.2. Regional Specificities	33
	4.1.3. Levels of Input Application	38
	4.2. Financial Analysis	41
CHAPTER V.	COMPARATIVE ANALYSIS OF STATE FARMS AND PEASANTRY PRODUCTION IN GENERATING MARKETING SURPLUS OF FOOD	50
	5.1. Comparative Criteria	50
	5.1.1. Physical Productivities and Share in Marketed Surplus of Food	51
	5.1.2. Types of Inputs Needed, Technological Appropriateness, and Sustainability	54
	5.1.3. Costs of Production: Nominal and Corrected Comparisons	55
	5.2. Summary of the Potentials and Limitations	59
CHAPTER VI.	SUMMARY AND CONCLUSIONS	64
	6.1. Summary of Findings	64
	6.2. Lessons from Other Socialist Countries Experiences	69

ENDNOTES	73
BIBLIOGRAPHY	76
ANNEXES	81

LIST OF TABLES

TABLE	Pages
1.1. The Contribution of Agriculture to the Economy; some indicators	2
3.1. Percentage of Average Area and Production Under Major Crops by Sector (1979/80-85/86)	15
3.2. List of State Farms by Type of Production	17
3.3. Percentage Share of Wheat, Barley, and Maize in Total Area Under SADC	18
3.4. Percentage of Farm Machinery In Working Conditions, 1982-85	19
3.5. Employees of SADC by Type of Employment (numbers)	20
4.1. Average Yield per hectare of and Inter-State Farm Yield/ha Spread of Wheat, Barley, and Maize by State Farms	24
4.2. Ranks of State Farms by Degree of Specialization	29
4.3. Ranks of State Farms by Productivity (Value/ha)	30
4.4. Ranks of State Farms by Degree of Specialization and Productivity	31
4.5. Yield/ha of Wheat by Enterprise, 1980-85	34
4.6. Yield/ha of Barley by Enterprise, 1980-85	35
4.7. Value per ha of cereals for the years 1980-85 by Enterprise	35
4.8. Significance of Differences between Mean Yields for Cereals by Region	36
4.9. Benefit-Cost Ratios of Cereal Producing State Farms	40
4.10. Ranks of State Farms in Descending Order of Ci:Vi Values	41
4.11. Income and Expense Summary for the Production of Wheat, Barley, and Maize, 1980-85	42
4.12. Benefit-Cost Ratios of Cereal Producing State Farms, 1980-85 Average: An Illustrative Exercise	46
5.1. Percentage Area and Production of Major Crops by Sectors	52
5.2. Yield/ha of Some Selected Crops by Sector	53
5.3. Estimated Average Costs of Production for State Farms and Peasantry	58
5.4. Share of Resources Absorbed by State Farms as percentage to Total Distributed in Agriculture, 1980-83	62

ANNEXES

Annex.

81-90

- 3.1. Organizational Structure of SADC
- 4.1. Yield per Hectare (in quintal), by Crop, 1980-85
- 4.2. Productivity as Value of Cereals per unit Area
- 4.3. Cultivated Area by State Farm, Crop and Year
- 4.4. Cost per Quintal (in Birr), 1980-85, by Crop
- 4.5. Cost of Production as Cost of Cereals per unit Area
- 4.6. Grain Purchases by the Agricultural Marketing Corporation (in Quintals)
- 4.7. Intra-Regional Price Spreads by Crops, October 1981

LIST OF ACRONYMS

AADE	- Arssi Agricultural Development Enterprise
AIDB	- Agricultural and Industrial Development Bank
AMC	- Agricultural Marketing Corporation
BADE	- Bale Agricultural Development Enterprise
CSA	- Central Statistical Authority
DPSA	- Development Projects Study Agency
IAR	- Institute of Agricultural Research
ILO	- International Labour Office
ISS	- Institute of Social Studies
MSFD	- Ministry of State Farms Development
ONCCP	- Office of the National Committee for Central Planning
SADC	- Southern Agricultural Development Corporation
SADE	- Sidamo Agricultural Development Enterprise
SCF	- Standard Conversion Factor
SER	- Shadow Exchange Rate
SF	- State Farm
SWR	- Shadow Wage Rate

I. INTRODUCTION

1.1. Statement of the problem

Ethiopia, while included in the list of countries experimenting with a socialist mode of production also represents a case where construction of socialism is taking place in a predominantly agricultural socio-economic milieu. More than 85% of the total labour force, about 90% of foreign exchange earning, nearly 48% of GDP find their sources from agriculture. More than 90% of the population depends on agriculture for its livelihood. The physical quality of life of the people generally, specially those in the rural sector is low by every standard¹; and poverty is endemic. GNP per capita stands at US\$120, life expectancy at birth 46 years, calorie intake per capita 1704 per day, more than one-half of the total household expenditure appears to be spent on food (mainly on cereals). The development of infrastructure is at a very low level.

The agricultural sector is also characterized by low productivity and, as a result, by low returns to the producers. This situation is a direct outcome of the backward age-old traditional farming system which has recently been worsened for the once fertile and productive (and fragile) eco-system although capable of holding a minimum number of people, after some time lost its productivity as more and more of its capacity has been used up without replacement. A larger number of population of more than 46 million at a high growth rate which is estimated to have reached 2.9% per annum demands that the annual growth rate of food production should exceed 3 per cent to keep pace with the population growth so that food consumption per capita would be maintained at least at a constant level. At present the country is a net importer of food. Grain imports (wheat, barley, maize and rice) rose from 38.6 thousand tons in 1981/82 to over 321.8 thousand tons in 1985/86, an increase of more than nine-fold within a time lapse of five years.² The long-run developmental implication of this dependency on the outside world for food has little, if any, justification when one takes into account the comparative disadvantage of the country in continuing to import cereals. The over-riding concern for food self sufficiency making use of own resources, therefore, cannot be over-emphasized.

The country's potential in reversing the ugly situation of food self-insufficiency is time and time again echoed as a remarkably great one. Ethiopia is not facing a constraint in terms of land availability which is the burning issue in many developing countries. Out of the total cultivable area (which is about 65% of its total size) only 14 per cent is cultivated. Neither does she experience much difficulty in producing cereal crops, for example wheat, which can be done only at a relatively high cost in many other Sub-saharan Africa. The agro-ecological and climatic conditions (despite the recurrent drought) are favourable for growing a multitude of foodgrains, specially cereals. And most important, when this potential is matched with a large, hard working peasantry, the prospect for its realization becomes even more apparent.

Table 1.1

The Importance of Agriculture in the Economy: some indicators (% to the total)

GDP at constant factor cost of 1980/81	46.9
Population	89.7
Foreign Exchange Earning	90.0
Employment Generation	85.0

Source: CSA, 1987, Ethiopia: Statistical Abstract, Addis Ababa.

In such a situation when a transition to socialism is attempted, the role of the latter becomes a multi-faceted one. On the one hand the socialist revolution is expected to abolish production relations that had become a curb to the development of productive forces. On the other hand the formation of new, progressive relations and technological conditions of production which further socio-economic development is another task of the same revolution. The latter issue requires more than just institutional changes in the economy. We mentioned above that the economy is an agricultural economy to such an extent that virtually the entire resource base, material as well as human, for accumulation is in that sector. The agricultural sector, indeed, constitutes the central position in the process of socio-economic development. The choice of appropriate growth strategies, instruments and policies, therefore, constitutes the key factor in that process; and in fact the realization of the potential, we cited above, is determined by that choice.

From an ideal growth policy perspective, in the context of a dominant but undeveloped agricultural sector and that of a necessity for socialist economic transformation, the modernization of a backward agriculture is imperative, and the use of it for primitive socialist accumulation process is unavoidable. Both transformations, i.e., agricultural transformation and socialist transformation of the whole economy are necessary. In the process agriculture provides the necessary investible surpluses for industrialization which is regarded as a necessary condition in laying the material foundation for socialist development.

One of the ways by which the process of transferring investible surpluses from agriculture to industry could be effected is through ensuring as cheap and adequate a food supply as possible to the growing industrial labour force (the proletariat). The extent to which this is rendered practicable depends on the ease with which the dominant actor in the economy (i.e., the socialist state) controls the production, marketing, distribution, etc., of the food itself. In a situation where total agricultural productivity and production per head of the agricultural population is low and where more than 95 per cent of the total volume of food crops being in the hands of the peasantry, one can hardly expect the volume of marketed surplus of food to be as high as it may be desired. The central issue then revolves around the question of raising that part of food produce which would be made available at the required time, location, price and magnitude. There are two possibilities (not mutually exclusive) of doing it. The first one is to mobilise marketed surplus via control of exchange process. The second constitutes the creation and control of marketed surplus via captive production processes. These alternatives have been chosen by the Ethiopian government. On the one hand the state assumes an increasingly monopolistic role in marketing and distribution of food grains by setting-up an Agricultural Marketing Corporation (AMC) where grains are purchased from the peasant producers and private traders at fixed official prices; and on the other hand, the state itself becomes an agricultural entrepreneur, i.e., by setting up state farms. It is this latter issue that we are going to address in this paper.

1.2. Objectives and Scope of the Paper

It is the central purpose of this research paper to examine whether state farms provide the best strategy for increasing marketed surplus of food grains in Ethiopia. Our hypothesis emerges from the fact that foreign exchange is a limiting factor in financing development projects in the economy. On the other hand agricultural land and labour are relatively abundant. The prudent use of scarce resources and the choice of an appropriate technique of production could then involve the employment of less of the scarce, and more of the abundant, resource. Contrary to this, in state farms production of foodgrains takes place by employing relatively more imported inputs, i.e., by claiming and relying on the scarce resource. However, under the Ethiopian conditions foodgrains are equally producible with the use of more of the locally abundant and less of the relatively scarce factors of production. The agro-ecological factors (climate, soils, topography, etc.) of the country do not themselves necessitate a capital intensive production technique. It is hypothesised that:

- (a) productivity of state farms measured in terms of physical output of foodgrains per unit of area is low;
- (b) efficiency of state farms measured in terms of value of foodgrains per unit of resource cost is low;
- (c) even though the primary objective of food crops production in state farms is that of securing an increased marketed surplus of foodgrains, this could well be achieved through the alternative of stimulating the non-state farm agricultural sector to increase the overall agricultural production level (which at present is very low); but this can hardly be fully exploited in the presence of state farms. After all, ensuring food security not only for the urban working force but also for the rural poor is an integral part of socialist development objectives.

Our area of concern will be food crops (major food crops in Ethiopia include wheat, barley, teff, maize, and others). More specifically the paper focuses on marketed surplus of food with special emphasis on state farms. The choice of only food crops as a subject of this study is not untimely when the country desperately needs to use every possible opportunity to address the urgent food crisis. The state farms to be studied are those organized under the Southern Agricultural Development Corporation (this is a corporation which administers, co-ordinates and manages the major food crop producing state farms); and these state

farms do have in their production mix various crops as well as livestock production activities though their main pre-occupation is with the production of food crops.

The Data

By making use of a six years (1980/81–1985/86) farm management and various secondary sources of data of those state farms, we will investigate the feasibility of food crops production in state farms. The farm management data are collected by the state farms' management sections (based on direct measurement and recording of the particulars) to compile a 'Report on General Condition of SADC'. The results of this report on area, production, and yield of the crops to be investigated is cross-checked against the document of Central Statistical Authority on 'Time Series Data on Area, Production, and Yield of Major Crops' for the same period of time; and it shows a good comparability. This is not surprising because the Central Statistical Authority when preparing that document used the reports of Ministry of State Farms Development to compile the area, production, and yield of major crops produced in state farms. The regional classification of state farms by Central Statistical Authority exactly coincides with the organizational structure of SADC (i.e., Arssi, Bale, and Sidamo regions are areas of SADC's operation). Therefore, the report by Central Statistical Authority provides us a second best information as far as conditions of SADC is concerned. We chose the farm management data as the best one because besides its good comparability to that of the other alternative, unlike to the latter it is a relatively complete one in a sense that it contains information on items like costs of production by category, area, production, and yield by each and every farm, etc., which is missing in the document of the Central Statistical Authority. The latter will be used in chapter 5 when the cases of peasant farms are compared with state farms. Data on yield, production, and area of major crops for the former forms of production are collected by Central Statistical Authority "objectively by physical measurements of sampled fields and weighing yields from sampled plots in 1987/80–1985/86" (Central Statistical Authority, 1987:viii).

It is tried to bridge the missing information by using other sources such as the research works previously undertaken. In the light of data scarcity in Ethiopia both in terms of coverage and specificity, it is hoped that the outcome

of this research might provide a some what better picture of the subject for those interested in the field.

The paper is organized as follows. In the next chapter a brief theoretical framework for studying the role of a transitional agricultural sector in the process of (primitive) socialist accumulation, marketed surplus, and state farming is presented. The third chapter discusses, very briefly, the scenario for the establishment and later the proliferation of state farms in Ethiopia. Chapters four and five then investigates our main hypothesis. The economics of state farms with an empirical analysis of production and cost of production as well as financial analysis is accommodated in chapter four. In chapter five the potentials and limitations of state farms and non-state farms in raising marketed surplus of food will be looked at. We conclude, in the last chapter, by summarizing the major findings and reviewing the differences/similarities with respect to state farming between Ethiopia and some other socialist oriented countries, and the relevance of this for Ethiopia's policy.

II. THEORETICAL FRAMEWORK OF ANALYSIS

The theoretical framework for this research paper looks into inter-sectoral developmental priorities in the period of socialist transition, the place agriculture occupies in that process, the essence of marketed surplus, and the question of state farms, as its point of departure.

2.1. The Primacy of Industrialization

Many contemporary transitional economies have adopted the building of a socialist socio-economic formation as their long-run target. The theoretical basis for such transition requires that the level of development of the productive forces of society be of an advanced level and create a sufficient basis for this transformation. The classical Marxist approach acknowledges the capitalist mode of production as a pre-requisite stage for the development of material and spiritual basis of socialism. Capitalism, in Marxist terminology, has a historical role to play in the development of productive forces which in its maturity "becomes a fetter upon further development and 'begets' with the inexorability of a law of Nature, its own negation" (Marx, 1969:144, quoted by Saith, 1985:1). In contrast to this expectation that socialism could only be born out of the womb of a highly developed capitalist socio-economic system, the reality (at least up to now) proved to the contrary; i.e., socialist revolutions have taken place in economies with undeveloped capitalist system (feudo-capitalist as in Ethiopia) and at a low level of productive forces of society. For this reason the leading concern in transitional economies has been to ensure an advanced level of productive forces of society (which was supposed to have been completed had socialist revolution overtaken a fully developed capitalist system) before reaching a stage of communist socio-economic system. Superficially it seems quite attractive; and the euphoria it inspires at the beginning is remarkable. Nobody dislikes to see a highly developed and advanced productive forces of society, since high level of socio-economic welfare could also be achieved in the process. But when looked into the theoretical formulae by which such levels of productive forces are to be attained, and the structurally underdeveloped nature of these contemporary economies, much of the initial euphoria is quickly dissipated. Industrialization (particularly the heavy industrial sector) constitutes the central pillar of the inherited model for such traditional development theory. Other sectors, specifically agriculture, was taken

as an instrument for that type of development. Despite the difficulty of pursuing that model, the new socialist governments continued to accord primacy to heavy industrialization. In the so-called 'the planned and proportionate development of national economy' the growth of 'Department I' (the production of means of production) deserves top priority. But the essential source of this sector, as FitzGerald (1986:29) noted, is foreign trade since Department I is incomplete in peripheral economies. The Department I of these economies is located abroad, in industrialized countries with which it trades at prices that the latter determine. The danger of dependency is, therefore, quite evident.

On the other hand, the priority accorded to industrialization by these economies is also understandable. After all the need to industrialize, by the transitional economies, is a matter largely of an endeavour to loosen the unfavourable politico-economic dependency ties with the world capitalist system. Saith regards the imperative for newly emerging third world countries (within which many of the socialist countries are found) to industrialize, to have been underpinned by the following factors. "First, the longer-term structural transformation of the economy hinges on industrialization, since this is the key element in raising the productivity of labour. Additionally, in the longer-term, the level of agricultural productivity as well as the level of satisfaction of the material needs of the entire population depend upon the commodities turned out by the industrial sector. Third, there is an over-riding element of underwriting national security through attaining a certain degree of self-sufficiency in a range of strategic industrial lines; basic needs and defense are also other imperatives which require the creation of a much wider industrial base" (Saith, 1985:45). Moreover, industrialization was imperative³ if "agriculturally-oriented primary products exporting less developed countries were to escape the negative dynamic implications of the international trade and growth process, e.g., deteriorating terms of trade arising from structural factors; etc." (Saith, 1989:13)

The task of a transitional economy, therefore, appears to be that of transforming the socio-economic system through two processes, both taking place simultaneously: socialist transformation, and industrial transformation. But the gap between the start and the climax of the transformation process can be so wide as to require the mobilization of resources (material as well as human) on a huge scale in favour of the desired direction. Hence, the process generally constitutes

nothing less than a socio-economic upheaval, and can therefore be painful. For those economies whose resource base is predominantly agricultural (as it is in Ethiopia) the problem becomes much more intractable; and the burden of these processes rests unavoidably on the shoulders of the peasantry. Saith's argument on the agrarian question in socialist transitions reminds us the existence of trade-offs when the two transformations are carried on at the same time. "In the context of the socialist transition in a poor developing economy, the agrarian question bifurcates into two dichotomous sets of issues. The first concerns the instrumentality of the agricultural sector in assisting industrialization through the provision of investible resources which the nascent industrial sector cannot generate in sufficient magnitude from within, or from other sources (for example, colonies). The second treats the rural sector not as a continued object of exploitation in the form of primitive socialist accumulation but rather as a subject of socialist development by virtue of the fact that it is in the rural sector that the bulk of the population, especially its poorer and oppressed component resides" (ibid:3).

2.2. The Role of Agriculture in Providing Marketed Surplus of Food During Socialist Transition

The role of the agricultural sector in the process of socio-economic development during socialist transition goes farther than provision of raw materials, generation of foreign exchange, and provision of labour power to other sector of the economy. It also provides food for the proletariat, and acts as a market for the industrial manufacturing sector. Especially in economies where the bulk of food items coming from agriculture the importance of the marketed surplus of food occupies a special position in that process.

Marketed surplus of food could be conceived as that part of food which is produced in agriculture and made available for the non-agricultural population. As far as primitive socialist accumulation is concerned the magnitude and the price of this part of produce play an important role. Food items should be made available at cheaper prices for the urban population, particularly to the industrial working force. At the same time the prices of the same products should not (at least in principle) be kept at so low a level that producers of food would be discouraged. There appears to exist a trade-off between these good, at times

ambivalent, socialist intentions, i.e., cheap food for industrial labour force and attractive prices for food producers. The latter case is not a matter of just good prices, but also peasants should be able to buy consumer goods against their money incomes; otherwise the incentive effect does not work.

As we are concerned with a kind of country where more than 85 per cent of the total population is occupied in agriculture the process of socialist accumulation could not be viewed without incorporating issues concerning the participation to a larger degree of the agricultural population. Accumulation presupposes restriction of current consumption. The big, and almost insoluble problem with which that transitional economy is faced is how to restrict consumption in favour of socialist accumulation with a population already on a very low level of consumption. This brings us to the necessity of being concerned not only with inter-sectoral transfer of the already generated 'surpluses' from agriculture to industry, but also with the generation of it. The generation of surpluses calls for organizational restructuring of the agrarian sector either as a means of establishing socialist relations of production or as a mechanism of ensuring control over the desired marketed surplus, or in most cases both. This process has taken a form of collectivization as for example in USSR, China and some other socialist countries. In Ethiopia three distinct institutions emerged in agricultural sector. These are producers cooperatives, state farms, and private holdings of the peasantry. The question of state farms has its roots in that process of organizational restructuring of agriculture.

2.3. The Question of State farms

One could ask the question: why state farms? There are several explanations which attempt to justify state farming. Firstly the formation and consolidation of socialist production relation requires that the social character of production in large scale commercial farms has to be matched with a socialist ownership of means of production. This explicates their nationalized status. State farms are also deemed to constitute a superior and advanced form of socialist production units as compared, for example, to agricultural producers cooperatives. This is because state farms represent ownership by all people, the wealth they generate is expected to benefit the society as a whole; while producers cooperatives are owned by their members (just a small group of people). Secondly the theoretical underpinnings of

certain inherited socialist development models generally prioritize large scale production over small scale production. This prejudice expresses itself by the notion - 'bigger is better and large is beautiful' - which is advocated by a good number of socialist oriented countries. State farms obviously form the largest agricultural production units. Economies of scale play an important role in Marxist-Leninist arguments about why peasant farming is not a viable way of organizing agriculture and why socialist agriculture will overtake and surpass capitalist agriculture in productivity (Ellman, 1981:981). Thirdly the demonstrative contribution of state farms to other sub-sectors of the agrarian sector was also cited to have been of a remarkable extent. The fact that state farms can potentially serve as a nucleus of technological change, and as a means of introducing improved technologies to the traditional peasant sector is often spelt out. Fourthly "the nature of the farms, large scale and mechanized, makes it necessary that they be managed and run by a state agency which has better access to capital, technology and specialised skill" (Mersha, 1989:88)⁴. Fifthly there is a need to exercise control over output and marketed surplus of some strategic goods. State farms are the most appropriate mechanisms to serve this purpose. The problem with relying on peasantry for producing marketed surplus of food (unlike to cash crops) is that it can be consumed within the farm. For a variety of reasons, therefore, state farms were top in the list of the agenda of socialization of agricultural production in many socialist countries.

Independently of such theoretical underpinnings, the conjunctural experience of Ethiopia's economy during the early few years after the Revolution created special conditions conducive to the establishment of state farms. Due to a number of factors there was a shortage of marketed surplus during 1977-79. That vital need for marketed surplus under state control, perhaps, may explain more why the state farm sector expanded very rapidly within a short period time. Thus, in understanding the role of state farms, both strategic perspectives, as well as the imperatives of survival, have a role to play.

Within this theoretical framework we will contemplate the experience of Ethiopia's state farms engaged in foodgrains production.

III. THE EMERGENCE AND DEVELOPMENT OF STATE FARMS IN ETHIOPIA.

3.1. The Scenario for the Emergence of State Farms in Ethiopia

The Ethiopian revolution was no exception to those problems we mentioned in the preceding sections. It had to face obstacles of the 'twin transitions', i.e., the transition towards industrialization and socialism. But the inherited mode of production was not capitalist in the strict sense of its meaning, let alone reflecting a matured form of it. It was a feudal mode of production with a nascent capitalist class emerging. Industrialization, and the proletariat class was at its infant stage. The economy was (and still is) predominantly of subsistent agricultural/rural which in turn was at a low level of productivity using backward traditional technology.

The overall approach to economic growth before the revolution emphasised capital accumulation primarily in industry on the one hand, and the creation of large scale commercial farms to feed a growing urban labour force, generate export earnings, and to provide agricultural inputs into industry on the other. In the First and the Second Five Year Plans (1957-1968) emphasis was given to investments in manufacturing, mining, electricity, and infrastructural development. Agriculture received only about 6 per cent of the total investment under the plan, and even this was primarily to the large scale farms (Cohen, 1987:42). The Third Five Year Plan (1968-1973) sought to deal more directly with the constraints to agricultural growth; but large commercial farms were viewed as the key to agricultural progress. Cohen (ibid), for example, stresses that the annual agricultural growth rate of 3.1 per cent set by the Plan was to be achieved by government policies aimed at stimulating increased mechanization of farms, establishment of raw material processing industries, and expansion of agricultural exports. Pre-revolution Ethiopian agricultural policy suffered from a bias toward large scale commercial farming, and the subsistence level small scale production was neglected. Apart from the direct investment prejudice in favour of the former, the fiscal and monetary policies were stimulative to a large scale commercial farming. Tractors, and plant protection chemicals were exempt from import duties. Fuel tax exemptions stimulated mechanization, and large agrarian investments above US\$200,000 were given three to five years income tax relief (ibid:42). Foreigners and local entrepreneurs started large scale farming; nomads

and peasants (tenants) on the other hand were evicted from their holdings. For example, Stahl (1974:103) mentions that in one of the provinces of Arssi "in 1969 and 1970 a total of 538 tenants moved out of their holdings among them 392 families were evicted as a direct consequence of mechanization"⁵

Those large farms were set up on profit motives, and in accordance with the needs of the plans.

"The rapid development of commercial agriculture is the only way to get the relatively quick increase needed in agricultural exports. It will clearly be essential to induce more foreign private investment and to import the needed managerial and technical skills; these farming enterprises may be public or private in ownership and operation but the really important consideration is that the activities be commercially sound. It is from this sector that the rapid gains are expected in output and availability of surpluses, both for consumption domestically, particularly in the cities and towns as well as for export" (Third Five Year Development Plan, 1968:191, quoted by Stahl, 1974:75, my emphasis).

Hence many of them were concentrated on production of cash crops. Cotton, sugarcane, tobacco, fruits, vegetables, oilseeds, and coffee make up the dominant set in their production mix. There were some farms producing major food crops (mainly cereals) but these were limited to the highlands where there was no need of heavy investment such as irrigation. It may be understood that their existence was the function of their viabilities in terms of fulfilling the demands of their entrepreneurs.

No doubt, those farms were capitalist in form and content. The socialist revolution had to resolve the agrarian question it faced in 1975, and the fate of those large commercial farms had to be determined together with that of the age-old feudal order. There were two alternatives: either to transform them into state farms or to dissolve them and redistribute to the surrounding peasantry. The choice as to which one of the two alternatives to undertake was determined by the size of those farms. Some of the very small farms were redistributed to the peasantry. The bigger ones on the other hand formed the starting point of the present day state farms in Ethiopia.

State farms had two independent origins: firstly, inherited large scale farms were nationalized and converted into state farms; secondly, after the revolution,

new state farms were created by the state as part of its agricultural development strategy.

The period after 1976 (particularly, up to 1980) saw an expansion of state farms. Cultivated area under state farms, which was 68,000 hectares at the time of land reform, rose to 210,000 hectares in 1985/86. In 1975/76 state farms' share in the total cultivated area and total production was 1.0% and 2.1% respectively. In 1984/85 cultivated area and production by state farms accounted for 3.4% and 6.1% respectively. In fact that period (1976-1980) was also characterized by a chaotic situation in the socio-economic and political spheres. Internal unrest, external aggression, coupled with disruptions caused by land reforms in the rural areas had a deleterious influence on agricultural production as a whole and on the magnitude of marketed surplus of foodgrains particularly. Marketed surplus which stood at about 25 per cent of gross output of food crops on the eve of the Revolution appears to have declined to only 11.7 per cent in 1977/78 (Ghose, 1985:136). Although this may partly be explained by an increased consumption of the peasants (as income was supposed to rise⁶), total output itself was lower than that of 1975/76 by about 13 per cent (ibid:136). This situation has caused serious shortages of food crops in urban areas and even when food was available its price had so escalated that a substantial proportion of urban income earners could not afford to buy it. An urgent problem faced by the government, therefore, was that of increasing the volume of marketed output as rapidly as possible. A concerted effort has been made to intervene in the marketing and distribution of foodgrains through the establishment of an Agricultural Marketing Corporation (AMC) designed to regulate private grain trading. Moreover, quotas of deliveries at fixed prices were introduced in the rural areas based on premises about potential productivities of different regions. This intervention, however, appears to have had little impact on raising the marketed surplus in the face of low level of production and supply in the countryside. Therefore it had to be supplemented by interventions for the generation of food under the direct control of the state.

The transfer of 'surplus' food had thus to be reinforced by the direct production of it. The most expeditious method of doing this was through a rapid expansion of the state farm sector since almost the entire output of this sector was marketable. Consequently very many new state farms were established between the years 1978/79 and 1981/82; and most of these were engaged in the production

of food crops. As Ghose (1985:135) clearly put it, the rapid expansion of the state farm sector in Ethiopia was an emergency measure designed to overcome the food crises experienced during 1975/76 to 1977/78. This was the scenario for the proliferation of state farms in Ethiopia.

Table 3.1.

Percentage of Average Area and Production Under Major Crops By Sector (1979/80-85/86)

Particulars	Area	Production
Private holdings	94.80	94.59
Cooperatives	2.55	1.68
State Farms	2.65	3.73

Source: CSA, 1986, Data on Area, Production, and Yield of Major Crops in Ethiopia

Ever since the nationalization and reorganization of the previous large commercial farms, the administrative responsibility experienced several change hands (Ministry of National Resources, Ministry of Agriculture, State Farms Development Authority) till it has been promoted to the Ministry of State Farms Development (henceforth, MSFD) in 1979. The latter administers, organizes and coordinates all state farms with the exception of coffee, tea, and sugar state farms. Currently The MSFD coordinates seven Agricultural Development Corporations of which our area of concern - the Southern Agricultural Development Corporation (SADC) is one. (For the organizational structure see Annex 3.1).

3.2. The Southern Agricultural Development Corporation

SADC is just one of the seven corporations under the MSFD. It was set up in 1980 to coordinate and administer the existing and the planned state farms in the southern part of the country, viz., the Administrative Regions of Arssi, Bale, and Sidamo. It is estimated that SADC cultivates about 50 per cent of the total area under all state farms in Ethiopia. In terms of organizational structure it coordinates three state farm enterprises, one in each of the administrative regions,

i.e., Arssi Agricultural Development Enterprise (AADE), Bale Agricultural Development Enterprise (BADE), and Sidamo Agricultural Development Enterprise (SADE). (For organizational structure see Annex 3.1). Each one of the enterprises coordinates several state farms (see Table 3.2).

Agro-ecologically these regions are situated in the so-called Eastern Highlands which comprise the highlands of Sidamo, Bale, Arssi, and Hararghe, with altitudes of over 1800 meters and with a mean annual rainfall ranging from 950mm to 1500mm, though certain areas receive even more (Ten Year Development Plan, 1984:39). The region is also known to be suitable for the production of a considerable variety of crops. Wheat, barley, maize, sorghum, and other crops (legumes, oil seeds, etc.) are widely produced by the peasantry of the same region. The region is not highly vulnerable to the natural calamities including the drought which has all too frequently visited several other parts of the country.

The level of infrastructural development is relatively superior to that many other regions. One of the three administrative regions, Arssi, is also one of the few surplus producing regions in the country.

SADC is engaged in the production of major food crops. The important crops in the production mix are listed in Table 3.2.

The size of state farms varies from 496 hectares to as much as 11,290 hectares. Thus, all the state farms are essentially large farms. In the words of a mission from ILO, "the size of a state farm is very large, often several thousand hectares. Indeed if they were in another country and in private sector they would be called *latifundia*" (ILO/JASPA 1982:35). Recently, due to the intention of the government to reduce such wide size variations among state farms, the smallest one, Wajifo, has been abandoned while the largest state farms, Garadella, Herero-Hunte, and Sinana) have each been divided into two. Some of the state farms have also been handed over to other public organizations, (for example, Ardaita to the Ministry of Agriculture, Mitto to Hisanat Amba).

Table 3.2.
List of State Farms by Type of Production

Enterprise	State farm	Major crops
AADE (Arssi)	Dixis	wheat
	Lole	wheat, barley, maize, rapeseed
	Adele	wheat, rapeseed
	Garadella	wheat, barley, rapeseed
	Goffer	wheat, barley, rapeseed
	Ardaita	wheat, barley
BADE (BALE)	Herero-Hunte	wheat, barley, rapeseed, sunflower
	Sheneka	wheat, barley, sunflower
	Sinana	wheat, barley, rapeseed
	Dinkiti	wheat
	Sirufta	wheat, barley, rapeseed
	Harawa	wheat
	Golelcha	wheat
SADE (SIDAMO)	Mitto	maize, wheat
	Awassa	wheat, maize, sunflower, horsebean, soyabean
	Bilate-Abaya	cotton, horsebean
	Arbaminch-Sile	cotton, horsebean, banana
	Wajifo	cotton, maize
	Bilato-sinkille	maize, horsebeans

Source: 'SADC, General Report, 1986'

Wheat, barley, and maize dominate and occupy as much as 90 per cent of the total area under cultivation under SADC (see Table 3.3).

Virtually all of the farms under cereals are rain-fed; and therefore dependent on the vagaries of the climate. Much of the discrepancy between the planned and the actual figures of area cultivated (under-fulfilment of the plan) can be blamed on the weather and other agro-ecological conditions. To cite some of them, excessive rainfall did not allow many agricultural operations to be

undertaken at the right time (Dixis, Goffer, Adele, Sinana, Sirufta, Dinkiti, Herero-Hunte); shortage of rainfall caused a reduction of cultivated area (Sheneka in 1981). While excessive rainfall was reported in more than seven state farms and five years, a shortage of rainfall was reported to have caused a problem only in one farm and only once in six years.

Table 3.3.

Percentage Share of Wheat, Barley, and Maize in Total Area Under SADC

Crop\Year	1980	1981	1982	1983	1984	1985	1980-85
Wheat	73.15	78.15	76.90	70.43	65.45	67.30	71.90
Barley	1.96	1.99	1.73	6.43	11.20	11.13	5.74
Maize	14.55	10.10	12.78	14.07	13.17	10.63	12.55
Total	89.66	90.24	91.41	90.93	89.82	89.66	90.19

Source: Own computation from 'SADC, General Report, 1986'.

A look at some of the explanations for the low level of actual production as compared to that stipulated in the plans gives an insight into how the mechanization and the modernization of farms are not synonymous phenomena. Variability of rainfall distribution, frost problems, difficulty in control of diseases and weeds due to the absence of crop rotation practices, problems of spraying herbicides at the appropriate time due to weather variability, retardation of the germination of seeds due to the outbreak of soil-born diseases, are mentioned as major problems.

The degree of mechanization of these farms is high. According to the statement made by the ILO's mission in 1982 "Ethiopia's 'state latifundia' if we may call them that, are highly mechanized and consequently generate relatively little permanent employment" (ibid.). Much of the farm machinery is out of order and by May 1986, not more than 46 per cent of all tractors, 60 per cent of combine harvesters, 30 per cent of ploughs, to mention just few items, were in working condition. (see Table 3.4.)

Table 3.4.
Percentage of Farm Machineries in Working Condition, 1982-1985

Machinery\Year	1982	1983	1984	1985
Tractors	45	45	42	46
Combine harvesters	66	62	65	59
Ploughs	40	41	35	30
Seed drillers	29	27	29	24
Sprayers	51	42	51	30
Furrowers	77	86	80	91
Trailers	62	62	56	56

Source: 'SADC, General Report, 1986'.

Many of the farm machineries went out of order during the first few years of their operation due, on the one hand, to the demands placed by farming on virgin lands, and on the other, to the inexpertise of operators and a shortage of technicians for maintenance and repair. This group of machines could not be put back into operation either because there are no spare parts available or, sometimes, the degree of damage was so serious that the machine had to be written off altogether.

With respect to the labour force, there are two categories of employees in state farms. The first group includes those permanently employed by the government. Administrative personnel at each of organizational level (State Farm, Enterprises, Corporations, Ministry), and [semi]skilled technical staff, are included in this category. They are paid monthly on a salary basis as in any government office. The second group is composed of temporary workers who are employed seasonally by individual state farms to undertake certain agricultural/construction works. This group can be categorized into contract workers and seasonal part-time workers. The difference between these two types of temporary workers is that while contract workers are those who are employed for an agreed number of days or months on a contractual basis to do some construction work, etc., the seasonal part-time workers are those who are employed to undertake agricultural operations (especially during peak seasons). The main source of temporary labour

supply is the nearby peasant families. Payment systems depend on employment situations: contract workers receive their wages according to the terms of agreement for the duration of the work; and seasonal part-time labourers are paid on daily basis, i.e., one day is equivalent to eight working hours. Every labourer gets a time-based wage of Birr⁷ 1.92 per day regardless of the differences in labour productivity among labourers engaged in similar tasks.

Recently it has been reported by many state farms that they were experiencing a problem of finding an adequate supply of temporary labour during peak cropping seasons which matches their demand. This situation might have resulted from the necessity to substitute machine work by human labour as machinery goes increasingly out of order, and/or the difficulty to mechanize/chemicalize many of the agronomic practices.

Table 3.5.
Employees of State Farms (SADC) by Type of Employment (numbers)

Employment\Year	1980	1981	1982	1983	1984	1985
Permanent	7936	8535	8448	8754	8586	8121
Temporary	17229	40174	50897	60247	90473	76090

Source: 'SADC, General Report, 1986'.

State farms provide housing facilities only for permanent workers. By May 1986, there were 1965 rooms for 7016 permanent employees (excluding temporary shelters). On average, four employees are accommodated per room. When their family members are included, the number reaches as high as 13 people in each room.

Since SADC, like any other branch of MSFD, is established to serve certain specific purposes, its decision making process is centralised. Area of land to be cultivated, and levels of productions to be achieved are set out by the higher planning bodies. Plans and actual fulfilments often diverge; the former always exceeding the latter. Logistical problems, engendered by poor infrastructural development, exacerbated the already prevalent poor managerial systems in state farms.

IV. ECONOMICS OF STATE FARMS WITHIN A MICRO-FRAMEWORK

In the previous chapters we discussed the role of state farms in the Ethiopian (rural) development strategy and provided a brief overview of the state farm sector. In this chapter an attempt will be made to evaluate that strategy by analyzing the specifics of state farms as agricultural production units. The main thrust of this chapter is to find out the potential sources of poor performances, both for low productivity (yield per hectare) levels as well as for financial inefficiency, of state farms. Relative performance differences of state farms within themselves will be taken up first. Some functional relationships between the various parameters will be developed on the basis of the empirical evidences. Then, inferences will be made on their performances taking into account productivity and financial considerations. The analysis (being limited by the data available) takes into account the productivity parameters from the outputs and input sides.

Point of Departure

The financial performance of Ethiopian state farms, particularly of those cereal crops producing ones, has frequently been reported to have been poor. The majority, if not all, of these state farms operate under heavy financial losses. While previous studies⁸ stressed the financial performance of state farms, reasons as to why they perform poorly was ascribed mainly to the 'lower' prices state farms receive for their produces in comparison with the costs of production. Very little emphasis has been made to investigate why physical productivities in state farms have remained low. This is because the available yield per unit area to serve as a comparison with yield per unit of area of state farms is either that of the private peasantry or the producers cooperatives. Since productivity of state farms for some crops exceeds those obtaining in the peasant sector, state farms have been looked upon as superior performers in this regard.

In this paper it will be argued that productivities (yield per unit of area) of state farms are relatively low. The attempt to compare yield per unit area figures of state farms and peasantry apart from giving the wrong impression that state farms' productivity is high, is also one of the potential sources of some agricultural policy fallacies which tend to exclude the peasantry out of the

development process. That type of comparison has the effect of showing state farms as ostensibly highly productive agricultural production units in Ethiopia and ignores the resources absorbed to achieve that level of physical productivity. Such productivity comparisons of state farms and peasantry are not an appropriate yardstick to show how productivity of state farms is high on various grounds.

First, cereal crops producing state farms are situated in agro-ecologically conducive areas for the production of those crops; i.e., Arssi and Bale for wheat and barley, and Sidamo for maize. The peasantry on the other hand is found spread all over the country in conditions not uniformly suitable for the production of the same crops. Some regions are naturally fertile or productive highlands while others are marginal, and poor. To compare average productivities of state farms with those of the peasantry would mean comparing two different production systems operating under different agro-ecological conditions.

Second, taking into consideration the productive resources made available for state farms and for the peasantry, a simple physical productivity comparison between the two would be inappropriate. It may indicate not the superiority of state farms over the peasantry, but the yield difference between an experiment where some groups are favourably treated while the other is taken as a 'control' or 'check' group.

Third, even if state farms reveal physical productivity (i.e., yield per hectare) of some crops higher than the peasantry, this cannot be any sign of good performance of state farms. On the contrary the narrow productivity differentials between state farms and the peasantry could as well serve as an indicator of the relatively poor performance of state farms, since productivity in the peasant sector is already well known to be extremely low by any standard. What is the surprise, then, if state farms perform better than the peasantry?

Fourth, notwithstanding all the above factors, productivity (yield per hectare) of peasantry for some crops⁹ on aggregate level is higher than that of the state farms (for example, teff and sorghum). Moreover, if more specific comparison is necessary, the physical productivity of the peasantry in regions¹⁰ where state farms are located is higher or comparable to productivities in state farms for those crops for which state farms are acknowledged to have recorded

good yield levels per hectare.

Fifth, taking into consideration the level of yield per hectare of individual state farms, the figures for the peasantry appears to be superior to that of a significant number of state farms.¹¹ State farms: Awassa, Sheneka, Mitto, Harawa, and Sinana are good examples for this.

Sixth, the wide productivity differentials among state farms also reveals that the level of yield per hectare of many state farms is extremely low (see Table 4.1).

Lastly, a more appropriate comparison of the productivity condition of state farms would be with that prevailing in the 'modern' sectors, such as the National Yield Trials¹² at experiment stations in regions where state farms are situated. This, however, clearly shows how depressed the yields per hectare of cereal crops in state farms are. For example, wheat yield of 31.96 quintals per hectare in Assasa (a Yield Trial station very close to many state farms in Arssi) against 14.62 quintals per hectare in state farms; or a barley yield of 36.33 quintals per hectare and 48.75 quintals per hectare in Assasa and Bekoji (Yield Trial station in Arssi) respectively against 17.03 quintals per hectare in state farms; or maize yield of 32.22 quintals per hectare in Awassa (Yield Trial station in Sidamo) or an average of 71.28 quintals per hectare in five Yield Trial locations in intermediate and high rainfall areas, against 24.21 quintals per hectares in state farms, show how the performance of state farms is very disappointing.

4.1. Production Analysis

The analysis in this chapter is restricted to the three main cereal crops grown (i.e., wheat, barley and maize). As can be seen from Table 4.1, there is a marked yield variation among state farms for the same types of crops. Yield per unit of area (in quintals per hectare) for each farm, crop and year (1980-85) is presented in Annex 4.1. It is clearly visible from Annex 4.1 and Table 4.1 that productivity differentials across state farms are quite remarkable.

Table 4.1
Average Yield per Hectare (in quintal), and Inter-State Farm Yield/ha Spread of
Wheat, Barley, and Maize by State Farm (1980-85)

State farm	wheat	barley	maize
Awassa	2.25	----	25.55
Sheneka	6.76	1.02	----
Mitto	8.23	----	22.37
Harawa	8.47	----	----
Sinana	12.06	13.60	----
Dinkiti	13.81	----	----
Goffer	14.33	14.09	----
Dixis	14.78	----	----
Adele	15.50	----	----
Golelcha ^a	15.82	----	----
Garadella	16.28	14.32	----
Herero-Hunte	18.19	15.37	----
Ardaita ^a	19.81	16.54	----
Sirufta	21.99	18.84	----
Lole	26.77	21.37	34.89 ^a
Wajifo ^a	----	----	5.96
Bilato-Sinkile	----	----	17.98
Simple average	14.34	14.39	21.35
Standard deviation	6.25	6.02	10.61
Coeff. of Var.(%)	43.58	41.84	49.70
Highest/lowest ratio	11.90	20.95	5.85

Source: computed from 'SADC General Report, 1986'

Note: ^afigures are only for one year

The persistence of this wide productivity differential across state farms provokes a question: what possible factors can be identified by way of explanation? By trying to find an answer to this question, the issue of why state farms' productivity performance is generally poor, would also automatically be

addressed.

To start with, we ask the question that what factors do not bring about productivity differentials? There are some factors which are more or less common for all state farms and which are therefore as a result less likely to be responsible for the observed differentials. Most of these factors, as explained in the last chapter, arise from the fact that the state farms being studied are under the command, supervision, control and coordination of one and the same body, i.e. SADC. They have got to observe and act in accordance with the provisions of the rules and regulations of the SADC. Cropping patterns are broadly similar specially in Arssi and Bale state farms where wheat and barley account for more than 95% of total cultivated areas, wheat alone occupying more than 90%. Agronomic practices in the production of same crops are identical (i.e., seeding rates, fertilizer application rates, etc.) since they follow prescribed norms. Further, virtually all of the farms under the production of cereal crops are rain-fed. Taking into consideration the proximity of regions (enterprises) to one another and that of their similar agro-ecological conditions, climatic variations alone could be held accountable for only a very little fraction of the productivity differentials across state farms.¹³ State farms depend on natural climate, and therefore cropping season is limited to the main season (Mahar), i.e., late June to early December. In other words, they do practice a single cropping season. The other half of the year (December-May) they do not have any significant cropping activity. Arssi and Bale are known to be suitable for the production of wheat and barley, and Sidamo for maize production. The area under cultivation and production of these crops by the peasantry in the respective regions indicate that they occupy a dominant portion in the total set of crops produced.

If we assume that the above factors do not result in any pronounced productivity differentials across state farms, a look at some other features of state farms would provide a basis to identify the major reasons of productivity differentials.

Important Characteristics of State farms

The first aspect which characterizes state farms in Ethiopia is the size of their area under production. As was mentioned in the previous chapter, all of the

state farms are very large in size (cropped area). The average size of the seventeen state farms for the years 1980-85 is over 6270 hectares. This is over 20 times larger than the average state farms size in the USSR in 1960s. Practically none of the state farms in Ethiopia can be considered as small or medium.

The second important characteristic of state farms under SADC is that they tend to specialize in the production of cereal crops. The degree of specialization by cereals among state farms, however, varies. Some state farms are more highly specialized than others.

The third feature of state farms under SADC (or state farms in Ethiopia as a whole for that matter) is that they have been set-up in areas where the agro-ecological conditions are suitable for the production of crops in which they tend to specialize. Thus, wheat and barley producing state farms are located in Arssi and Bale Administrative Regions, and maize in Sidamo Administrative Region.

The fourth factor which characterizes state farms in Ethiopia is that they are highly mechanized. The degree of mechanization, however, varies from one agricultural operation to another; i.e., soil preparation and seeding are highly mechanized as compared to harvesting, while some intermediate operations (weeding for example) are very much less mechanized or chemicalized. For the latter activities, state farms depend to a significant extent on temporary part-time labour whose main source is peasant families. Due to wear and tear of farm machinery and shortage of spare parts and technicians on the one hand, and the need to expand cropped area on the other, the degree of mechanization of agricultural practices is diminishing, and the dependency on seasonal labour is increasing over time.

These important variables, i.e., non-shared characteristics of state farms might have conditioned the productivity of state farms. It is possible at this level to put forward the hypothesis that yield variation among state farms is a function of differences in those characteristics among them and/or differences in circumstances outside their own boundary whose interaction with state farms play an important role in either promoting or hindering the productivity of state farms. Disaggregating the hypothesis it implies that:

(a) yield variation among state farms is a result of differences in degree of their specialization by cereals, given the large area under cultivation.

(b) There are some advantages or disadvantages applicable to some state farms which arise from being located in a superior/inferior socio-economic milieu relative to the others. These factors are related to some demographic factors (i.e., density of rural population, the degree to which the surrounding peasantry (the main source of seasonal labour supply) has been integrated into the labour market, etc.), the level of infrastructural development, etc.

(c) The low performance of state farms in Ethiopia can be explained by the dependency of state farms on their outside environment for their smooth operation, and the presence of some unfavourable objective circumstances in that environment which are not tailored for a smooth operation of state farms. The fact that those factors apply more to some state farms than to others creates productivity differentials among state farms.

In the following sections we shall explore the above propositions.

4.1.1. Degree of Specialization (Di)

We stated above that largeness is a common feature among state farms. The problem of specialization is something inextricably linked with this important characteristics of state farms. We will come to the question of how size of farms affects their productivities later. Now we shall see the relation between productivities and degree of specialization by cereals of state farms.

Specialization can be looked at from two points of views. The first is specialization by cereals, i.e., wheat, barley, and maize taken together. The second is specialization by individual crop, i.e., wheat barley, and maize taken separately. As far as the second type is concerned there is no state farm specialized in barley or maize; but there are several state farms producing only wheat. Since the needs of different cereal crops are similar, they could be treated as a group.¹⁴ Therefore, for the purpose of this chapter we consider specialization by cereals as a group. By classifying state farms into cereal-specialized, and cereal crop producers but not cereal-specialized, what we are going to show is the extent to

which state farms exploit (or otherwise) the advantages of diversification, and how this could be related to productivity.

Since specialization by individual crops are not considered, physical quantities of outputs per unit of area will no longer be used to measure productivities. This is because yield rates per unit of area for different crops are different, and secondly a quintal of wheat is not equal to a quintal of barley, or quintal of maize because we are now dealing with values involving different prices.

Therefore we have to opt for a common denominator by which X unit of wheat would be compared to Y unit of barley, and this to Z unit of maize. That common factor could be productivity measured in terms of value of outputs (wheat, barley and maize) per unit area. The latter for any state farm can be calculated using the formula:

$$V_i = \frac{p_w(r.y)_{wi} + p_b(r.y)_{bi} + p_m(r.y)_{mi}}{r_{wi} + r_{bi} + r_{mi}} \quad (1)$$

Where, V_i is value of cereals per unit area in year i ; p_w , p_b , and p_m are prices per quintal of wheat, barley, and maize respectively; r_{wi} , r_{bi} , and r_{mi} are ratios of cropped area under wheat, barley, and maize respectively to total cropped area of the state farm at year i ; y_{wi} , y_{bi} , and y_{mi} are physical outputs per unit area cultivated of wheat, barley, and maize respectively in year i .

In using V_i as a common factor to measure productivity, a question may arise as to the cropping pattern differences among state farms i.e., cropping of high value crops viz-a-vis low value crops, and its impact on V_i for different farms. As far as wheat and barley are concerned they have got the same price per unit of output. In cases where (in 1984 and 1985) the price of barley has risen from birr 47 to birr 55, the difference is very insignificant and it does not affect our hypothesis. This is so because the share of area cultivated and production of barley in 1984 and 1985 is not that significant in total production of cereals. The crop for which we have a different price (maize) is produced in Sidamo (it used to be produced in Arssi but only in 1980 and in one farm, and has never been produced in Bale). We may have understated V_i for state farms in Sidamo because

of less production of wheat and barley, and higher production of maize whose price is lower. Despite this fact, as we shall reveal in the analysis, state farms in Sidamo do not prove to be the least performing ones.

V_i for all state farms is shown in Annex 4.2. Degree of specialization, D_i , is expressed as the ratio of cropped areas under cereals in a given year to the total area cultivated under the state farm in that particular year (see Annex 4.3.). There are seventeen state farms. Some of them have got production figures for only one year (Ardaita, Golelcha, Wajifo); others have got production figures for less than six years (Bilato-Sinkile, Harawa, Mitto) for reasons mentioned in the last chapter. Out of the seventeen state farms eleven of them have consistently been producing cereals for the six years (1980-85). Our analysis for the sake of simplicity focuses on the latter group of state farms.

Relation between productivity of state farms (V_i) and degree of specialization

We have defined what we mean by degree of specialization, and

Table 4.2.

Ranks of State Farms by Degree of Specialization (D_i), 1980-85

SF\YEAR	1980	1981	1982	1983	1984	1985	(80-85)*
Dixis	3	11	11	11	11	11	5
Lole	1	2	2	2	2	2	2
Adele	11	11	11	3	11	3	5
Garad.	6	4	4	11	4	4	4
Goffer	11	11	11	11	3	4	5
Herero-H.	2	3	3	11	4	4	3
Sheneka	4	5	11	11	11	11	5
Sinana	11	11	11	11	11	8	11
Dinkiti	11	11	11	11	11	11	11
Sirufta	11	11	11	11	7	4	5
Awassa	5	1	1	1	1	1	1

Note: Small numbers indicate least degree of specialization; 1 indicates the least specialized farm; 11 indicates a 100% degree of specialization.

*Average

productivity. Taking these two variables as yardsticks of comparability among state farms the eleven state farms are ranked year by year (1980–1985 inclusive)

If state farms are arranged¹⁵ in ascending order of degree of specialization, the list will look like: Awassa, Lole, Herero-Hunte, Garadella, Adele, Goffer, Sheneka, Sirufta, Dixis, Sinana, Dinkiti. The same state farms are ranked for each year according to their V_i magnitudes in the following table.

Table 4.3.

Ranks of State Farms by Productivity (V_i) per hectare, 1980–85

SF\YEAR	1980	1981	1982	1983	1984	1985	(80–85)*
Dixis	8	8	10	8	3	5	7
Lole	2	1	1	1	1	1	1
Adele	7	9	5	9	4	4	6
Garadella	5	6	6	2	9	8	5
Goffer	4	7	8	7	10	10	8
Herero-H.	3	5	2	3	7	6	3
Sheneka	11	11	11	10	11	11	11
Sinana	10	4	7	5	8	9	10
Dinkiti	9	10	4	11	6	7	9
Sirufta	1	2	3	6	2	3	2
Awassa	6	3	9	4	5	2	4

Note: Small numbers indicate high V_i figures; 1 indicates the maximum V_i ; 11 indicates the least V_i in the list.

*Average

Arranging state farms in descending order of V_i magnitudes gives us: Lole, Sirufta, Herero-Hunte, Awassa, Garadella, Adele, Dixis, Goffer, Dinkiti, Sinana, Sheneka.

If the rank of state farms according to degree of specialization is brought here and matched with the rank of state farms according to V_i , we get what is seen in Table 4.4.

Table 4.4.
Rank of State Farms According to Degree of Specialization (Di) and Productivity (Vi), 1980–85

STATE FARM	R A N K S Di	I N Vi
Dinkiti	1	9
Sinana	2	10
Dixis	3	7
Sirufta	4	2
Sheneka	5	11
Goffer	6	8
Adele	7	6
Garadela	8	5
Herero-hunte	9	3
Lole	10	1
Awassa	11	4

There exists an inverse or negative correlation between V_i (the value of cereals per hectare) and D_i (degree of specialization) ($r_{rank} = -0.66$). Those state farms which are highly specialized in cereal crops production are characterized by low V_i ; while state farms whose V_i is higher are those less specialized ones. A look at the bottom half of Table 4.4 indicates that the 1st, 3rd, 4th, 5th, and the 6th most productive (with highest V_i values) state farms are the five least specialized state farms. Except for one state farm (Sirufta) all of the state farms conform to the inverse relationship between degree of specialization (D_i) and productivity (V_i).¹⁶

It seems rather difficult to assume that this inverse relationship between the two variables is coincidental. There must be some systematic advantages as a result of diversification of crops; or there must be some disadvantages which may arise from not practising diversification of crops.

In the absence of diversification risks due to slight climatic and/or agronomic practices changes are not distributed. When all of the farm is cultivated with cereals, since the response of cereals to those changes is more or less the same, productivity falls. Crop loss due to frost in Arssi and Bale state farms is a good example of this. Second, diversification is not only a risk-aversion strategy but also enables the use of scarce resources in a more rational way. Different crops do have different gestation periods and require agronomic treatment at different time (stages of their growth and development), which implies that the seasonal work load is distributed more evenly over time and cultural practices can more easily be undertaken at the right time and in the right way.

Moreover, the advantage of crop rotation cannot be over emphasized. The nitrogen fixation capacity of leguminous crops (beans, peas, etc.) would have been utilized because not only they reduce continuous mineral depletion from the soils and increase the yield of the next crop but also help to a great extent in improving soil structures in the longer term. One of the main problems reported by a good number of state farms is poor drainage. Where there is no possibility of getting farms drained mechanically, appropriate crop rotation practices seem to help. The latter is also believed to have been helpful in reducing disease and pest problems which result from cropping the same crops over and over again on the same farm from year to year.

The link between size of farms with degree of specialization, and the impact of this on productivities should be seen in this light. When size (cropped area) expands, if the degree of specialization of state farms by cereals is high, the cropped area under cereals becomes large. But what usually happens is that all other inputs do not increase to scale. Some of these factors of production become a limiting factor (for example, the case of seasonal inelastic supply of labour). Plans often seem to be rather ambitious in getting more and more produce being turned out each year; and agricultural production process in state farms has been looked upon as a 'black-box' where area expansion alone was deemed sufficient to yield the desired target, while production conditions in state farms and their interaction with outside environment (i.e., nature of produce and season of production in peasantry, availability of labour, etc.) tended to be overlooked.

It was noted in the last chapter that one of the main problems state farms face is the shortage of labour; and it was also stated that they depend for the supply of labour on the peasantry resident in the vicinity of the state farms. The larger the farm, the more acute would be this problem. The constraint arises because the peak demand for labour in state farms occurs when the peasants of the region are also fully occupied on their own farms. In other words, there is a coincidence of peak seasons for the peasantry and for the state farms. These seasonal inelasticity of the supply of labour persists till some time as the peasantry is released from its own farms. State farms as a result could not find the necessary labour at the right time.¹⁷ Losses due to the untimeliness of agricultural operations contribute a great deal to the fall in yield per hectare.

Further, control and supervision of labour on large farms is not as easy as it is in smaller farms specially when the payment is on a 'time' basis, and where there are few, if any, labour incentive systems operational. The labourer, whether productivity decreases or increases, is disinterested as long as the remuneration to his/her labour does not change in accordance with the productivity of his/her labour.

Crop losses due to wild animals and birds are experienced more by large farms than by smaller ones. The smaller the farm, the higher is the possibility to inspect and watch the farm, and control such attacks before they cause serious damage. Difficulty of tracing the incidence of pests and diseases, and controlling them immediately exacerbates as the farm size increases.

4.1.2. Regional Specificities

Productivity differentials among state farms due to regional specificities are prevalent. Wheat production in Sidamo (SADE), for example, has proven to have been at a low level of yield per hectare - Awassa state farm produced wheat at 3.22 quintals in 1981, and 1.28 quintals per hectare in 1983. These are in fact the lowest reported by all state farms. Another wheat producer state farm under SADE is Mitto whose yield per hectare has also been among the lowest. The two regions, Arssi and Bale (AADE and BADE), are relatively suitable for wheat and barley production; and practically neither of them are engaged in maize

production. In AADE in 1980 maize was cultivated on 740 hectares, and the yield per hectare was more than 34 quintals. This rate of yield per hectare for maize is impressive; and it was only Awassa state farm and only in 1985 that registered yield per hectare of maize over 34 quintals.

Main production lines by Region (Enterprise) are as follows :

<u>Enterprise</u>	<u>Crop</u>
AADE	wheat and barley
BADE	wheat and barley
SADE	wheat and maize

Comparison of productivities across regions by the use of physical quantities of output will be valid for wheat (across three of them), and for barley (only for AADE and BADE). The use of V_i on the other hand serves as a good comparability across all regions regardless of crop specificities.

Generally speaking AADE (Arssi) appears to be superior in yield per hectare of wheat to the rest of two regions (see Table 4.5.)

Table 4.5.

Average Yield per hectare (in quintals) of Wheat for the years 1980-85 by Enterprise

ENTERP.\YEAR	No. of SFs@	1980	1981	1982	1983	1984	1985
AADE	6	17.53	14.75	15.38	14.55	16.58	18.46
BADE	7	12.25	12.30	16.74	12.19	14.60	15.46
SADE	6	----	10.29	9.67	7.50	7.90	---

Source: 'SADC General Report, 1986'

Note: @ A maximum number of state farms

It was only once in six years (in 1982) that Arssi was superseded by Bale; otherwise it stood first. The average yield/ha of wheat for 1980-85 is 16.21, 13.92, and 8.84 quintals for AADE, BADE, and SADE respectively. In yield per hectare of barley, the two regions do not show any marked difference, and neither of them appear to have held superiority over the other even for any two

successive years (see Table 4.6.)

Table 4.6.
Yield per hectare (in quintals) of Barley for the years 1980–85 by Region

ENTERP.\YEAR	1980	1981	1982	1983	1984	1985
AADE	24.46	18.34	23.81	14.05	12.72	15.07
BADE	18.58	19.04	23.20	9.93	14.04	17.33

Source: 'SADC General Report, 1986'

But when the regions are compared according to V_j , we can see from Table 4.7 that BADE took first position only in 1982, second position in 1981 and 1984, and the last position in the remaining three years; AADE occupied the first position in 1983 and 1984, and second position in the remaining four years; SADE took the first place in 1980, 1981, and 1985, second position in 1983, and third position in the remaining two years. Adding up the ranks of each regions, AADE comes first, SADE second (notwithstanding cultivation of a low value crop (maize) and a low rate of yield per hectare of wheat), and BADE last.

Table 4.7
Value per hectare of Cereals (V_i) for the years 1980–85 by Enterprise

Enterp.\Year	1980	1981	1982	1983	1984	1985
AADE	832.7	698.5	730.9	681.5	764.6	860.1
BADE	590.4	584.6	792.9	564.4	697.4	751.8
SADE	853.8	794.6	585.5	632.3	401.9	878.5

Source: computed from 'SADC, General Report, 1986'

The significance of differences between mean yields for wheat between Sidamo, Bale and Arssi, and for barley between Arssi and Bale is tested at levels of significance of 0.05 and 0.01 (see Table 4.8). The data of the six years are pooled in order to increase the number of observation. The result indicates that

there is a significant difference between mean yields of wheat for Arssi and Bale at 0.05 level of significance; but that difference is not significant at 0.01 level of significance. The mean yields' difference for wheat between Arssi and Sidamo, and between Bale and Sidamo is significant at both levels. The case of barley, shows no significant difference between mean yields of Arssi and Bale at both levels of significance.

Table 4.8
Significance of Differences Between Mean Yields for Cereals between Regions (1980-85)

Region	Crop	Number of Observations	Mean	Standard Deviation
Arssi	Wheat	31	17.60	5.48
Arssi	Barley	16	17.04	5.36
Bale	Wheat	33	14.54	6.04
Bale	Barley	13	15.06	6.72
Sidamo	Wheat	6	7.42	4.27

Regions	Crop	Difference at signif. level of	
		0.05	0.01
Arssi & Bale	Wheat	significant	insignificant
Arssi & Sidamo	Wheat	significant	significant
Bale & Sidamo	Wheat	significant	significant
Arssi & Bale	Barley	insignificant	insignificant

Source: computed from 'SADC, General Report, 1986'.

The superiority of AADE and SADE to BADE in V_j is something related to the points discussed above on the relationship of size of farms and degree of specialization to their productivity. SADE is the least specialized Enterprise in cereals whereas BADE the most specialized. (It is a point of curiosity that BADE's first position in V_j in 1982 coincided with its equality in degree of specialization to AADE). In terms of total size again BADE cultivates the largest area (average per state farm) in any one year, and SADE the smallest.

Moreover, various circumstances outside the boundary of state farms also play an important role in either promoting or hindering productivity of state farms. Let us once again consider the problem of labour supply as an example. The dependence of state farms on temporary part-time labour which comes from the nearby peasant families, and the coincidence of peak demand seasons for labour in state farms as well as in the peasant farms were touched upon earlier. The timely and appropriate undertaking of each and every agronomic practice is an irrevocable condition for yield per hectare to improve or to be sustained at a high level. Problems of size and specialization have already been stated. Because farms are very large and highly specialized in cereals (some of them in wheat only), it sometimes becomes impossible to follow some scientifically recommended practices as to when or at what stage of growth and development of plants should certain agronomic practices be undertaken. Soil preparation and seeding may take place at the right time and within a limit of a short period, for these practices are fully mechanized. After sowing is over, soon comes the season of weeding. As has been reported by a number of state farms, the use of chemicals (herbicides) did not help very much because the biological nature of the weeds happened to be identical to the cereals; thus arises the need for hand weeding. How could it become possible to undertake this practice in time without the weeds having retarded the growth and development of crops? The farm is ready for weeding; hand weeding is a slow process requiring too many people; and there is a problem of getting those people at that time. As to the peasantry (who provides the muscle for this task), it is already busy on its farms. The problem is not unique to weeding only, but also arises during the harvest seasons when another huge crop loss could be incurred. Crops in the field are matured and ready for being harvested. Just like in the weeding season, all the field is awaiting a timely harvest. Again there is labour shortage because peasants are harvesting their own crops. The problem here, unlike the weeding problem, does not allow any delay; since a postponement from the right time by a week or two results in a very heavy loss of crops.

The [in]availability of labour, given the coincidence of seasons of agronomic practices in state farms and peasant farms depends, among other things, on some demographic factors such as man to land ratio of rural population. When the latter is taken into consideration, it is 72.1/Km² for Arssi, 32.5/Km² for Sidamo, and 8.1/Km² for Bale. This situation might have contributed to the

inferior position of BADE as compared to the other Enterprises.

Logistical problem is another factor worth mentioning. The level of development of rural infrastructure of the country is poor; and it gets even worse with distance from the capital. Proximity to Addis Ababa facilitates communication, arrival of inputs on time, etc. In this respect also Arssi, and Sidamo are better off in comparison with Bale.

Some important farm management decisions are referred to higher bodies and not directly made by the state farm managers. Decisions as to what to produce and how much to produce are dictated by the plan set out by the central government. The decision of what method of production to use is left to the farm managers. However, calculation of economic (or commercial) optimality generally falls beyond the capability of farm-level management, and economic rationality tends to be substituted by the bureaucratic decision-making guideline of meeting production targets at any cost.

Therefore, it seems that differentials in yield per unit of area among state farms is a function of the interplay or interaction of differences in degree of specialization by cereals and regional specificities; their low performance being the result of the dynamic interaction between their internal characteristics with factors in the external environment unfavourable to their smooth functioning.

4.1.3. Levels of Inputs Applications

In the above section it is shown that some state farms do perform better than others when productivity is expressed as the value of cereals produced per unit of area. But it is not only land that enters into the production process. Other factors of production (inputs) like fertilizers, seeds, fuels, herbicides, farm machinery, buildings, labour power, etc, are equally necessary for production to take place. All these factors are not freely available. Perhaps it is the availability of these factors more than the availability of land that determines productivity in Ethiopia's state farms. For this reason physical productivity cannot be seen in separation from cost dimensions.

There are two cost parameters to look into - cost per hectare, and cost per quintal. The farm management data of SADC provides cost per hectare and cost per quintal figures by farm and crop for the years 1980-85 (see Annex 4.4). We take the cost per hectare figures of individual crops to calculate the cost of production of cereals (i.e., wheat, barley, and maize taken together) on a hectare for each state farm and years using the formula :

$$C_i = \frac{(r_{wi} \cdot c_{wi}) + (r_{bi} \cdot c_{bi}) + (r_{mi} \cdot c_{mi})}{r_{wi} + r_{bi} + r_{mi}} \quad (2)$$

Where : C_i is cost per hectare of cereals for year i ; r_{wi} , r_{bi} , and r_{mi} are ratios of wheat area, barley area, and maize area respectively to total area under cereals in year i ; and c_{wi} , c_{bi} , and c_{mi} are cost per hectare of wheat, barley, and maize respectively in year i .

The calculated C_i is shown in Annex 4.5. The following question is in order: to what extent can the variations in physical productivity, or in the value of output per hectare, be explained in terms of variations in the level of application of inputs, as measured by the costs of cultivation per hectare? In order to answer this question, we evaluate state farms based on two variables : V_i and C_i . The ratio of V_i to C_i (denoted as R_i) measures the productivity of every unit of cost on different state farms. The calculated Benefit-Cost ratios (V_i/C_i) is shown in Table 4.9.

At most three state farms can be identified to have got relatively better conditions - Lole, Herero-Hunte, and Sirufta. Lole (except for 1982 and 1983), Herero-Hunte (except for 1983 and 1984), and Sirufta (except for 1983) have at least experienced to have what they produced been enough to cover their cost outlays. The rest, thirteen of them have not been in a position to do so. If we may rank them according to their R_i values we can get what is seen in Table 4.10.

Table 4.9.
Benefit-Cost Ratios (Ri) for Cereal Producing State Farms (1980-85)

SF\YEAR	1980	1981	1982	1983	1984	1985	(1980-85)
Dixis	1.06	0.57	0.62	0.42	0.71	0.74	0.65
Lole	1.31	1.07	0.97	0.98	1.32	1.19	1.13
Adele	0.82	0.58	0.83	0.52	0.83	0.97	0.76
Garadela	1.18	0.95	0.88	0.88	0.59	0.70	0.84
Goffer	0.81	0.80	0.66	0.63	0.43	0.59	0.62
Ardaita	--	1.20	--	--	--	--	1.20
Herero-Hunte	1.66	1.39	1.32	0.91	0.96	1.15	1.23
Sheneka	0.40	0.77	0.61	0.50	0.10	0.40	0.44
Sinana	0.43	1.24	1.14	0.56	0.68	0.89	0.77
Dinkiti	0.74	0.59	0.76	0.25	0.63	0.72	0.60
Sirufta	1.82	1.73	1.46	0.52	1.10	1.29	1.22
Harawa	--	0.41	0.38	--	--	--	0.40
Golelcha	--	--	--	--	--	0.69	0.69
Mitto	0.89	0.47	0.49	0.45	0.40	--	0.53
Awassa	0.78	0.64	0.55	0.68	0.58	1.02	0.71
Wajifo	--	--	--	--	--	0.18	0.18
Bilato-Sinkile	--	--	--	--	0.24	0.89	0.57

Source :Own computation from 'SADC General Report 1986'

Let us consider the top three and the bottom three:

- | | |
|-----------------|-------------|
| 1. Herero-Hunte | 9. Goffer |
| 2. Sirufta | 10. Dinkiti |
| 3. Lole | 11. Sheneka |

We remember the result of the comparison in terms of V_i , from the last discussion. It was:

- | | |
|-----------------|-------------|
| 1. Lole | 8. Dixis |
| 2. Sirufta | 9. Dinkiti |
| 3. Herero-Hunte | 11. Sheneka |

Table 4.10
Ranking State Farms in Descending Order of R_i Values

SF\YEAR	1980	1981	1982	1983	1984	1985	(80-85)
Dixis	5	11	9	10	5	7	8
Lole	3	4	4	1	1	2	3
Adele	6	10	6	7	4	5	6
Garadela	4	5	5	3	8	9	4
Goffer	7	6	8	5	10	10	9
Herero-Hunte	2	2	2	2	3	3	1
Sheneka	11	7	10	9	11	11	11
Sinana	10	3	3	6	6	6	5
Dinkiti	9	9	7	11	7	8	10
Sirufta	1	1	1	7	2	1	2
Awassa	8	8	11	4	9	4	7

Note: smaller number indicates larger values of R_i ; 1 indicates the highest R_i ; 11 indicates the lowest R_i value.

We see that the first three top state farms listed in terms of V_i are found in the list of the first three top state farms listed according to cost effectiveness; while the 8th, 9th, and 11th state farms whose V_i values are the least being those state farms whose benefit to cost ratios are the least.¹⁸

When individual crops are taken into consideration we mentioned that wheat was better produced in Arssi than in Sidamo or Bale. The R_i values, however, indicate no clear superiority of Arssi over Bale for wheat production. The case of barley which did not show any superiority of one region to the other based on V_i , has shown that Bale stands first in five out of the six years when evaluated on the basis of R_i .

4.2. Financial Analysis

We start the discussion of this section by posing some questions : what is the implication of low V_i values as compared to C_i values for the majority of cereals

producing state farms for their financial [un]viability? Is there any prospect to self finance the production of cereals in state farms or are they likely to continue to parasitically consume resources created elsewhere in the economy?

A common feature among most state farms, particularly those specialized in cereals, is that they have been operating under financial losses.

The profit/loss situation of SADC (for the production of cereals) is summarized below in Table 4.11. Incomes are revenues accrued as a result of production and sale of wheat, barley, and maize; and expenses are cost outlays on account of the production of the three crops.

Table 4.11.

Income and Expense Summary for the Production of Wheat, Barley, and Maize for the Years 1980-85 (in million birr)

	1980	1981	1982	1983	1984	1985
Revenues from:						
wheat sales	52.4	46.6	59.9	34.9	40.1	50.7
barley sales	2.3	2.3	2.0	3.5	7.6	9.7
maize sales	13.2	10.5	8.2	8.9	6.7	11.3
Sub-total	67.9	59.4	70.1	47.1	54.3	71.6
Expenses	73.6	99.2	77.2	81.6	84.8	85.4
Profit/(Loss)	(5.5)	(39.8)	(7.1)	(34.5)	(30.5)	(13.8)

Source: 'SADC, General Report, 1986'

In all the six years production of wheat, barley, and maize took place at a financial loss of several million birr. It should be born in mind that this is a loss statement due to cereal crops production and not a financial statement of SADC as a whole. It is already mentioned that besides cereal crops SADC also produces other crops and livestock. As it could be expected the financial situation of SADC in the production of all items can not be exactly equal to its financial situation as a result only of cereal crops production. It may be interesting to compare the magnitudes of losses at the level of SADC for all crops and livestock

in 1981 (for which we have got data) with the financial loss due to the production of the three crops dealt with.

In 1981 whereas the loss account for the production and sale of wheat, barley and maize shows a figure of 39.8 million birr, at the aggregate SADC level there was a 25 million birr loss (a difference of over 14.8 million birr). How could the loss due to the production of only three crops exceed the loss at the SADC level of producing all crops including the three crops? Looking at the revenues and expenditures separately, the gross revenue of SADC in general for 1981 was 79 million birr and its gross expenditure was 104 million birr. Revenue from the sale of wheat, barley, and maize stood at 59.4 million birr while the expenses due to the production of these three crops was 99.2 million birr. In other words, five per cent of the gross expenditure that went for the production of items other than wheat, barley, and maize, generated 25 per cent of the gross revenue. Each unit of expenditure was generating five units of revenue. On the other hand, 95 per cent of the gross expense contributed 75 percent of the gross revenue. Each unit of expenditure spent on the production of the three crops was reducing the gross revenue as a result of sale of all items by 1.27 units. It means that the financial loss of 39.8 million birr resulted from cereal crops production was partly compensated for by the production of other crops and livestock. Thus the gross financial loss at the corporation level was lowered to the level of 25 million birr (a 37 per cent decline).

Why do state farms make such losses? The loss-making of state farms is a direct outcome of a very high cost of production and a low gross return per unit of produce. Costs of production are very high because first, many of the inputs state farms use are imported and their prices are determined by international market. Imported items (fertilizers, herbicides, insecticides, fuel, farm machinery and spare parts) account for 50%, 49%, and 28% of the total costs of wheat, barley, and maize respectively. On the other hand, labour costs are a mere 3%, 6%, and 11% of total costs of production of wheat, barley, and maize respectively. Secondly, state farms are administered by a long hierarchial organizational set-up whose financing has proven to be expensive. While labour and materials (inputs and machinery) directly applied in the production process accounted for 53%, 55%, and 40% of total costs in the production of wheat, barley and maize respectively, the remaining amounts are spent to cover financial

expenses (largely arising from interest payments) and overhead costs. The administrative costs of state farms (Ministry→Corporation→Enterprises→State Farms) (see Annex 3.1) contribute a great deal to total costs. Excluding the overhead costs at the Ministry level, overheads at the three lower administrative layers (Corporation, Enterprise, and State Farms) make up 27%, 24%, and 44% of total cost of production of wheat, barley, and maize respectively. Financial expenses alone amounted to 20%, 21%, and 17% of total cost of production of wheat, barley, and maize respectively. Hidden subsidies for permanent employees are other sources of expenses for state farms. Permanent workers are provided with housing facilities the cost of which is to be covered by state farms (this is primarily done to give incentives as state farms are located in remote areas). Proceeds on the other hand, are lower because productivity is low due to the problems mentioned in the above analysis.

But what about the prices received by state farms? Are they so low that they can be blamed for the poor financial performance of state farms? It would be worthwhile to conduct some illustrative exercises to examine whether the profitability of state farms has been influenced by price distortions (i.e., low fixed official prices), and whether their financial position would be improved to a significant extent if they faced the type of markets and prices available to the peasantry.

Let us consider the proportion of marketable surplus of the peasantry which is purchased by the AMC. According to a study¹⁹ it has been estimated that AMC purchases from the peasantry (in 'normal' year) about 36 per cent of the apparent marketable surplus. Based on this estimation, the peasantry faces two sets of prices for its produce viz. fixed official prices for that portion of produce purchased by the AMC, and open market prices for the remaining part of its produces put out on the parallel markets. A weighted average of prices can therefore be computed for each unit of produce based on the two sets of prices.

Official prices for wheat, barley, and maize are 34, 28, and 20 birr per quintal respectively. Open market prices for the same set of crops on the average²⁰ are 62, 38, and 37.50 birr per quintal respectively. The weighted average prices will be 51.92, 34.40, and 31.00 birr per quintal of wheat, barley, and maize respectively. This, for state farms, will make a 10.5% increment in price of wheat,

a 37.5% decrease in price of barley, and a no change in price of maize. We will see the impact of this price change on the profitability of state farms by calculating their $V_i':C_i$, where V_i' is calculated according to the weighted average price (instead of the official price). Let us assume two alternatives. Alternative 1, let that portion of output which is retained by state farms on account of consumption needs by the employees be estimated to be ten per cent; Alternative 2, let the percentage of output to be valued at fixed official prices be the same as that of the peasantry (i.e., 36%). According to these alternatives, those state farms producing wheat alone would be in a better position than their previous situation; while those state farms producing barley would be negatively affected, and those producing maize would have no difference in their situation. It must also be remembered that wheat alone accounts for more than 70% of total cultivated area by SADC. State farms, therefore, on the whole would benefit from the 'new' prices. Valuation of outputs according to both alternatives requires the use of the two sets of prices (official, and open market prices). The difference between Alternative 1, and Alternative 2 is due to the coefficient by which the two sets of prices are to be multiplied owing to the supposed difference in the portion of produce to be sold at the open market prices (0.10 against 0.64). Since Alternative 2 provides a better advantage to state farms than does Alternative 1, if the financial situation of state farms would not improve significantly when their outputs are valued according to Alternative 2, they would be worse off according to Alternative 1. Therefore, we start our exercise from Alternative 2. The summary of this computation is presented in Table 4.12. Let $V_i':C_i = X_i$. Comparing the X_i column of this table to the last column in Table 4.9 (which was calculated on the basis of the assumption that all of the produces of state farms is sold to AMC at the fixed official prices), the financial position of some state farms seems to improve if state farms are assumed to face the output prices faced by the peasantry (Alternative 2); but still none of the previous loss-maker state farms are capable of breaking even. They, still, operate under losses. It won't be necessary to test their financial viability based on Alternative 1, as this will further reduces the prices of their produces in comparison with Alternative 2.

What if they sold all of their produce at open market prices, and not at fixed official prices? (assuming that open market prices do not change i.e., decrease as a result of an increase in the market supply of cereals). Another

illustrative exercise is done to test whether state farms' profitability would be improved if they sold their entire produce at average prices prevalent in open

Table 4.12.

Benefit-Cost Ratios (benefits are valued using different prices) of State Farms as a Result of Production of Cereals (1980-85 average): An illustrative exercise

STATE FARM	Xi	Xii
Dixis	0.72	0.86
Lole	1.06	1.24
Adele	0.83	0.99
Garadella	0.90	1.06
Goffer	0.64	0.76
Ardaita	1.31	1.57
Herero-Hunte	1.14	1.53
Sheneka	0.47	0.57
Sinana	0.84	1.01
Dinkiti	0.66	0.76
Sirufta	1.26	1.50
Harawa	0.52	0.43
Golelcha	0.76	0.91
Mitto	0.56	0.65
Awassa	0.71	0.85
Wajifo	0.18	0.22
Bilatto-Sinkile	0.56	0.67

Source: Own computation.

markets. The Xii column in Table 4.12 is the result of this exercise. Only two state farms (Garadella and Sinana) which were producing cereals at losses previously, now show a positive balance. The remaining, i.e., majority, of state farms could still not cover their cost outlays.

It must also be noted that the weighted average prices used in the calculation of the above table overstates V,' of state farms. This is because

average regional open market prices, for Administrative Regions of Arssi, and Bale (for wheat and barley) and Sidamo (for maize) is lower than the average for the national level²¹. Had we used the regional weighted average prices (which are lower than the national average), the V_i and therefore X_i values of state farms would have been much less than those indicated in Table 4.12.

What if we continue the same exercise on the input side? Are the input markets state farms use distorted and does this 'distortion' contribute toward their financial inefficiencies? The classification of their inputs separately into domestic and foreign components seems to be essential in this respect. In the former category, labour, seeds, cost of credits, some portion of overhead capital, are included; and in the latter category, use of farm machinery and vehicles (and spare parts), fertilizers, fuel, chemicals (herbicides, insecticides, pesticides, etc.), some portion of overhead capital are included.

First let us see the domestic components. Marginal productivity of labour in state farms is generally greater than the price of labour; i.e., state farms do pay to the labourers wage rates which is less than what a unit of extra labour adds to total production. To avoid this price 'distortion' would mean to impose extra costs on state farms. It might be argued that, taking into account the seasonal underemployment or unemployment of agricultural labour from the national economic point of view, a withdrawal of an additional labour from agriculture may not reduce agricultural production, hence the opportunity cost of that labour is close to zero. Unfortunately, this does not apply for state farms because state farms are not using the seasonally unemployed or underemployed labour but the labour whose withdrawal from peasant farm reduces agricultural output to a significant extent. We have discussed this issue at length earlier in this paper.

Capital is a scarce resource in Ethiopia. The demand for it, and its price are higher than that state farms acquire it. The productivity of capital in alternative employment is greater than in state farms; i.e., its opportunity cost is higher than the interest it generates in state farms. State farms can acquire it at interest rates which do not reflect the actual price of capital. To correct this price distortion would inflate the costs of acquiring capital, and therefore the cost of production in state farms. In the domestic input components there is no room for minimizing C_i by correcting the 'distortions'.

Because the foreign input components represent the dominant portions in the total costs, the correction for price distortions of these components would tend to emphasise further the financial inviability of state farms. It is known that the price of fertilizers that state farms pay are lower than what the peasantry pays. There is a good deal of subsidizing of state farms. One of the reasons why domestic markets do not reflect the real prices of imported goods is attributed to the over-valuation of the domestic currency. Ethiopian birr is known to be overvalued in relation to US\$. To correct these price distortions, a national devaluation of the currency could be assumed for a fresh estimation of costs and returns of state farms. This devaluation would make imports more expensive. Given the high rate of imported inputs usage in state farms, this increases C_f , and as a result dramatically worsens the financial situation of state farms.

Therefore, it becomes evident that the financial non-viability of state farms cannot be explained by the low level of fixed official output prices they receive, nor can it be explained by distortions in factor prices. In actual fact those market distortions (especially from the input side) are in favour of state farms.

How is this heavy loss financed by SADC? State farms run under a credit stand-by. They do receive a substantial amount of loan from Agricultural and Industrial Development Bank (AIDB) each year. For example, the amount of credit in force for SADC by the year 1985 amounted to over 322.5 million birr. Of this 183 million birr had been paid back (including 52 million birr in interest), while the remaining balance has yet to be paid back. With the amount of debt keeps rising from year to year, the financial position of state farms has been steadily worsening. The option to depend on AIDB for financial resources to cover financial losses might arguably be regarded as a perverse manifestation of the 'all-belong-to-one' system: i.e., the producers are state farms, the buyer of the produces is a state marketing agent, the supplier of farm inputs is a state marketing agent, the lender is a state credit agent, the borrower is a state farm, and so forth. Financial transactions between state agents seem not to have been taken seriously. The AMC supplies farm inputs to the farms and purchases produces from state farms. Due to lack of clear terms of agreement on conditions of repayment, state farms do not collect their revenues in time²² (state farms sell their produce to AMC on a deferred payment basis). The necessary financial resources to cover operating expenses in the next cropping season have had to be

made available through loans at interest rates²³.

In summary, it is argued in this chapter that the performance of state farms' in terms of physical productivity as well as on financial grounds is poor. Physical productivity is low because the demands of state farms, owing to their special characteristics, can not be met by the environment outside their managerial and operational boundaries. The relatively better performance of some state farms than the others is partly explained by their advantages of being situated in environments which can, to some extent, provide for those necessary factors. The financial inefficiency of state farms can be explained by, and cannot be understood without looking into, their low level of physical productivity.

V. COMPARATIVE ANALYSIS OF THE POTENTIALS AND LIMITATIONS OF STATE FARMS AND PEASANTRY PRODUCTION IN GENERATING MARKETING SURPLUS OF FOOD

In the previous chapters the area of analysis was limited to selected aspects of the micro-economic performance of a geographically delimited State Farm Corporation. In this chapter it is intended to push the scope of analysis to an aggregate level so that the State Farms as a whole would be compared with the non-State farm forms of producer organization in the agricultural sector, viz., private holdings and producers cooperatives.

5.1. Comparative Criteria

In Chapter three, while discussing the scenario for the development of state farms after the Revolution (and especially during the late 1970s), we provided some reasons as to why SADC was set-up. It was mentioned that most of the state farms set-up during that time were food-crop producing ones. There were powerful demand factors for the augmentation of food supplies, arising from the non-agricultural sectors, which were intended to be satisfied through establishment of state farms. The question remains, however, whether the chosen strategy of raising marketed surplus of food through state farms is the sole alternative available, given the resource endowment of the country.

It is known that the marketed surplus of food is produced not only in state farms, but also in the peasant sector. This chapter is devoted to providing a comparative enquiry into the potentials of and constraints on raising the marketable surplus of food in these two different forms of production, namely state farms, and peasant production.

The prominent criterion for the comparison of the potentials and limitations of state farms viz-a-vis peasantry production, in as much as the theme of this chapter is concerned, will be 'marketable surplus of food'. The magnitude and the price of this portion of output is one of the central elements dictating agricultural policy in Ethiopia, and it is influenced by conditions affecting production and productivity. The latter can be affected by a number of inter-related factors such as the availability of productive resources, the way resources are utilized in the

process of production, organizational forms of production, etc., not to mention agro-ecological, climatic, and socio-economic factors. Besides, the magnitude of marketed surplus of food depends on the extent to which a specific marketing system facilitates the transfer of food from its producers to consumers by creating a favourable situation for both actors. Therefore, the link between raising marketed surplus of food, and the process of production and distribution is so close and inter-dependent that without a full appreciation of the latter a sustainable flow of marketed surplus of food cannot be ensured. Moreover, the question : 'marketed surplus of food for what?' should clearly be defined and its implications for the wider, long-term socialist development process be understood. In other words, its real opportunity cost must be included in the reckoning when making a choice as to which of the available strategies of raising marketed surplus of food is the most appropriate one.

Certain specific points need to guide comparisons²⁴ of the available alternatives. These include:

- (a) Physical productivities of output, and share in total marketed surplus of food,
- (b) The extent to which a specific strategy requires resources which are not being produced in the country; and the danger of dependency on international market for inputs,
- (c) The appropriateness of the chosen technology, in the process of producing marketable surplus of food, to the resource endowment of the country,
- (d) Sustainability of the selected strategy, i.e., the country's capability to afford keeping on financing investment requirements of the selected strategy.
- (e) The real costs of production of a unit of marketed surplus of food, and its implication on the 'socialist accumulation' process.

5.1.1. Physical Productivities, and Share in Total Marketed Surplus of Food

For the set of cereals under our consideration yield/hectare figures of SADC can be justifiably extrapolated to the level of all state farms. In fact, the result is compared to the estimation by Central Statistical Authority and shows no marked variation. This is no surprise in as much as over 97.4% of wheat and 98.3% of barley production of all state farms is attributed to SADC. Although the share in production of maize by SADC is 26.8% of that of all state farms, yield/ha. shows very little variation between SADC and the level for all state

farms.

Table 5.1.
Percentage of Area and Production of Major Crops by Sectors (1979/80–85/86 average)

Particulars	Area	Production
State farms	2.65	3.73
Non-state farms	97.35	96.27
Total	100	100

Source: Central Statistical Authority, 'Statistical Bulletin 56, 1987'

In terms of total volume of production the share of state farms is insignificant as compared to the peasantry production.

The bulk of production both in state farms and in the peasant sector is cereals. For the years 1979/80–85/86, 82.6% of total cultivated area and 86.5% of total production was under cereals. The latter also constituted 88.6% of total area and 97.93% of total production (in volume terms) in state farms. The area and production figures for cereals (wheat, barley, and maize) is 77.1% and 91.64% respectively in state farms.

Yield per hectare figures (for wheat, barley and maize) of state farms, as shown in table 5.2, are the highest in agricultural production sector.

State farms appear superior in the productivity of each unit area of cultivated land of wheat, barley, and maize, but inferior in sorghum and teff production (expressed in terms of physical output per hectare).

Table 5.2.
Yield/ha. (in quintals) of some selected crops by sub-sectors (1979/80-85/86 average)

Sectors\Crops	Wheat	Barley	Maize	Sorghum	Teff
State farm	14.62	17.04	24.20	7.90	4.80
Private farm	10.69	11.60	15.35	13.10	8.60
Coops.	7.98	6.81	10.78	9.03	6.30

Source: Central Statistical Authority, 'Statistical Bulletin 56, 1987'

Considering the almost 100% rate of marketed surplus, the whole of the produce of state farms is under state control. This makes up 31 per cent of total AMC purchase of foodgrains; the remaining 69 per cent being supplied by the peasantry (62%) and imports (7%). According to a study²⁵ made by a Committee set-up to review the agricultural marketing and pricing policy of Ethiopia (1987), "Purchases by the AMC from the peasant sector during the years 1981/82 - 85/86 averaged 270,000 tons, 85% from the major surplus producing regions of Arssi, Shoa, and Gojjam. AMC's procurement of grains from the peasant sector during the years 1982/83 and 1983/84, considered to be "normal" years of production, constituted 36 per cent (of an apparent marketable surplus), while the "secondary" (mainly black) market resulting from (crippling) restrictions on inter- and intra-regional private dealings in grain trade made up for the bulk of 64 per cent". In other words, 36 per cent of the total marketed surplus of the peasant sector constitutes more than 60 per cent of total AMC purchase or over 65 per cent of locally produced (excluding imports) AMC purchases. The total grains supplied by state farms are approximately one-half of what peasantry supplies to AMC. Let us take this for the time being as indicative of peasant sales; this is a minimum, for it constitutes only the amount purchased by AMC. That portion of marketed surplus which changes hands from the peasantry directly to the ultimate consumers and/or to merchants through parallel markets is often unfortunately underestimated but plays a dominant role in the day to day life of the majority of the urban population. Nevertheless, it also needs to be emphasised that state farms, which account for only 2.65% of the area and only 3.73% of the production of major

crops, account for nearly one-third of the total AMC procurement of foodgrains; strategically, state farms are a critically important source of the supply of marketed surplus. But what is the social opportunity cost of this source of supply?

5.1.2. Types of inputs needed, technological appropriateness, and sustainability

One of the important characteristics of state farms, as mentioned in the last chapter, is their mechanization and chemicalization to a high degree. Virtually all (except seed) material inputs, from fuel to farm machinery, and from herbicides to fertilizers, are not produced in Ethiopia. For the purchase of these important farm inputs the country spends scarce foreign exchange at prices determined not by herself. This condition is an unhealthy one not because those inputs are unimportant, but the demand for the foreign exchange to finance projects, in the first place, which cannot by any means be realized unless some foreign exchange is paid for. The paradox is that projects of this nature are badly needed in Ethiopia, but food/cereals production in state farms, by claiming the limited foreign exchange, competes with those projects. Food crop production in state farms is dependent on international market for inputs, and this has negative developmental implications which are unfavourable to Ethiopia owing to the widening of the 'price-scissors' of primary products and that of manufactured goods in international trade, and the position of Ethiopia in that market. Because this heavy dependence for imported inputs cannot be loosened, food self-sufficiency through production in state farms is not really a viable proposition.

On the other hand, when one looks into the nature of inputs the peasantry employs in the process of production, one finds that the key element is labour power. Farm inputs are very simple (implements like, sickle, wooden plough with a small metal tip, hoe, etc; other inputs like, own seed, organic fertilizer (manure), etc.). Animal power is the main source of traction (the integration of livestock husbandry with crop production should not be underestimated). Perhaps it was not the peasants' choice to restrict themselves to these items, but lack of a better alternatives might have forced them to do so. All of these implements can be produced, maintained and improved in the small scale rural blacksmith shops. Out of the total set of inputs used by the peasantry only chemical fertilizer (where applicable) constitutes an imported component. Improvement of these traditional implements is desperately needed; but its linkage with outside world for this

purpose is extremely weak, and hence the danger of dependency is very minimal.

In a country like Ethiopia where the majority of the population is employed in agriculture, and where there is an abundant agricultural labour force, and not the least, where there is a serious shortage of foreign exchange, mechanization of agriculture becomes questionable. The topography of the country itself does not readily permit such a strategy on a wide scale, for Ethiopia is the most mountainous country in Africa.

The sustainability of any particular strategy of raising marketed surplus of food is dependent on the above factors discussed. The hurried expansion of state farms and the type of technology they adopt may be justified on the basis of circumstances prevailing during the disturbed period of their establishment. But the same reasons cannot once again be cited to justify state farms as constituting a sustainable strategy for the efficient generation of marketed surplus of food, as we mentioned above and as we will see below.

5.1.3. Costs of production: Nominal and Corrected Comparisons.

It is clearly understood that the share of state farms in marketed surplus of food is overwhelming when viewed from the point of area or percentage of total produce. But it can be argued that this kind of judgement is naive and misleading because in the context of land and labour availability, and the scarcity of foreign currency, what matters is not only what level of marketed surplus is obtained per unit of area, but also what level of cost is incurred in producing a unit of marketed surplus. It should not be forgotten that marketed surplus is not an end in itself in the process of socialist accumulation; it is a means to an end – a very important means however! – in the process of accumulation. And there isn't just one unique way of generating it.

If food is produced at a higher level of economic cost in state farms, what is the rationale or conception of economic profitability of the industrial sector upon which the justification for resource transfer from agriculture, in various forms including cheap food, is based, and which constitutes the basis of the very objective of raising marketed surplus of food. If food is produced at high cost and made available to the industrial working force, can industry yield a higher rate of labour productivity? One of the reasons why productivity of labour in industry

is expected to be higher is attributed to the low level of wages paid to the industrial workers as a result of cheap food availability. We are not dealing with a situation where industry belongs to private capitalist in which case a food subsidy improves the profitability of his capital. Our case is one that both industry and food belong to the same owner (i.e., to the economy as a whole). A subsidy on food for industrial workers will have no positive impact on the economic profitability of the industry. Food production must, therefore, take place at a cheaper possible cost.

The generation of marketed surplus of food should not be viewed in isolation from the economic cost of producing it. In this regard the implication of being pre-occupied in producing that portion of output by setting up state farms may prove to be a case not of transfer of surpluses from 'agriculture to industry' of that country but from the country to a foreign destination in view of the heavy reliance on imports of machinery and other items at terms of trade unfavourable to the economy.

Production of cereals in state farms, we said, is expensive; but how expensive? An attempt is made below to estimate the economic cost of production of wheat, barley, and maize based on the information we have on SADC, and using average data on costs. The intention is to make an adjustment²⁶ to the various cost components in order that their respective values would reflect the costs to the economy as a whole. The procedure followed is as general as the nature of the data itself. It may serve as a rough guide in the absence of a best alternative.

Costs are categorized into domestic and foreign components. Direct labour costs, financial expenses and overhead costs (although it is known that foreign elements enter the last item) are treated as domestic costs while direct material costs and direct machinery costs are considered as foreign cost components. This is so because when one looks into the nature of the elements grouped in the foreign component, their dominant shares are purchased directly or indirectly from foreign sources, i.e., they constitute imported items.

Following this categorization of costs the shadow wage rate (SWR) recommended for use by the Development Projects Study Agency (DPSA) of

Ethiopia for hired agricultural labourers is 50 per cent of the market wage rate²⁷; and the Shadow Exchange Rate (SER) is 4/3.

Non-labour costs are adjusted for annual price increases by taking a 10 percent annual price increase assuming that all factor prices on the average rose, from 1980-1986, by 10 per cent. This assumption will understate²⁸ the estimation of costs of production for state farms because border prices of these factors have not shown any price increase for three years (1983-1985); in fact the border prices of fertilizers and farm machinery have declined significantly²⁹. Taking 10 per cent as a discounting factor, however, serves as a safe approximation favouring state farms.

Multiplying the costs by the respective coefficients we get:

$$0.5(\text{DLC}) + \text{FC} + \text{OH} + 4/3(\text{DMC} + \text{DFM})$$

for each crop where:

- DL = direct labour cost
- FC = financial cost
- DMC = direct material cost
- DFM = direct machinery cost
- OH = overheads

Accordingly, the estimated average economic cost of production for 1980-85 using shadow prices appears to be 57.4 birr per quintal of wheat, 49.8 birr/qt. of barley, and 39.9 birr/qt of maize.

For the sake of a rough comparison, an estimation of the economic cost of producing the same set of cereals in peasant production is made. The production cost components for the peasantry are not exactly the same as in state farms. According to Ghose (1985:140) the material costs of production per quintal of wheat, barley, and maize for peasants in Arrsi³⁰ administrative region, for 1981, are estimated to be 11.47, 11.06, and 3.53 birr respectively. Labour days required per quintal of wheat, barley, and maize are 7.5, 8.1, and 7.2 respectively. If we make an adjustment for average price increases per year (till 1985) of the material costs to allow for a comparative range of time with state farms, and if

we use this, in the absence of comprehensive data, to estimate the cost to the economy of production of those crops we could proceed as follows.

Fertilizer prices for the peasantry increased for eight years (1974/75–82/83) on the average by 10 per cent per year³¹. Assuming that the prices of all material inputs follow the same trend of rate of increase up to the year 1985, the material costs of production per quintal of wheat, barley, and maize will be 14.01, 13.50, and 4.31 birr respectively. Then:

$$\text{Total cost} = \text{material cost} + \text{labour cost}$$

The appropriate conversion factors for capital (assuming that all of the material inputs are tradeable or have an imported component) is 4/3 (SER). And the SWR for family labour is birr 0.90³² (comparable to birr 0.96 which is 50 per cent of the market wage rate) birr. Hence:

$$\begin{aligned} \text{Cost of wheat/quintal} &= 4/3(14.008) + 0.96(7.5) = 25.88 \text{ birr} \\ \text{Cost of barley/quintal} &= 4/3(13.504) + 0.96(8.1) = 25.78 \text{ birr} \\ \text{Cost of maize/quintal} &= 4/3(4.31) + 0.96(7.2) = 12.66 \text{ birr} \end{aligned}$$

The comparison of economic costs of state farms and peasantry production in the production of the three cereals is summarized in Table 5.3.

Table 5.3.

Estimated average economic costs of production for state farms and for peasantry, 1980–85 (in birr per quintal), in 1985 prices.

Sector\Crop	Wheat	Barley	Maize
1. State farm	57.40	49.80	39.90
2. peasantry	25.88	25.78	12.66
(1-2)	31.52	24.02	27.24
(1/2)100%	222%	193%	315%

Source: Own computation

The above calculation is made in such away that the figures for state farm are understated and those of the peasantry overstated. The intention is to establish a 'minimum' possible cost for state farm and a 'maximum' for the peasantry. In the case of state farms, for example, the financial costs and overheads figures have not been subject to any adjustment which otherwise would have raised unit costs to more than the amount shown in the calculation. Moreover, the use of a 10 per cent discount rate underestimates the cost of production in state farms. For the peasantry, on the other hand, every non-labour input is multiplied by a coefficient greater than unity under the assumption that each item has got a foreign component which in reality may not be the case. Moreover the cost estimation for the peasantry is based on data collected from Arssi administrative region where the rate of modern inputs utilization by the peasantry is known to be among the highest ones in the country. There is no danger in understating the costs of state farms and overestimating those of the peasantry in the type of exercise conducted above.

If this analysis is found to hold even a grain of truth (in fact, it can be argued that it achieves more than just that), the economy is losing 31.52, 24.02, and 27.24 birr per quintal by producing wheat, barley, and maize respectively in state farms than in the peasant sector (assuming that each quintal of produce is worth the same to the economy regardless of where it is produced). Another way of putting the same statement is that the net resources wasted per quintal of each produce is capable of producing more than one additional quintal of wheat and barley, and more than two quintals of maize had they been employed in peasant production.

5.2. Summary of Potentials and Limitations

Both state farm and peasantry strategy of generation of marketed surplus of food are characterized by 'pros' and 'cons'. In terms of productivity of land, i.e., yield per hectare, state farm appears to be superior (for the three crops). In terms of volume of marketed surplus per unit of total production or per unit of area cultivated, state farms outshine the peasantry. When the productivity of economic resources (not just land) is taken into account, the peasantry outsmarts state farm.³³ The economic cost of producing a unit of produce is more than double (and even treble for maize) in state farms than in the peasantry.

The comparison of the economic cost of production of wheat to the cost of import reveals that the country seems not to have had a comparative advantage in producing wheat in state farms (in comparison with importing it). The adjusted (by SER) average cost of import of wheat for the three years (1983-85) was 52.3 birr per quintal. The intention of this comparison of costs of production of wheat in state farms and the imported wheat is not to advocate for expanding the imports of cereals (with the implied rise in import dependency). On the contrary, it is to compare the two dependencies, i.e., dependency for inputs viz-a-vis dependency for outputs (the nature of inputs state farms are using is a point in mind), and to argue how both types of dependencies are disadvantageous in the light of availability of an alternative mode of production of cereals using relatively more local resources. The propensity to import cereals varies in accordance with variations in grain procurement of AMC from the peasantry, i.e., when the volume of grain purchases by AMC from the peasantry falls cereal imports tend to rise and vice versa (see Annex 4.6).

The dependency on the international market for machinery and spare parts as important inputs in state farms, the inappropriateness of that type of technology in relation to the resource endowment of the country, the growing requirement of the subsidisation of state farms which has resulted from the lack of internal capital formation, and consequently the continued wasteful absorption of scarce resources generated elsewhere in the economy and which might have had a better contribution had they been used elsewhere, make state farms fall well short of providing a positive contribution towards the process of economic development.

Another factor which may be worth mentioning is the implication of price differentials paid by the AMC to the producers (state farms versus non-state farms) on productivity, and, the prospect of integrating the peasantry into the market, and on consumers' incomes. State farms receive 47, 55, and 31 birr per quintal of wheat, barley, and maize respectively. The corresponding figures for the peasantry are 34, 28, and 20 birr. For the consumers who buy from the AMC it means that prices are artificially kept high; their incomes are reduced (directly or indirectly) by the amount of subsidy on each unit purchased. For the peasantry who sell to the AMC, it implies that the absolute low level of prices they receive discouraged them to produce more for the market or encouraged them not to sell to AMC, but to try to divert their produce to open markets where they could

receive higher prices. Peasants can maximize their incomes by minimizing the part of their marketable surplus to be sold to AMC (for example, by under-reporting total harvest), and maximizing the rest to be put on sale in open markets.

What is the implication of being overdependent on the state farm strategy of food crop production for guaranteeing food security and self-reliance? The absolute volume of marketed surplus of food in terms of which state farms are justified or legitimized makes less sense when the purchasing power of the proletariat's income, and the level of poverty not only of the urban population but also that of the rural mass is taken into account. Even if there is enough grain available in the stores of AMC it is not meant to be offered free of charge. Since the production cost is already high, the price at which it will have to be sold must cover or at least be closer to its cost. But this is somewhat incompatible with the theoretical essence of role of marketed surplus of food in the process of accumulation of capital. Moreover, it is unlikely that costs per quintal of produce in state farms are likely to decline. Therefore prices will remain high and the target group for which the marketed surplus of food is to be generated will not get it in full measure. Could it be argued that this kind of marketed surplus does contribute positively to the process of socialist accumulation? Or could it be the other way round; i.e., does the nature of the former erode the prospects of the latter?

There appears to exist, however, a kind of 'peaceful co-existence' between prices received by AMC in urban centres and parallel markets. As long as costs of production in state farms remain high and the farm prices offered to the peasantry remain low, parallel markets will continue to fill the pockets of grain traders at the expense of both the peasantry and consumers' incomes. The magnitude of profits made by grain merchants, according to Saith's (1985:171-172) estimate, could be as much as five per cent of the total agricultural GDP. "Or, put in a more pejorative manner, the annual extra-normal profits of Ethiopia's grain merchants could support about 225,000 families at the food poverty line or about 125,000 at the poverty line including non-food articles as well" (ibid.).³⁴

The over-riding limitation on pursuing a peasantry-oriented strategy for generation of marketed surplus is that there is no guarantee of state control over

that portion of produce. Lack of control over marketable surplus of the peasantry intensifies when its absolute magnitude is small. In Ethiopian conditions, it happens to be small because overall agricultural productivity is very low. There can be a host of complex, and inter-related reasons for the low level of productivity of agriculture (particularly peasant agriculture) in Ethiopia. To mention just few, loss of soil fertility due to inappropriate land use practices, extreme dependency on natural climate (shortage of rainfall and absence of use of irrigation), inadequate supplies of fertilizers, improved seeds, credits, extension and other supporting services, etc. are cited the major ones. Post harvest losses are estimated to have been 15 per cent of total production.

Most of these problems are related to the issue of resource [in]availability. In the first place the resources required to reverse the situation of low productivity are limited in absolute terms. In the second place because of the structural bi-modality of agriculture and the resultant obsession of agricultural policy in favour of the state farm sector, there is a concentration of inputs (which are absolutely limited) in state farms. This situation further reduces the resources available for use in the peasant sector. State farms, therefore, have also become a stumbling block on the development of the peasant sector. In Table 5.4. below resource absorption by state farm sector is summarized.

Table 5.4.

Share of Resources Absorbed by State Farms as Percentage of Total Distributed in Agriculture(1980-83 average).

Particulars	Share of state farms (%)
Chemical fertilizer	52.0%
Credit	85.0%
Improved seeds	85.0%
Farm machinery	99.9%

Source: Office of the National Committee for Central Planning, Ministry of Agriculture, MSFD, AMC, 1980-85.

If we take only fertilizer, it has been estimated by a study³⁵ that as a result of fertilizer application rate of one quintal per hectare there will be a 5.2, 7.2, 8.7, 14.0, and 19.2 quintals incremental yield per hectare over the traditional yield rates of teff, wheat, barley, maize, and sorghum respectively. The rate of fertilizer application of the peasantry is 10 kg/ha, and it is about the lowest in the world. This should not create any surprise when 2.65% of total cultivated area under (state farms) devours over 50% of fertilizer available to produce 3.73% of total production while by far the dominant, but hopelessly poverty-ridden, peasantry is left on its own. But, does this make any sense when seen in the light of the professed objective of the 'planned and proportionate development of the national economy'; and what implication would it have if this were to constitute the main strategy of agricultural development of the country as a whole?

A peasant-oriented strategy for the generation of marketed surplus of food, if pursued, could have a lot of advantages. First; there would be a loosening effect on the dependency on the outside world for farm inputs, particularly farm machinery. Upgrading the backward traditional farm implements of the peasantry does not necessarily require imports. In this respect the role of small scale rural manufacturing sector in improving the farm implements can effectively be utilized. Second; mobilization of labour for development of rural infrastructure with little assistance from the government (irrigation included) would be possible. Third; resources available for use within peasantry would increase by an amount which would have been consumed in state farms. As the peasantry tends to use more and more of improved farm inputs it would tend to become integrated into wider market networks, i.e., raising marketed surplus would thus become likely, and especially if even a part of the subsidy previously given to state farms was now used for offering higher procurement prices to the peasantry. .

The whole issue, then, is reduced to one of grass-root participation versus central control in the process of raising marketed surplus of food. It is apparent that the contradiction which results from pursuing both of them simultaneously is unavoidable. Looking into the possible ways of achieving a reconciliation of that contradiction deserves urgent consideration.

VI. SUMMARY AND CONCLUSIONS

6.1. Summary of Findings

Food crops producing state farms in Ethiopia have emerged out of a concrete necessity to exercise, by the central government, a full control of marketed surplus of food in order to tackle the food shortage problems created in urban areas due to production falls, or increased consumption of self-produced goods by the peasantry, or increased demand for food crops in non-agricultural sectors. State farms contributed in augmenting, though to a limited extent, the supply of food crops in urban areas. Ethiopia's state farms, as Ghose (1985:136) writes, were designed as emergency measures against food shortages in a particular period of time. But that emergency measure is becoming expensive; it is also becoming a permanent fixture

It is nearly a decade now since state farms in Ethiopia were reorganized under a full-fledged Ministry, and enough experience might have been accumulated on the question whether a state-farm strategy of food crop production might be appropriate in the context of Ethiopia. A good number of studies have come out and pinpointed that most, if not all, food crop producing state farms in Ethiopia are performing poorly on commercial (financial) ground. Paucity of detailed data did not allow a detailed investigation into the reasons underlying the poor productivity performance of state farms. The excess of production costs over the prices state farms receive, and the excessive overhead costs were the major manifestations of financial inefficiencies. Reasons as to why production costs became high were supposed to have revolved around financial aspects (low prices, high interest payments, etc). However, the main item, i.e., low productivity in state farms tended to be camouflaged. Inappropriate calculations of comparison of productivities in state farms with that of the peasantry invited the deduction that productivities in state farms were 'high'. Since state farms perform better for some crops than does peasantry, the low productivity of state farms, relative to resources absorbed in the production process, has been overlooked.

In this paper it is argued that a comparison of the productivities in state farms with that of peasantry is not appropriate, and the result of such a comparison would not provide an accurate impression of the performance of

state farms. If comparison is necessary, comparing productivities of state farms with National Yield Trials would give a better picture of the performance of state farms. The view held in this study is that productivity of state farms (particularly food-crop producing ones) is low as compared to what ought to have been expected of them; and the reasons of this poor performance (financial and physical alike) is not bound only to financial matters, but also to the contradiction between the inherent characteristics of state farms and the presence of some unfavourable external socio-economic factors surrounding them whose dynamic interaction creates special problems in the functioning of state farms.

Some important features characterizing state farms have been singled out. These include, largeness in size of cultivated area, high degree of specialization by cereals, establishment in areas where agro-ecological conditions are conducive for the production of crops, extreme dependence on natural climate and as a result following a single season cropping practice, and impossibility to fully mechanize and/or chemicalize agricultural practices and thereby dependence on seasonal, temporary, part-time peasant family labour.

Some of these characteristics have been 'blessings in disguise'. Ideally, specialization could simplify some of the complexities which would result from diversification, and therefore raise labour productivity. Agro-ecological suitability (specially in cases where the degree of dependence on the weather is high) is an indispensable condition for satisfactory crop production to take place. High degree of mechanization and chemicalization helps in undertaking agronomic practices at appropriate times provided that there is a regular and reliable flow of machines, spare parts and chemicals, etc., All of these conditions may contribute positively towards an increase in productivity if and only if the state farms would not rely on circumstances which are outside their operational and managerial boundaries. Under the Ethiopian condition, however, as it is stated above, state farms do rely to a great extent on their surrounding peasantry for labour supply. This is because either some important agronomic practices are not fully mechanized or chemicalized, or there is a lack of continuous flow of machinery and chemicals at the right time owing to the fact that the source of these items is very distant from the state farms, sometimes even outside Ethiopia.

In such a situation the limiting factor is the extent to which agricultural labour would be made available in time of its crucial needs. The problem is that regions chosen being suitable for wheat, barley, or maize production by state farms are inhabited by a peasant population which produce predominantly the same type of crops. Cropping seasons for state farms and for the peasantry coincide. Labour supply becomes seasonally inelastic; agronomic practices are delayed from the right time; productivity decreases.

In this paper it was attempted to establish some relationships between some of the important characteristics of state farms and their productivity levels. It was found, for example, that productivity of state farms measured by value of cereals per unit of area (hectare) varies inversely with degree of specialization by cereals; i.e., those state farms which are relatively highly specialized in cereal crops production have shown lower productivities as compared to those less specialized ones, and vice versa. All of the features of state farms outlined above with the interaction of some factors external to the state farms engender such type of relationships to exist between the two variables. Regional specificities did contribute to the relatively better performance of some state farms than others. These include, proximity to the capital city, level of infra-structural development, logistical problems, density of rural population, etc.

One might ask the question whether the performance of state farms can be improved to a significant extent? The answer to this question depends on whether there could be significant changes in what we called the important characteristics of the state farms and the situations outside their boundaries which might help reconcile the contradiction between the high demand for and the shortage of supply of the key factors of production.

Taking into consideration the position of Ethiopia in the world economic system, and the socio-economic and cultural setting of the Ethiopian rural society at present, it seems difficult, if not impossible, to see those internal and external factors conditioning performances of state farms altered to a significant extent. Firstly, if the suitability of agro-ecological condition is believed to have had a pronounced influence on the performance of state farms, the country would hardly find any better region other than Arssi and Bale for wheat and barley, and Sidamo for maize production; yet, even in these conducive environmental conditions, yields

remained relatively low. Secondly, cereal crop production in Ethiopia's state farm strategy of agricultural development cannot be operationalised without specialization of a high degree. Moreover, an increase in total volume of output turned out by state farms is a function of area expansion; i.e., for more output to be obtained, given that yield per hectare is low, cropped area must increase (as has been observed to be the case during the last few years' experience). In other words, marketed surplus of food can be increased via expanding cropped area in state farms. In this study, however, it is shown that productivity is affected by complexities inherent in the management of state farms; and management problems become more complicated in larger farms than in smaller ones. Thirdly, even under the assumption that size of farms does not affect their productivities, various external factors come into play and their interaction with the functioning of state farms becomes the main determinant in affecting productivities. As we have mentioned in the previous chapters, state farms are highly mechanized. What is not known or usually underemphasised, however, is the fact that the degree of mechanization of state farms is diminishing over time. The difficulty faced by state farms, in our perception, is executing agricultural operations at the right time and in the right way. Labour shortages during peak seasons are identified as a limiting factor owing to the reasons cited above. Given prevalent circumstances in Ethiopia, this problem is unlikely to be resolved. At the point of the Revolution the degree of capitalist penetration into agriculture was at its infant stage. Consequently, the historical role of the capitalist mode of production in providing the 'double freedoms' (freedom from ownership of the means of production, and freedom to sell labour power) for the peasantry (i.e., proletarianization of the peasantry) was not a dominant scene in Ethiopia. The degree of integration of the peasantry into labour market, therefore, was not that high. Moreover, the socialist revolution provided to the peasantry the right to own means of production (agricultural land). In other words, the peasantry is employed on its own farms. It only goes for off-farm activities in times of slack, non-cultivating seasons. State farms on the other hand cannot make use of this seasonal supply of labour because they, like the peasantry, are dependent on the natural climate and therefore do not have any cropping activity during that time. On the other hand, the problem of labour supply in state farms may be resolved by permanently employing people, but this is extremely unlikely in the light of the high cost of maintenance and provision of services. And especially in seasons when state farms do not undertake cropping practices, the cost of maintaining

unemployed, and therefore, unproductive labour gets too expensive. In addition, when the long-term agricultural policy of the country (i.e., development of the producers cooperatives), is taken into account, labour shortage in state farms is likely to be further aggravated as the cooperatives utilize their collective labour for self-help activities during slack seasons and as a result more and more labour would be retained (throughout the year) within the cooperatives. Thus it appears that the reliance on part-time seasonal peasant labour by state farms is incompatible with the officially peasant oriented agricultural development strategy of the country.

Fourthly, can dependency on external factors, namely on the vagaries of the weather and on temporary seasonal part-time labour be alleviated through, for example, technological advancement? To answer this question, it would be necessary to see what possibilities are there to reverse the situation. Generally speaking, it demands substantial labour-saving investments to be made in state farms. The source of this investment is outside Ethiopia, and its price is determined by external situations. The reason why state farms tend to be dependent on temporary seasonal labour is that undertaking agricultural practices mechanically and/or chemically is getting increasingly difficult. In the meantime, since only limited foreign exchange is generated by agriculture to finance the socio-economic development of the country (industrialization-led strategy of socialist economic development is a point of focus), financing the growing demand of farm machineries, spare parts, etc., in state farms by using the scarce hard currency cannot be easily justified in the long-term. State farms are therefore unlikely, in the final analysis, to be in a position to evenly distribute the seasonal work-load over time.

All of the above explanations indicate that the special characteristics of state farms and their interaction with their outside environment are likely to remain intact or even get worse. As long as this contradiction cannot be resolved, the performance of state farms will remain poor, and perhaps gets even poorer. Costs of production will continue to rise; prices of their produce will tend to escalate, cheap food for the proletariat may not be made available; the growth rate of the industrial sector would be lower than desired. Subsidisation could ease the distributional impact, but would not solve the accumulation problem, since the subsidies involved in covering inefficient state farm production would still have

to be financed in real terms.

On the other hand, what if we see whether there is an alternative to secure marketed surplus of food through peasantry oriented strategy of agricultural development? As was argued in Chapter V, the main problem in pursuing this strategy is that marketable surplus of food per unit of output produced by the peasantry is low. Raising marketable surplus of food from the peasant sector in the longer term, necessitates a rise in productivity of that sector. To raise productivity, those factors which are repeatedly cited to have resulted in poor productivity of the peasant sector need to be attacked. All of them demand resources –resources which may or may not be abundant in Ethiopia. Either resources must generally become available in greater quantity, or/and the contradiction which results from 'state farm – peasantry' resource allocation problem must be resolved.

Unfortunately, lack of studies on the supply responsiveness (in terms of both output and marketed surplus) of the peasantry (producing cereal crops) to price changes did not allow us to push our judgement far enough. However, it has been estimated by World Bank³⁶ that the response of supply to price of the Ethiopian peasantry is among the highest in Africa. Through an efficient market intervention the marketable surplus of food is likely to increase; but this can be effected only if the 'low resource – low productivity' dilemma in the peasant sector is resolved. The inclusion of the peasantry into the socialist development process is something which deserves far greater encouragement.

6.2. Lessons from Other Socialist Countries' Experiences

State farms are not unique to Ethiopia. Most of the socialist countries around the world exercised some sort of a 'state farm' strategy of agricultural development. The objective realities which necessitated this strategy, however, differ from country to country owing to specific circumstances faced by each country at the time of the socialist 'break'.

The USSR, the first socialist country and the exemplary of a socialist model of development for a good number of the newly countries in transition towards socialist mode of production, had to set-up state farms because

circumstances were compelling. There are many factors which make the situation of the USSR (at the time of the revolution) different from other socialist oriented countries including Ethiopia. The development of productive forces there was higher than in Ethiopia. Farm machinery, and chemicals, unlike Ethiopia which relies on imports, were soon capable of being produced locally in the USSR. Prior to the socialist revolution of the USSR, the degree of differentiation and therefore proletarianization of the peasantry was higher than that of Ethiopia in 1974. In USSR rural labour was a crucial input needed by the fast expanding industrial sector, and mechanised state farms met this need. But in Ethiopia, the problem is not of labour shortage but labour over supply. State farms in USSR were primarily designed to demonstrate the perceived advantages of largeness of scale in agriculture; and in this way play a part in encouraging the peasants to join the collectives. They were made largely responsible for many technical developments, such as the production of quality seed and pedigree livestock. New methods not previously used in farm conditions were tried out and tested in state farms. But it soon transpired that, being under the direct control of the government, they acquired an importance out of proportion to the area they occupied, especially in providing the surpluses for the market which the economy so urgently needed. They were in a privileged position for receiving investment; and because their work had an element of experiment in it, the profit criterion for their performance was not stressed. In recent years, however, we find more emphasis on profit, and more freedom in making the dispositions necessary to secure it (Dunman, 1975:117). Their numbers increased relative to their sizes - a tendency towards decentralization. In mid 1960s there were some 85,555 state farms with average size of 284 hectares (Bergmann, 1975:39). Unlike the cereal crops producing state farms in Ethiopia, which focus on extensive production technique, state farms in the USSR were emphasizing production lines which require intensive production systems (for example, livestock).

When we come to socialist-oriented countries with poor agrarian dominated economies, for most of them, particularly African countries, their socialist revolutions had acquired the form of national liberation struggles against their colonizers. Their pre-independence agrarian structures were fashioned in such a way that the modern sector (large scale plantations of cash crops, e.g. sisal in Tanzania; sugar, tea in Mozambique, sugar in Cuba, etc.) had been developed to serve as a major mechanism of 'surplus' extraction from the colonies destined to

the respective colonial powers. In cases where the demand for labour was high, different forms of labour regimes were exercised (forced labour, debt bondage, etc.) to retain the workers in the estates. Upon the arrival of the revolution, there was enough justification to confiscate those plantations and resume production in the form of state farms. Since labour shortage problem in plantations was to some extent resolved by the use of different labour regimes (before the revolution) the dependence of state farms on the peasantry for labour might not be that tight. Moreover, the nature of the products turned out by those plantation estates makes it possible to hire labourers permanently.

Against this background, what makes the Ethiopian case unique is not that Ethiopia lacks enough compelling circumstances during the course of the early few years of her revolution to nationalize and set-up state farms. There is no doubt about that; she has had more than enough of it. What makes the Ethiopian state farms condition different from others is that suitable circumstances outside their managerial and operational boundaries were not there. These were either forgotten or underestimated. There was a failure to foresee the potential linkages that could be created with their external environments. The focus was on creating an 'enclave', as though only suitability of internal conditions were sufficient conditions, never deteriorating, but improving over time. Yet it became transparent that, within less than a decade's time, those attempts to create a successful productive 'enclave' are fading away; the main determinant conditioning productivities of state farms being the **growing dependence of state farms on factors outside their boundaries, and the presence of external factors which are not favourable to the functioning of state farms.** This is something which makes the Ethiopian state farms different; and it is this difference, more than the similarities of reasons to have state farms established between other countries' experiences and that of Ethiopian case which has to be recognised explicitly in shaping the future agricultural development policy of Ethiopia. Moreover, the recent tendency, in some socialist countries (for example, Algeria, Mozambique, Vietnam) of state farms to lose their 'historical' importance might have much to do with their inviability as economic entities. The Ethiopian socialist agricultural development process should take into account a broader perspective, and should not suffer from a myopic vision blinkered by exaggerated perceptions of the theoretical advantages of state farms over the other agricultural sub-sectors.

Reflection on Alternatives

There are some points which need to be noted with regard to the choice of an alternative. These are pertinent to problems which might arise if the peasantry strategy for generation of marketed surplus would be pursued. Two distinct modes of production have emerged within the peasantry; namely, Private Holdings and Producers Cooperatives. The comparative advantage of placing emphasis on either of the two modes of production should take into account some important factors, such as, the implication on industrialization, the imperative to the formation and consolidation of socialist relations of production in agriculture, the capacity to absorb resources, etc.

When these factors are taken into account, the Producers Cooperatives though they are at very low level of development at present, would have a better potential compared to Private Holdings. The role of Producers Cooperatives in future development process, however, depends up on a careful planning and organisational capacity from the side of the socialist government.

ENDNOTES

1. See 'World Development Report, 1988'.
2. See, for example, Central Statistical Authority, Ethiopia: Statistical Abstract.
3. A key reference to this is, Saith, A., 1989, Development Strategies and the Rural Poor.
4. This is a draft paper distributed for seminar, and not published. The actual and potential roles of state farms is discussed in detail in that paper.
5. Stahl emphasises that the number of tenants evicted might exceed that reported. This is because, those figures are reported by government officials. According to him the true number of evicted tenants in 1969 and 1970, due to mechanization, may have been between 450 and 500. It must also be remembered that this was a situation of just a small province. For a detailed discussion, see Stahl, M., 1974, Ethiopia: Political Contradictions in Agricultural Development, Uppsala.
6. This is because tenants withheld part of their produces which would otherwise have been taken over by landlords. The tax imposed upon them is lower than the tributes they made previously.
7. US\$1.00 = 2.07 birr
8. These are various studies. A good example would be Simie, Z., 1985.
9. Yield/ha of teff and sorghum for peasantry, according to the estimation by Central Statistical Authority, exceeds that of state farms. See also on page 53 of this paper (Table 5.2).
10. Yield/ha of wheat and barley for peasantry in Arssi and Bale regions do not differ from that of state farms; while maize yield/ha for peasantry for Sidamo exceeds that of state farms. See the estimation by Central Statistical Authority (op. cit.).
11. Yield/ha of some state farms is extremely low. It goes sometimes as low as 2.25qt/ha (Awassa) for wheat, 1.02qt/ha (Sheneka) for barley, and 5.96qt/ha (Wajifo) for maize.
12. At fertilizer application rates of 80kg/ha (with different proportions of N & P) for wheat, 57kg N + 26kg P per hectare for barley. See Institute of Agricultural Research, 1987, Proceedings of Eighteenth National Crop Improvement Conference, Nazareth, Ethiopia.
13. For example frost was a major problem in Arssi and Bale, shortage of rainfall was not a problem in all but one (only once in six years), drainage was a problem in most farms.
14. For the other types of crops see Table 3.1 of this paper.
15. The arrangement is according to the sum of the ranks of each year. The average ranks for some state farms coincide. 1980-85

16. This holds true even for those state farms which we did not include in the above analysis for the number of years of their operation was less than six years. Hence, Ardaita state farm is the least specialized but the best performing among them.
17. The frequent call upon of other organizations such as Youth Associations, Town Dwellers Associations, Women Associations, Peasant Associations, etc. by the government to undertake crop harvesting practices in the form of 'campaign' and reduce the possible crop losses that might result due to late harvest, is a good manifestation of inherent difficulties of getting things done at the right time.
18. Rank correlation between V_i and C_i is 0.16.
19. See, Agricultural Pricing and Marketing Policy of Ethiopia: A Synopsis, 1987
20. See Saith, A., 1985, The Distributional Dimension of Revolutionary Transition: Ethiopia.
21. See Saith, A., 1985, op. cit.
22. For example, from the year 1980 up to the end of May 1985 (six years) receivables from AMC amounted to 18.9 million birr.
23. Interest rates range from 6% to 9%.
24. Data shortage does not allow full comparisons in some aspects. For example data on Producers Cooperatives are not available; even those on private holdings are not complete.
25. A detailed report of the study can be seen from 'Agricultural Pricing and Marketing Policy of Ethiopia: a synopsis, 1987'
26. For some National Parameters to be utilized in the process of conversion of the components, see 'DPSA, 1981, Guidelines for Project Planning in Ethiopia'.
27. The Market wage rate is Birr 1.92. See, DPSA, 1981.
28. This is because it is intended to deflate past costs. Costs at year n ($n = 0, 1, 2, 3, 4, 5$) are divided by $(1.01)^n$.
29. See Central Statistical Authority, 1987, 'Ethiopia: Statistical Abstract'.
30. This region is one of the three regions of SADC's operation. It is also known that the rate of modern farm inputs application by the peasantry of the region to be one of the highest in the country

31. See various reports of AMC.
32. The estimated SWR for family labour by DPSA is Birr 0.90. We used Birr 0.96, which is the rate for hired agricultural labour because the difference is only marginal, and we intended to exaggerate the estimation of cost of production of the peasant sector.
33. The productivity in terms of per unit area cultivated of other cereals (sorghum and teff) of the peasantry is also higher than the state farm figures for the same crops (see table 5.2).
34. See for example, Saith, A., 1985b:171-172.
35. See 'Agricultural Pricing and Marketing Policy of Ethiopia: a synopsis, 1987'
36. See World Bank, 1987, 'Ethiopia: Agriculture - A Strategy for Growth, Washington DC: Report No. 6520-ET, March.

BIBLIOGRAPHY

- Abate, A. and F.G. Kiros, 1983, 'Agrarian Reform, Structural Changes and Rural Development in Ethiopia', in A.K. Ghose (ed.), *Agrarian Reform in Contemporary Developing Countries*, London: Croom Helm.
- Bergmann, T., 1975, *Farm Policies in Socialist Countries*, England: Saxon House.
- Blecher, M., 1985, 'The Structure and Contradictions of Productive Relations in Socialist Agrarian 'Reform': A Framework for Analysis and the Chinese Case', in A. Saith (ed.), *The Agrarian Question in Socialist Transitions*, *Journal of Development Studies*, Vol. 22, No.1, London: Frank Cass
- Cohen, J.M., 1987, *Integrated Rural Development: The Ethiopian Experience and the Debate*, Uppsala: Scandinavian Institute of African Studies.
- Davis, R.W., 1980, *The Socialist Offensive; The Collectivization of Soviet Agriculture, 1929-30*, London and Basingstoke: MacMillan
- Deere, C.D., 1986, 'Agrarian Reform, Peasant and Rural Production, and the Organization of Production in the Transition to Socialism', in R. Fagen, et al. (eds.), *Transition and Development of Third World Socialism*, New York: Monthly Review Press.
- Demissie, S., 1988, *Resource Allocation and the Performance of State farms*, Research Paper, Institute of Social Studies, The Hague.
- Dunman, J., 1975, *Agriculture: Capitalist and Socialist*, London: Lawrence and Wishart.
- Edquist, C., 1985, *Capitalism, Socialism, and Technology: A Comparative Study of Cuba and Jamaica*, London: Zed Books

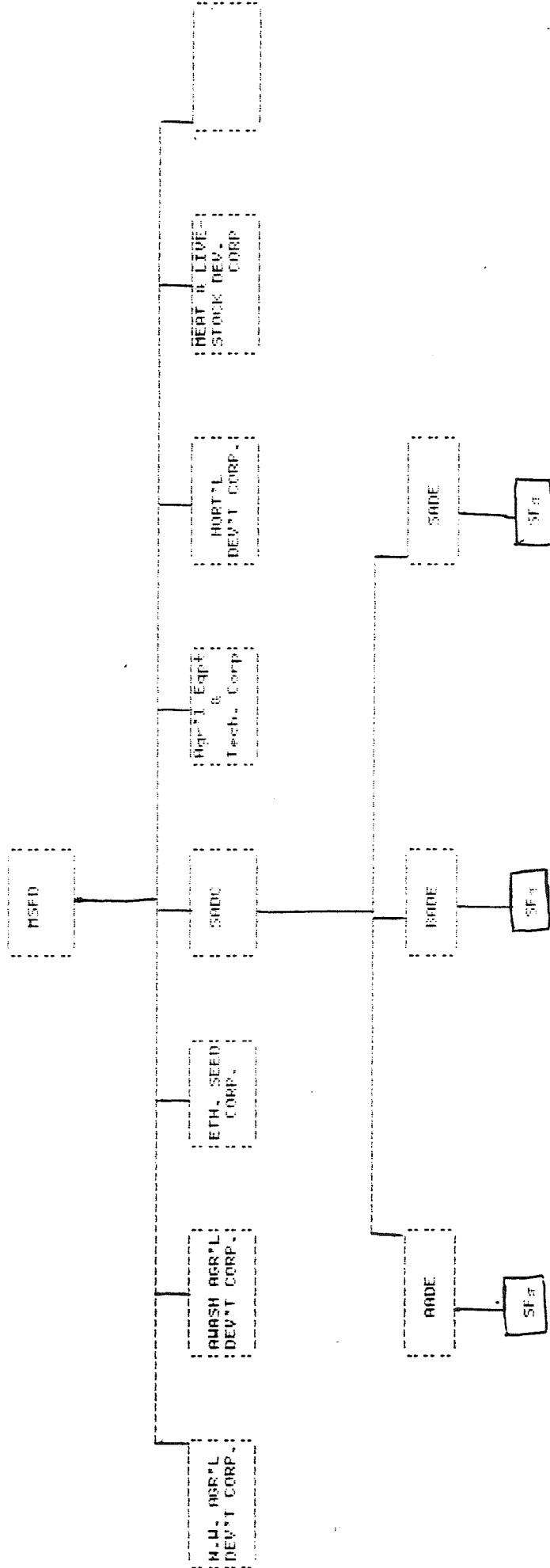
- Ellman, M., 1981, 'Agricultural Productivity Under Socialism', in Jameson, K.P. and C.K. Wilber (eds.), *Socialist Models of Development*, Oxford: Pergman Press.
- Ellman, M., 1975, Did the Agricultural Surplus Provide the Resources for the Increase in Investment in the USSR During the First Five Year Plan?, *Economic Journal*, Vol.85, No. 340, Dec.
- Ellman, M., 1985, *Socialist Agricultural Policy*, *Economic and Political weekly*, June 11.
- FAO, 1984, *Major Issues in Agrarian Transformation: A Report of a Regional Workshop on Agrarian Transformations in Centrally Planned Economies in Africa*, Rome.
- FitzGerald, E.V.K., 1985, 'Agrarian Reform as a Model of Accumulation: The Case of Nicaragua since 1979', in A. Saith (ed.), *The Agrarian Question in Socialist Transitions*, *Journal of Development Studies*, Vol.22, No.1, London: Frank Cass.
- FitzGerald, E.V.K., 1986, 'Notes on the Analysis of The Small Underdeveloped Economy In Transition', in R. Fagen, et al. (eds.), *Transition and Development, Problems of Third World Socialism*, New York : Monthly Review Press.
- Ghose, A.K., 1983, 'Agrarian Reform in Developing Countries: Issues of Theory and Problems of Practice' in A.K. Ghose (ed.), *Agrarian Reform in Contemporary Developing Countries*, London: Croom Helm.
- Ghose, A.K., 1985, 'Transforming Feudal Agriculture: Agrarian Change in Ethiopia since 1974', in A. Saith (ed.), *The Agrarian Question in Socialist Transitions*, *Journal of Development Studies*, Vol.22, No.1, London: Frank Cass.

- Government of Ethiopia, 1987, Agricultural Pricing and Marketing Policy of Ethiopia: A Synopsis, Addis Ababa, December.
- Government of Ethiopia, Development Projects Study Agency, 1981, Guidelines for Project Appraisal in Ethiopia, Addis Ababa.
- Government of Ethiopia, Central Statistical Authority, 1986, Ethiopia: Statistical Abstract, Addis Ababa.
- Government Of Ethiopia, Central Statistical Authority, 1987, Time Series Data on Area, Production, and Yield of Major Crops (1979/80-85/86), Addis Ababa.
- Government of Ethiopia, Institute of Agricultural Research, 1987, Proceedings of Eighteenth National Crop Improvement Conference, Nazareth, Ethiopia.
- Government of Ethiopia, Southern Agricultural Development Corporation, 1987, 'A Report on General Conditions of SADC', Amharic Version, Addis Ababa.
- Government of Ethiopia, 1984, Ten Year Development Plan, Addis Ababa.
- Harrison, M., 1985, 'Primary Accumulation in the Soviet Transition', in A. Saith (ed.), The Agrarian Question in Socialist Transitions, Journal of Development Studies, Vol.22, No.1, London: Frank Cass.
- ILO/JASPA, 1982, Socialism from the Grass-roots: Accumulation Employment, and Equity in Ethiopia, Addis Ababa.
- Jackson, W.A.D., (ed.), 1971, Agrarian Policies and Problems in Communist and Non-Communist Countries, Seattle and London: University of Washington Press.
- Jameson, K.P. and C.K. Wilber, 1982, 'Socialism and Development: Editors' Introduction', in K.P. Jameson and C.K. Wilber (eds.), Socialist Models of Development, Oxford: Pergman Press.

- Mersha, G., 1989, State Farms in the 'Socialist' Accumulation Process: The Failure of a Borrowed Strategy in Some African Countries, A Paper Discussed in Rural Development Studies Seminar, Institute of Social Studies, Mimeo.
- Miliband, R. et al. (eds.), 1988, Socialist Register, Problems of Socialist Renewal: East and West, London: Merlin Press.
- Mundle, S., 1985, 'The Agrarian Barrier to Industrial Growth' in A. Saith (ed.), The Agrarian Question in Socialist Transitions, Journal of Development Studies, Vol.22, No.1, London: Frank Cass.
- Nove, A. and D.M. Nuti (eds.), 1972, Socialist Economies, Selected Readings, Great Britain: The Chaucer Press.
- Saith, A., 1989, Development Strategies and the Rural Poor, World Employment Programme Research Working Paper, ILO.
- Saith, A., 1985a, 'Primitive Accumulation, Agrarian Reform and Socialist Transition : An Argument', in A. Saith (ed.), The Agrarian Question in Socialist Transitions, Journal of Development Studies, Vol.22, No.1, London: Frank Cass.
- Saith, A., 1985b, 'The Distributional Dimensions of Revolutionary Transition: Ethiopia', in A. Saith (ed.), The Agrarian Question in Socialist Transitions, Journal of Development Studies, Vol.22, No.1, London: Frank Cass.
- Simie, Z., 1985, The Role Of State Farms in Ethiopian Economy, Research Paper, Institute of Social Studies, The Hague.
- Stahl, M., 1974, Ethiopia: Political Contradictions in Agricultural Development, Stockholm.
- Stallings, B., 1986, 'External Finance and the Transition to Socialism in Small Peripheral Society', in R. Fagen, et al. (eds.), Transition and Development, Problems of Third World Socialism, New York: Monthly Review Press

- Walston, L., 1962, *Agriculture Under Communism*, London: The Bodley Head.
- Weaver, J.H. and A. Kronemer, 1982, 'Tanzanian and African Socialism', in K.P. Jameson and C.K. Wilber (eds.), *Socialist Models of Development*, Oxford: Pergman Press.
- Wilczynski, J., 1982, *The Economics of Socialism: Principles Governing the Operation of the Centrally Planned Economies Under the New System*, London: George Allen and Unwin.
- World Bank, 1987, *Ethiopia: Agriculture - A Strategy for Growth*, Washington DC: Report No.6520-ET, March.
- World Bank, 1988, *World Development Report*.
- Wuyts, M., 1989, *Money and Planning for Socialist Transition, The Mozambican Experience*, USA: Gower Publishing Co.
- Wuyts, M., 1985, 'Money, Planning and Rural Transformation in Mozambique', in A. Saith (ed.), *The Agrarian Question in Socialist Transitions*, *Journal of Development Studies*, Vol.22, No.1, London: Frank Cass.
- Wuyts, M., 1981, 'The Question of Mechanization in Present-day Mozambican Agriculture', *Development and Change*, Vol.12, No.1.
- Zimbalist, A., 1982, 'On the Role of Management in Socialist Development', in K.P. Jameson and C.K. Wilber (eds.), *Socialist Models of Development*, Oxford: Pergman Press

Annex 3.1 ORGANISATIONAL CHART OF SADC



Annex 4.1 YIELD/HA (IN QUINTALS), BY CROP, 1980-85

A- yield/ha of Wheat

SF\year	1980	1981	1982	1983	1984	1985
Dixis	14.75	12.71	11.46	12.90	19.91	17.52
Lole	22.85	25.14	23.55	25.39	31.15	32.52
Adele	15.29	10.26	17.96	11.72	17.13	20.65
Garadala	18.26	15.68	17.24	16.93	14.11	15.46
Goffar	19.12	13.50	14.64	12.08	10.37	16.26
Andaita	-	19.81	-	-	-	-
Hareroh	21.02	15.43	22.68	16.79	15.78	17.42
Sheneka	4.37	7.52	11.47	7.83	2.20	7.19
Sinana	8.73	16.47	16.20	13.34	12.47	15.17
Dinkiti	14.60	9.16	19.57	7.38	15.40	16.76
Sirufta	26.03	21.58	22.42	13.60	23.12	25.21
Harawa	-	8.03	8.91	-	-	-
Golelcha	-	-	-	-	-	15.62
Mitto	-	12.16	9.67	10.29	7.90	-
Ruassa	-	3.22	-	1.28	-	-

B- yield/ha Barley

SF\year	1980	1981	1982	1983	1984	1985
Lole	24.46	19.22	24.27	15.36	24.13	20.76
Garad	-	17.48	22.49	12.13	5.28	14.23
Goffa	-	17.28	-	14.47	12.61	12.00
Andaita	-	13.34	23.81	14.05	12.72	15.07
Harero Hunte	18.18	19.04	23.20	7.96	9.33	14.52
Sheneka	1.02	-	-	-	-	-
Sinana	-	-	-	11.01	-	16.20
Siruf	24.94	-	-	11.44	13.13	13.63

C- yield/ha Maize

SF\year	1980	1981	1982	1983	1984	1985
Lole	34.89	-	-	-	-	-
Mitto	27.26	14.03	21.07	26.25	20.12	-
Ruassa	27.61	28.82	19.27	22.44	23.62	42.04
Wajifo	-	-	-	-	-	5.96
Bilato-Sinkele	-	-	-	-	7.50	22.11

Source: *SRDC General Report, 1986*

Annex 4-2

PRODUCTIVITY AS VALUE OF CROPS PER UNIT AREA (hectare)

5F/year	1980	1981	1982	1983	1984	1985
Dixis	699.26	597.97	538.62	578.10	935.77	823.44
Lole	1087.85	1086.79	1115.67	994.84	1371.22	1339.08
Adele	718.63	482.22	844.12	550.84	805.11	1010.99
Garadela	858.22	798.74	823.58	777.66	583.90	747.40
Goffar	898.64	634.86	688.08	591.35	563.91	715.87
Andaita	-	925.94	-	-	-	-
Hemeroh	970.87	745.28	1068.54	739.33	683.37	815.63
Sheneka	203.74	353.44	524.99	353.91	103.40	337.93
Sinana	410.31	774.09	761.40	620.41	586.09	732.77
Dinkiti	686.20	490.52	919.79	346.86	723.80	787.72
Siruffa	1218.29	1014.26	1053.74	618.90	1074.33	1156.11
Harawa	-	377.41	410.77	-	-	-
Golelcha	-	-	-	-	-	743.54
Mitto	845.06	503.23	547.49	589.27	479.48	-
Quassa	855.91	866.92	597.37	642.45	732.22	1303.24
Wajifo	-	-	-	-	-	184.76
B. Sinkile	-	-	-	-	421.92	685.40

Sources: Computed from 'SADC, General Report, 1985'

Annex 4-3

CULTIVATED AREA BY STATE FARM, CROP, AND YEAR

A - Total Area

SF/year	1980	1981	1982	1983	1984	1985
Dixis	8060.00	10007.00	9572.98	6801.14	8002.00	7946.99
Lole	3131.40	2443.00	2637.35	2637.70	2579.47	3058.11
Adele	5000.00	5732.25	5623.85	5095.86	5721.00	5802.54
Garadela	16844.84	10990.73	11289.76	11286.44	11288.06	11349.62
Goffar	5757.00	7439.00	6625.00	4856.00	4829.98	4561.06
Ardaita	-	7167.89	-	-	-	-
Hereroh	9401.00	9410.00	9711.00	9203.00	9631.00	10760.00
Sheneka	15184.00	16075.00	10071.00	7046.00	6236.00	6258.00
Sinana	7601.00	7640.00	8622.00	7603.00	8614.00	10818.00
Dinkiti	6116.00	6071.00	6406.00	4502.00	6907.00	6535.00
Siruffa	5079.00	5407.00	6616.00	5697.00	6398.00	7317.00
Harawa	-	2950.00	5777.00	-	-	-
Golelcha	-	-	-	-	-	4902.00
Mitto	2797.00	3286.00	3637.00	3471.00	3911.00	-
Awassa	12209.00	13700.00	14742.00	14991.00	5348.00	5884.00
B. Abaya	2767.00	2619.00	2402.00	2481.00	2403.00	2403.00
Arb. Sile	2318.00	2276.00	2260.00	2258.00	2229.00	2201.00
Wajifo	506.00	505.00	530.00	496.00	495.00	447.00
B. Sinkile	-	-	-	-	8699.00	8794.00

B- Area Wheat

SF/year	1980	1981	1982	1983	1984	1985
Dixis	7567.00	10007.00	9572.98	6801.14	8002.00	7946.99
Lole	1474.40	1470.00	1806.24	1459.00	747.32	1424.54
Adele	5000.00	5732.25	5623.85	5002.86	5721.00	5562.54
Garadela	16864.84	10224.87	10891.41	10350.44	8636.53	8463.58
Goffar	5740.00	7422.00	6625.00	3840.00	2926.77	2366.77
Ardaita	-	6246.00	-	-	-	-
Hereroh	7069.00	7701.00	8259.00	8092.00	7007.00	8871.00
Sheneka	14285.00	15780.00	10071.00	7046.00	6236.00	6334.00
Sinana	7601.00	7640.00	8622.00	7177.00	8614.00	9511.00
Dinkiti	6116.00	6071.00	6406.00	4502.00	6907.00	6535.00
Siruffa	4592.00	5406.00	6616.00	4558.00	4048.00	4665.00
Harawa	-	2950.00	5777.00	-	-	-
Golelcha	-	-	-	-	-	4902.00
Mitto	-	1438.00	1822.00	2359.00	2164.00	-
Awassa	-	390.00	-	1058.00	-	-
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	-
B. Sinkile	-	-	-	-	-	-

C- Area Barley

SF/year	1980	1981	1982	1983	1984	1985
Dixis	-	-	-	-	-	-
Lole	419.00	753.82	624.11	1056.00	1581.04	1479.70
Adele	-	-	-	-	-	-
Garadela	-	240.86	218.45	936.00	2408.92	2574.13
Goffar	-	17.00	-	1016.00	1733.44	2044.28
Ardaita	-	241.89	-	-	-	-
Hereroh	1009.00	990.00	987.00	1111.00	2448.00	1567.00
Sheneka	154.00	-	-	-	-	-
Sinana	-	-	-	426.00	-	1144.00
Dinkiti	-	-	-	-	-	-
Sirufta	487.00	-	-	1139.00	2268.00	2229.00
Harawa	-	-	-	-	-	-
Golelcha	-	-	-	-	-	-
Mitto	-	-	-	-	-	-
Awassa	-	-	-	-	-	-
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	-
B. Sinkile	-	-	-	-	-	-

D- Area Maize

SF/year	1980	1981	1982	1983	1984	1985
Dixis	-	-	-	-	-	-
Lole	741.00	-	-	-	-	-
Adele	-	-	-	-	-	-
Garadela	-	-	-	-	-	-
Goffar	-	-	-	-	-	-
Ardaita	-	-	-	-	-	-
Hereroh	-	-	-	-	-	-
Sheneka	-	-	-	-	-	-
Sinana	-	-	-	-	-	-
Dinkiti	-	-	-	-	-	-
Sirufta	-	-	-	-	-	-
Harawa	-	-	-	-	-	-
Golelcha	-	-	-	-	-	-
Mitto	2797.00	1460.00	1589.00	1112.00	1660.00	-
Awassa	11738.00	11049.00	11984.00	11322.00	3669.00	8483.00
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	115.00
B. Sinkile	-	-	-	-	6951.00	7389.00

Source: *SADC, General Report, 1986*

Annex 4-4

COST/QT (IN BIRR), 1980-85 BY CROP

A: Cost/qt. Wheat

SF/year	1980	1981	1982	1983	1984	1985
Dixis	44.13	82.63	75.75	112.98	66.64	63.84
Lole	34.81	42.66	51.86	44.01	44.61	34.97
Adele	57.08	81.47	56.90	90.87	56.70	50.75
Garadela	39.82	49.40	54.12	53.17	70.73	68.86
Goffar	57.83	59.12	71.56	91.74	114.73	74.09
Ardaite	-	38.89	-	-	-	-
Hereroh	27.62	35.38	32.35	48.81	51.93	40.81
Sheneka	116.66	61.10	74.75	90.37	459.61	117.18
Sinana	108.33	37.82	41.80	82.69	68.59	54.54
Dinkiti	63.88	79.25	62.19	188.38	74.78	65.05
Sirufta	25.67	27.15	32.30	88.01	41.65	35.29
Harawa	-	120.16	124.14	-	-	-
Golelcha	-	-	-	-	-	68.15
Mitto	-	82.14	100.92	97.11	123.03	-
Awassa	-	282.87	-	788.48	-	-
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	-
B. Sinkile	-	-	-	-	-	-

B: Cost/qt. Barley

SF/year	1980	1981	1982	1983	1984	1985
Dixis	-	-	-	-	-	-
Lole	32.87	46.62	39.91	57.01	53.46	53.18
Adele	-	-	-	-	-	-
Garadela	-	46.90	38.40	62.37	177.50	73.47
Goffar	-	45.81	-	72.44	121.68	100.42
Ardaite	-	49.50	-	-	-	-
Hereroh	34.33	24.64	32.20	92.00	87.28	47.28
Sheneka	154.36	-	-	-	-	-
Sinana	-	-	-	98.93	-	49.83
Dinkiti	-	-	-	-	-	-
Sirufta	27.14	-	-	98.57	51.83	45.84
Harawa	-	-	-	-	-	-
Golelcha	-	-	-	-	-	-
Mitto	-	-	-	-	-	-
Awassa	-	-	-	-	-	-
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	-
B. Sinkile	-	-	-	-	-	-

C: Cost/qt Maize

SF/year	1980	1981	1982	1983	1984	1985
Dixis	-	-	-	-	-	-
Lole	26.25	-	-	-	-	-
Adale	-	-	-	-	-	-
Garadela	-	-	-	-	-	-
Goffar	-	-	-	-	-	-
Ardaita	-	-	-	-	-	-
Hereroh	-	-	-	-	-	-
Shenoka	-	-	-	-	-	-
Sinana	-	-	-	-	-	-
Dinkiti	-	-	-	-	-	-
Siruffa	-	-	-	-	-	-
Haraua	-	-	-	-	-	-
Golelcha	-	-	-	-	-	-
Mitto	34.94	76.88	61.47	37.67	79.43	-
Awassa	39.88	47.46	56.88	41.70	51.21	30.48
B. Abaya	-	-	-	-	-	-
Arb. Sile	-	-	-	-	-	-
Wajifo	-	-	-	-	-	595.44
B. Sinkile	-	-	-	-	57.50	34.97

Source: *SADC General Report, 1986*

Annex 4-5

COST OF PRODUCTION OF CEREALS (Wheat, Barley & Maize) PER HECTARE

SF\year	1980	1981	1982	1983	1984	1985
Dixis	650.96	1050.28	867.78	1389.54	1326.52	1118.25
Lole	831.06	1012.56	1155.90	1015.50	1036.44	1120.82
Adele	872.84	835.49	1021.15	1064.77	971.31	1047.78
Geradela	727.28	775.59	940.82	888.67	984.83	1070.46
Goffer	1105.84	798.22	1047.28	1095.31	1317.65	1205.50
Andaita	-	771.70	-	-	-	-
Hemeroh	586.22	536.70	735.03	808.91	715.46	707.20
Sheneka	505.40	459.32	857.10	707.86	1009.13	842.82
Sinana	945.52	622.68	670.30	1102.39	855.64	825.27
Dinkiti	932.50	725.66	1216.95	1390.77	1151.84	1090.12
Sirufta	669.16	586.10	724.01	1182.62	973.15	896.73
Harawa	-	924.24	1105.88	-	-	-
Golelcha	-	-	-	-	-	1078.02
Mitto	952.21	1078.63	1125.67	1299.78	1168.21	-
Awassa	1101.27	1351.06	1095.57	942.04	1269.76	1281.25
Wajifo	-	-	-	-	-	2355.46
B.Sinkile	-	-	-	-	783.16	773.12

Source: Computed from 'SADC General Report, 1986'

Annex 4.6

Grain Purchases by the
Agricultural Marketing Corporation
(Quintals)

No.	Year	Peasant Sector	State Farms	Imports	Total
1	1981/82	3,064,640	1,526,820	386,000	4,977,469
2	1982/83	3,843,640	1,893,991	374,480	6,112,111
3	1983/84	2,662,892	1,435,504	261,900	4,362,296
4	1984/85	1,147,790	1,164,463	1,720,419	4,032,672
5	1985/86	2,720,721	1,639,664	3,218,409	7,578,794

Sources: Agricultural Pricing and Marketing Policy of Ethiopia : A Synopsis, 1987, Addis Ababa.

Annex 4.7

INTRA-REGIONAL PRICE SPREADS BY CROPS, OCTOBER 1981

1. Average Quotations in (birr/quintal), Local Markets

	Arssi	Dale	Gemmu-Goffa	Gogjam	Gondar	Hareghe	Keffa	Shoa	Sidamo	Tigray	Wollo
Tell	55.50	62.30	61.72	36.85	42.73	128.30	69.50	70.80	76.78	90.43	57.86
Wheat	58.62	51.78	nq	39.33	38.17	91.00	78.00	69.00	65.70	66.08	61.81
Maize	35.00	40.60	27.33	20.50	20.00	69.67	nq	41.17	33.80	50.00	33.67
Barley	33.70	32.39	47.08	22.50	29.00	nq	40.00	49.58	42.65	43.38	39.18
Sorghum	nq	nq	34.00	22.83	27.38	101.70	39.50	48.21	nq	65.35	46.20
Millet	nq	nq	nq	22.56	26.60	nq	nq	nq	nq	100.00	nq

2. Coefficients of Variations (%)

Tell	12.87	17.28	20.64	6.11	16.82	nc	nc	15.85	9.38	19.91	18.19
Wheat	13.09	24.31	nc	13.35	14.22	nc	nc	17.54	16.46	25.84	19.70
Maize	nc	36.49	31.11	13.89	nc	nc	nc	18.09	22.82	nc	32.02
Barley	31.09	5.58	12.99	14.36	9.65	nc	nc	18.32	18.44	52.08	19.70
Sorghum	nc	nc	50.02	9.26	25.22	nc	nc	27.01	nc	28.78	21.89
Millet	nc	nc	nc	15.37	8.10	nc	nc	nc	nc	nc	nc

Sources: (1) *Food Supply System: Meher Synoptic Report, 1981*, Early Warning and Planning Service, RRC, March.

(2) *Market Dependent Food Supply System: Food Supply Status and Forecast by Administrative Region, EW and PS, RRC, March 1982*.

Notes: nq = not quoted; nc = not computed because of small number of quotations.

Source: Saith, A., 1985b, *The Distributional Dimension of Revolutionary Transformation in Ethiopia*, Journal of Development Studies, Vol. 85, No. 1