ADDIS ABABA UNIVERSITY
School of Graduate Studies

Determinants of Private Industrial Investment in Ethiopia

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ABSTRACT

Despite the importance of private sector in economic development, private industrial investment in Ethiopia has been encountered with a number of serious problems and, as a result, its development level remains low. These problems are related to lack of demand, lack of credit, lack of technology, lack of inputs, inappropriate policy, and lack of infrastructure. This study has identified the root causes of these problems with their degree of severity applying non-parametric techniques. This helps to know how private manufacturing industrial owners and potential investors perceive the impact of financial, regulatory, technical, marketing and other constraints. The response of the respondents indicates that these problems are a serious constraints to undertake industrial investment and expansion. The most severe problems to undertake industrial investment in Ethiopia are related with credit and policy. The severity of the problems which handicapped industrial investment are independent of regional location of industries. Therefore, it is important to policy makers to focus on solutions for common problems of industrial expansion and investment in various regions. In order to understand the partial effects of different factors determining private industrial investment in Ethiopia, OLS regressions for short-run model specifications are estimated for the period 1970/71-1994/95. The regression results indicates that while the GDP, credit availability, government capital expenditure and real interest rate had insignificant contribution, the retained earnings (the industry's cash inflow) has a significant role in private manufacturing investment.

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND

Development theory and empirical evidence suggest that industrialization plays a key role in economic development; it generates employment and skill; creates links in economic activities; increases the flexibility of the economy and reduces economic dependence on foreign economy.[1]

In Newly Industrialized Economies(**NIE**), private manufacturing industry has been the critical agent of the structural transformation which marks the transition from a backward, low productive and low income state to one that is dynamic, sustainable and diversified. The governments of Asian countries played a crucial role in creating conducive conditions to private manufacturing sector.[2] The experience of newly industrialized Asian countries provides lessons for African countries which still suffer from unreliable primary exports, backward economic structures and rudimentary industrial skill and institutions.

Although African governments have given attention to industrialization in their development plan, the level of

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[1] Teshome Mulat(1994), Stewart *et al.*(1992), Michaely *et al.*(1986) and Falvey *et al.*(1992).

[2] Naya S. and Robert M.(1994), and Michael et al.(1986).

industrial growth has remained low and fluctuating.[3] This has been mainly caused by their strong concern to develop public sector industries at the expense of the private economy and, in general, failed to engineer complementary private-public relationships. As it has been often noted that industrial development pursued along the path of state owned large scale industries or parastatals per se has not been able to generate the potential economic benefit and sustainable industrial development.

In Ethiopia, since the adoption of the structural adjustment programme, emphasis has been given to private industrial development. The government's effort is focused on creating the enabling environment for the private sector and market forces to operate. This has not, however, been an easy task. To begin with, the economy is starting from a very low industrial base. The destabilizing effect of change are also felt strongly so that there are no marked changes on the level and state of industrial growth at the present time.

1. 2. STATEMENT OF THE PROBLEM

Several factors have contributed to low level of industrial growth in Ethiopia. Succeeding governments lacked the capacity to introduce a credible industrial policy. The lack of an entrepreneurial class and the anti-private and anti-market policies of the previous government have severely curtailed industrial growth. This is not a matter which can be explained

[3] Solomon Wole (1992).

away by the lack of investible funds, poor economic infrastructure, lack of skills or by the generalized poverty of the population.

The underlying root causes for these problems are so diverse and complex so that it will be necessary to identify the major ones in order to analyze them and government policies over the years.

1.3. OBJECTIVES OF THE STUDY

This study will attempt to identify the major factors that determine the level and pattern of private industrial investment. The specific objectives of the study include:

1. a review of past trends of private industrial growth;
2. analysis of the major determinants of private industrial investment;
3. identification of the most serious constraints affecting private industrial activities and expansion; and
4. recommendation of possible measures.

1.4. SIGNIFICANCE OF THE STUDY

Ethiopian economic policy has shifted form a socialist to a market oriented system. Despite this, Ethiopian private manufacturing sector is at the low level of development. Industrial policies should be designed in such a way that they will help alleviate the problems of private industrial investors. In this regard, therefore, this study will be relevant to

indicate the current state of the Ethiopian private manufacturing industry and also the most serious problems encountered its activity with their possible remedies to assist policy makers in designing appropriate industrial policies and strategies. The identification of the most severe problems of enterprises' activity helps to set priorities. This study is also significant to explore the severity of the problems of enterprises in various regions.

CHAPTER TWO

2. LITERATURE REVIEW

Investment is the flow of spending in a given period that adds to the physical stock of capital. By increasing the capital stock, investment spending augments the future productive power of the economy.

Capital is a stock concept and refers to the accumulated stocks of machinery, factories, or durable factors of production. Capital exists in different forms in the economy. These are fixed business investment, inventory investment and investment in residential structures. Of these types of capital, we are concerned to deal only with fixed business investment which is defined as the amount spend by industrial investors to add to the production process over a given period, specifically per year.

The pattern and level of investment are influenced by several factors which can be termed as determinants of investment . The specification of the determinants of private industrial investment should consider the specific realities of a given country. In developing countries, investment decision in manufacturing industries is undertaken in a complex environment and confronts a number of constraints which might not be the same across countries or vary for a given country overtime.
The theoretical and empirical justifications about the problems and /or determinants of private manufacturing industrial investment are reviewed as follows.

2.1. THE DEMAND FOR INDUSTRIAL OUTPUT AND PRIVATE INDUSTRIAL INVESTMENT

The accelerator principle was initially formulated to explain investment demand at the level of the firm. But its use in subsequent years was characterized by a 'gradual shift from a micro- to- a macro-economic orientation'[4].

Theoretically, this relationship can be readily derived from a flexible accelerator model with the assumption that the underlying production has a fixed relationship between the desired capital stock and the level of output. The Production of industrial output requires capital, labour, and technology. For a given technology, a rise of demand for industrial output initiates investors to invest in order to meet the demand gap.

According to the accelerator model, investment spending is proportional to the change in output demanded and is not affected by the cost of capital[5]. Firms would invest if output demanded was expected to rise, but they would not otherwise undertake net investment.

An investment project that is profitable under the assumption of no sales constraint will not be exercised in a situation where there exists a lack of demand for the goods that could be produced by the project; or it will be postponed until the demand for the output of that project is expected to be sustainable.

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[4]H.S. Odehi(1968).

[5]R.Dornbush and S.Fischer(1994).

Since foreign markets for manufacturing industries are limited due to inability to compete in the world market, manufacturing industries in developing countries are highly dependent on domestic market. The reliability of domestic market for the output of manufacturing industries depends on income level of the population and, in general, on the development level of a country.

The products of industries are demanded either for consumption or intermediate use. The type and magnitude of such demand have an impact on the type and level of industrial investment. For instance, resources may be allocated to consumer-good producing industries if the demand for manufactured consumer-goods is expected to rise. Hence, potential industrial investors will undertake investment in line with domestic demand condition based on the available information they have. Yeheyes Assefa(1986) pointed out that the demand for most products of industry is highly income or output elastic.[6]

Econometric estimates of investment function show a strong response of investment to changes in output demand.[7] For instance, Chhibber and Van Wijnbergen (1988) estimated the effect of the expected output variable, measured by lagged GDP, on

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[6]see Yeheyes Assefa(1986), "possibilities and constraints of developing heavy industries", paper submitted to First National symposium on industrial development.

[7]Solimano(1989), George and Morisset(1993), Chhibber and Van Wijnbergen(1988), Dailami(1990), Chhibber and Shafic(1990), Musalem(1989),Shafic(1990),Chhibber and Dailami(1990),and Serven and Solimano(1989).

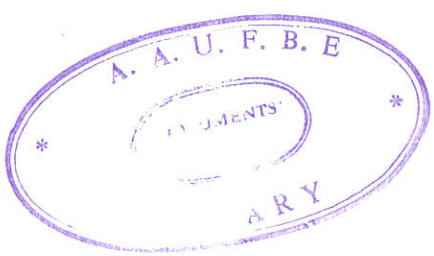
private investment in Turkey and they found out that it is highly significant. Solimano(1989) also found that output elasticity of private investment is statistically significant in Chile.[8]

In Ethiopia, the foreign demand for products of manufacturing industries is very limited and unreliable due to the poor quality of exportables. The growth of small-scale manufacturing output is greatly constrained by lack of growth of domestic purchasing power and low income and price elasticities of demand for the products abroad.[9]

The main limiting factor for the low level of income and GDP is the lack of output growth in the dominant economic sector-agriculture. The low level of surplus growth in agriculture resulted in low income, saving and investment. Moreover, macroeconomic reform in recent years has not yet reversed the trend of industrialization in the country.

2.2. PROFITABILITY AND PRIVATE INDUSTRIAL INVESTMENT

Realized profit guides business people in judging what future level of profit will be. Investment spending will be undertaken in the expectation that it will be profitable. It is out of this profit that firms will be able to finance new investment and expansion.



[8]Solimano (1989).

[9] Teshome Mulat(1994).

The greater the actual magnitude of profit is, the better are the possibilities for self-financing. Because most private investments in Ethiopia are managed by their owner, the assumption that the objectives of the shareholders (owners) are the same as those of the firm's manager is fairly plausible. In principle, the objective of the owner of the firm is profit maximization. One can, therefore, argue that in LDCs the objective of the firm's manager is the objective of the owner of the firm.[10]

According to Sachs(1993), when firms can not simply borrow at the market interest rate , their abilities to finance investment projects depend on their earnings or cash flow.[11] Solimano(1989) found that, in Chile, the elasticity of private investment with respect to change in profit was high and significant for the period under review.[12]

In Ethiopia, domestic saving has remained low in general as was indeed bank lending to private industry. In addition, the government was discouraging private initiatives by introducing restrictive legislation, and by establishing a system of preferential treatment to public enterprises in its lending practice.

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[10]Solimano(1989).

[11] Sachs (1993).

[12] Solimano (1989).

Low level of bank credit availability to private industry and the lack of alternative sources of finance have adversely affected industrial growth in Ethiopia.[13] Small-scale manufacturing enterprise owners had to, thus, resort to the use of their own-funds to finance industrial expansion or new investment.

2.3. REAL INTEREST RATE AND CREDIT AVAILABILITY AND, PRIVATE INDUSTRIAL INVESTMENT

The assumption that investment projects with positive return will face adequate financing is not necessarily true in developing countries.

According to Sachs (1993), firms might be unable to obtain the credit necessary to carry out an investment project even when the project passes the test of profitability.[14] There are segmentation of capital markets and the existence of regulatory rules for credit allocation. In many LDCs, the level of saving is typically very low and some part of the credit market clears under quantity adjustment, and hence some borrowers have access to preferential credit at subsidized interest rates; some other borrowers finance their investment outlays in unregulated or informal credit markets at market determined interest rates[15]. Where financial markets are underdeveloped and characterized by artificially low administered interest rate, firms have a greater

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[13] Teshome Mulat(1994).

[14] Sachs (1993).

[15]Solimano(1989).

incentive to use debt financing since their borrowing costs are being subsidized by depositors. As a result of this, investment demand tends to exceed the supply of saving and firms that want to borrow to make investment are rationed. So, with controlled interest rates and financial repression, the availability of credit becomes the relevant constraining variable.

Several empirical studies have showed significant positive relationship between the availability of credit to the private sector and private investment[16].

Theoretically, real interest rate is taken as a determinant of private industrial investment. The underlying logic of a negative relationship between real interest rate and private investment is fairly well established in well functioning economies. However, until recently, most empirical studies of private investment did not show direct and clear evidence for this relationship. The observable nominal interest rates in developing countries do not often reflect the scarcity of capital because capital markets are either small or not well functioning[17]. The problem of credit rationing has been acute in many developing countries particularly in situations of high inflation. Interest rate ceilings are artificially set in nominal terms, so that as inflation rates increase,the real interest rate ceiling falls, often to negative. As real interest rate falls, real saving falls

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[16]Chhibber and Van Wijnbergen(1988), and solimano(1989).

[17]Shafic(1990), and Chhibber and Shafic(1990).

(i.e real interest rate will not attract the people to save) and then the available funds for credit will be lower. Hence, real interest rate affects industrial investment directly and indirectly through savings.

2.4 UNCERTAINTY AND PRIVATE INDUSTRIAL INVESTMENT

The recent literature emphasizes the negative impact of uncertainty on private investment as a result of a higher risk premium[18]. The rational investor in a world of complete certainty is concerned with the level of profitability and demand for making his/her investment decision. However, in a world where investment is irreversible and the variables that affect the future net return of investment are stochastic, the investor takes risk into consideration. Risk is a 'bad thing'; therefore, investors care about the mean and variance of the returns of an investment project. So, under risk and uncertain investment environment, most industrial investments can be delayed, giving the firm an opportunity to wait to new information and investment conditions. This is so because once investment is made, shifting capital to another sector will be difficult or liquidation can be made at a sizable capital loss.

In fact, there are situations in which a firm cannot wait to invest. These situations arise due to the expectation of competitive entrants into a market and patents and/or licenses

[18]Solimano(1989), George and Morisset(1993) and Dailami(1990).

that would be expired if projects are not implemented during a specified period of time. In such a case, the choice of investors is to invest today; there is no option to wait for the coming periods, and hence no opportunity cost is incurred in such an option.

2.5 PUBLIC CAPITAL EXPENDITURE AND PRIVATE INDUSTRIAL INVESTMENT

Public sector investment is one of the factors influencing private investment[19]. An expansion in public expenditure to produce industrial inputs and services for industrial sector facilitates private industrial investment. An increase in public enterprises' demand for industrial output has also fostered private industrial investment through its effect on capacity utilization of private manufacturing industries.

Public investment on infrastructure can be complementary to private manufacturing investment as it reduces the cost of production and distribution. So that it has a positive (crowding-in) effect on private industrial profitability and investment.

On the other hand, public investment in non-infrastructure will have a negative (crowding-out) effect on private industrial

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[19]Blejer and Khan(1984) discussed about the effect of public investment on private investment. They distinguished public expenditure into two. Infrastructural and non-infrastructural expenditures. The former affects private investment positively while the later affects private investment negatively.

investment. Government borrowing on domestic credit to finance public investment reduces credit availability to the private sector in a rationed economy directly although it may have no effect on administered nominal interest rates.

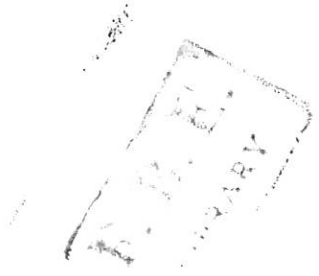
Furthermore, non-infrastructural public investment can cause crowding-out effect if it utilizes scarce physical resources that would otherwise be available to the private sector or if it produces marketable output that competes with private output. Therefore, the relationship between government investment and private industrial investment is indeterminate. It will either be complementary or competitive.

The competitive or complementary relationship between public and private investment adds to the complexity in the interactions between public capital formation and the profitability of the private sector. So, it is necessary to distinguish within public investment between those broadly classified as infrastructure (complementary to private investment) and those classified as non-infrastructure (competitive with private investment) activities.

Blejer and Khan(1984) use two different proxies for infrastructure investment:[20]

1. a proxy based on the premise that infrastructure investments have a long gestation period and, therefore, the trend level of total public investment can represent infrastructure; and

[20] Blejer and Khan (1984).



2. a proxy that posits because of its long term nature, infrastructure investment is more likely to be anticipated.

Chhibber and Van Wijnbergen (1990) found out that the direct impact of the government expenditure reduction in areas where it is in competition with private sector appears to be important in the case of Turkey. Furthermore, the result indicates that the shift in composition of public investment program (from non-infrastructure to infrastructure) had a significant and positive influence on the private manufacturing investment.[21] This result is reasonably accepted for developing countries because infrastructure in areas such as transportation, electric power, and communication is at low level of development, and hence the improvement of these features raise the rate of private investment.

Shafic (1990) found strong evidence to support the positive impact of public infrastructural investment on private investment in Egypt.[22]

2.6. TECHNOLOGY AND PRIVATE INDUSTRIAL INVESTMENT

It is inconceivable to think of industrialization without the application of technology. The concept of technology that underlies this statement is a broad one. It doesn't merely include the knowledge of physical process that transforms inputs

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[21] Chhibber and Van Wijnbergen (1988).

[22] Shafic (1990).

in to output (technical knowledge). It also includes the knowledge of procedural and organizational, i.e., institutional arrangements to carry out the transformation.[23]

Historically, countries achieved an autonomous technological breakthrough (as in England) or benefitted from the importation and adaptation of advanced technology, on the basis of which they could consummate their own autonomous breakthrough (as in Japan).

The nature of industrial technology set up and/or imported must conform to the reality of a given country to operate properly, not in a static sense of matching for the given situations, but in the dynamic process of changing situations. Importation of technology per se would not matter if the transformation of imported technology is undertaken with a careful understanding of its efficiency to achieve growth, diversification, penetration of foreign market and use of domestic endowments in such a way that could build the country's industrial base in the long run.[24]

Heavy investment in building-up individual technological capability is usually uncertain, risky and incomplete.[25] In Ethiopia, technological skill, information, and institutions are not well organized and/or developed; as a result, firms usually resort to informal information and training with a limited scope. Under highly protective trade policy, the set up of technological

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[23] Pack *et al.*(1986).

[24] Stewart et al.(1992), and Ten Kate(1993)

[25] Pindyck et al.(1989).

2.7 POLICY ENVIRONMENT AND PRIVATE INDUSTRIAL INVESTMENT

This section assesses various government industrial policies, both prior to and after the Revolution, as well as in the post 1992 years. Prior to 1974, the industrial policy had focused on promoting a mixed economy based on public and private initiatives. According to the Third Five Year Development Plan, policies were designed with the intention to process local raw materials; promote import substitution; and to encourage industries which have strong linkage effects.
The details of the industrial targets were:

1. the expansion of textile industry to meet the domestic requirement;
2. the development of food processing industry to enable a fuller utilization of agricultural products both for the domestic and export markets;
3. expansion of the hide and skin industry to enable an increase in the output of foot wear and other leather products, and expansion of production of oil seeds in order to increase the output of oil, soap and other products both for the home market and export; and
4. enlargement of the timber and building industries to meet the growing needs of construction works.

To achieve these targets, the First Five Year Development Plan stated the importance of private sector for the development of industrial sector:

> *the available means of stimulating, directing and controlling private initiative were sufficient to influence the rate and pattern of industrial development with out discouraging or hampering private initiative.*

The government's interest to promote private sector is explained in the document:

> *credit institutions, particularly the development bank, should foster initiative in the industrial sphere where there is a lack of sufficient independent initiative. However, except in certain specific cases, public investment should not be a permanent substitute for private enterprise it should provide an initial impetus in order to encourage and direct it. The direct participation of public sector in creating new industrial enterprises is envisaged in cases where the public interest demands it, for example production of military equipment, printing works, or where there is a consistent lack of private initiative or where there is an urgent need from the general economic point of view, such as the establishment of a factory for agricultural implements and tools.*

This shows the government's sympathy for the role of private sector in industrial development.

The credit policy of the Imperial Government favoured private manufacturing which was expected to play a dominant role in industrial development. This is shown in the First Five Year Development Plan(1957-1961).

> *When granting credit for the creation of some new industrial enterprises the development bank should participate as a share holder. The participation of private capital in some new enterprises might be at first proportionally small, especially where entrepreneurs do not have enough confidence*

on the success of a new enterprise. When such an enterprise is successfully established and developed it would gain the confidence of investors and enable the sale of Development Bank shares. The proceeds of these shares could further be invested in new enterprises or the expansion of existing ones.

The Development Bank of Ethiopia was the provider of financial credit to private manufacturers. The Bank in cooperation with the Ministry of Industry and Commerce was assigned to spearhead the development of industrial policy through resource mobilization and lending to private industries.

In the Pre-1974 period, there were only three privately owned financial institutions, namely, Addis Ababa Commercial Bank(1964), Banko de Roma(1967) and Banko de Napoli(1970). The proclamation No. 206/1963 delegated power to the National Bank of Ethiopia (NBE) to direct its own credit as well as those of other banks and financial institutions, and to regulate credit flows by determining the purpose, size, period and interest rate. According to this proclamation, the allocation of credit schemes was not discriminatory between public and private sectors. Nevertheless, the lending interest rate was markedly different from the shadow rate, indicating financial market imperfection and resultant misallocation of financial resources.

The Imperial Government placed much faith on private foreign investment for the fulfilment of targets in industrial development. To attract foreign private investment capital, a new

investment law was enacted which provided incentives including tax holidays, import duty relief, credit facilities, etc.

The import-substitution industrialization strategy was vigorously pursued and a number of manufacturing enterprises were established in food processing, textiles and leather.

Following the Revolution of 1974, government support was shifted in favour of the public sector and often at the expense of private industry. Most of the medium/large-scale private firms were nationalized. The extent of nationalization was quite extensive. By march of 1975 a total of 90 manufacturing enterprises were brought under public ownership and control; 63 were completely nationalized and 27 were kept under state control. By February of 1977 the total number of nationalized enterprises has risen to 137.[28]

The Ethiopian financial sector was tightly controlled and the system was directed by the state. There were no privately owned financial institutions operating in the country. The three private banks were nationalized by the government.

All the nationalized enterprises were provided with a new system of industrial management to further their development. The central feature of the new system was the grouping of like enterprises into corporations and direct control of the latter by the respective ministries. Import-substitution strategy

[28] Teshome Mulat (1994).

continued to be pursued with vigour and domestic industry(this time publicly owned and managed) was given adequate protection against competition from imports by unscalable tariff walls and the direct prohibition of certain imports.

The credit policy was also discriminatory between sectors and by ownership. Interest rate was administratively controlled and credit was rationed in favour of public and cooperatives and against the private sector.[29]

The required collateral assets for private sector was very high in value terms and specific for immobile assets such as buildings. 'Some' individuals had lost their immovable properties by the 1975 nationalization but the properties which were accepted as collateral were only immovable ones which private sector once lost. Hence, huge loanable funds were directed to public enterprises leaving little to private firms.

A related problem was that of the exchange rate. Ethiopian currency (the Birr) was overvalued and then imports of capital goods and other inputs from abroad was encouraged. The overvalued exchange rate did not enhance domestic production but instead created high import dependence and discouraged exports.

Since 1992, the government of Ethiopia abolished entry barriers and restriction on private industrial activities at policy level. An investor is free to invest in any field of activity without

[29] Admit and Getachew (1995).

capital ceiling; and industrial license is issued without much delay to prospective investors. Measures are also being taken to reform the financial sector. This may counter investment growth but the anomaly is corrected by regulations which allow interest rate to fluctuate within a restricted floor and ceiling.

The current investment policy has given incentives for those projects which have an investment capital greater or equal to Birr 250,000. This shows that the incentive structure is discriminatory based only on the amount of invested capital. Those industries which have less than an investment capital of Birr 250,000 are excluded from the incentive structure of the New Investment policy. The Investment Office is given the responsibility to issue an Investment Certificate for those projects which have greater or equal to Birr 250,000 capital; while Regional Trade and Industry Bureau has a duty to regulate industrial projects with less than Birr 250,000 investment capital.

CHAPTER THREE

3. THE TREND IN THE DEVELOPMENT OF PRIVATE MANUFACTURING SECTOR IN ETHIOPIA

Empirical evidence indicates that the development of the manufacturing sector has followed a uniform direction. Consumer-good producing industries develop first during the process of industrialization, followed by capital-good producing industries which tend to develop faster than consumer-good industries. Consequently, the ratio of the output of consumer-good industries to that of capital-good industries declines.

The down-ward movement of the ratio of the output of consumer-good industries to that of capital-good industries is observed in many countries. The speed of the fall of this ratio differs from one country to another. For instance, sharp-rate of decline in Japan and Germany; medium-rate of decline in Britain, France, Belgium, Australia and South Africa; and low-rate of decline in USA, Canada and DenMark were observed.[30]

To assess the performance of manufacturing industries in Ethiopia over time, two classification methods are used. The first, followed by the Central Statistical Authority(CSA), is based on their activities. The second method is the classification of manufacturing industries based on the final use of their products.

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[30]R.B. Sutcliffe (1971)

The Ethiopian Central Statistical Authority's classification of manufacturing industries includes food, beverage, tobacco, textile, leather and shoe, wood and furniture, paper and printing, chemical, non-metal, and metal processing industries.

The classification of industries based on their product use can be categorized as non-durable consumer-good industries, durable consumer-good and/or capital-good producing industries, and other industries.

Non-durable consumer-good producing industries are food, beverage, tobacco, textile and leather processing industries; durable consumer-good and/or capital-good producing industries are wood, non-metal and metal manufacturing industries; and other industries include chemicals, and paper and printing.

Therefore, to assess the trend of the development and performance of private manufacturing sector, the direction and magnitude of such indicators as the distribution of output, fixed assets, employment-ratio, and growth rates for the industrial output are calculated for the period 1975-1993.

The industrial sector in Ethiopia accounted for 9-15 percent of GDP in the period 1975-1993. The average contribution of industrial sector to GDP(averages for five years) were 11.26 percent in the period 1975-79, 12.76 percent in the period 1980-84, 12.93 percent in the period 1985-90 and 10.19 percent in the period 1990-93, thus showing little changes over the years.

Table 3.1 THE CONTRIBUTION OF INDUSTRIAL AND AGRICULTURAL SECTOR TO REAL GDP

Year	Contribution of industry to GDP (%)	Contribution of agriculture to GDP (%)
1975-79	11.26	57
1980-84	12.76	52
1985-90	12.93	51
1990-93	10.19	53

Source: CSA Annual statistical Bulletin (various issues)

Since agricultural GDP shares were also not changing, it may be concluded that the structure of industrial and agricultural production has remained constant during the period 1975-1993. Slight drop in the relative GDP shares of manufacturing is observed during 1975-79 and 1990-93, which periods coincide with years of political instability in the country.

Table 3.2. ANNUAL GROWTH RATE OF REAL GDP, AGRICULTURE, INDUSTRY, TOTAL MANUFACTURING INDUSTRIES AND PRIVATE MANUFACTURING INDUSTRIES.

Year	GDP (%)	AGDP (%)	IGDP (%)	MGDP (%)	PMGDP (%)
1975-79	-11.6	-12.72	-8.7	-0.7	-13.8
1980-84	-1.0	-1.63	1	4.7	-0.5
1985-90	5.8	9.3	0.3	1.3	1.7
1990-93	-13.6	-17	-8.5	-3.0	9.8

Source: CSA, Annual statistical bulletin (various issues)

GDP= Real growth rate of gross domestic product

AGDP= real growth rate of agricultural production

IGDP= real growth rate of industrial production

MGDP= real growth rate of manufacturing industrial production

PMGDP= real growth rate of private manufacturing industrial production

The last two columns in Table 3.2 reveal differential growth between the real growth rate of total manufacturing output and real private manufacturing output. While total manufacturing output had negative growth during 1990-93, private manufacturing output was growing at the rate of about 10 per cent per annum during the same period. In addition to this, while total

manufacturing output growth was declining, private manufacturing output growth was increasing.

The structure of manufacturing output over the years is shown in Table 3.3 below. The relative output shares of industries remained static over the years except for the output of chemical industry where the output share which was about 23 per cent per annum on the average during Pre-1990 years drops to a low 7 per cent only in the years 1990-93.

Table 3.3: THE PERCENTAGE SHARE OF SUB-SECTORS IN MANUFACTURING VALUE PRODUCT (PUBLIC AND PRIVATE)

Year	Food	Beverage	Tobacco	Textile	Leather	Wood	Paper	Chemical	Non metal	Metal
1975-79	22	11	6	24	5	2	4	19	2	5
1980-84	22	12	6	17	5	2	3	26	2	5
1985-89	21	15	6	16	7	2	4	21	2	6
1990-94	23	18	8	16	10	2	5	7	4	7

Source: CSA Annual Statistical Bulletin (various issues)

The picture is the same when we consider the structure of output in the "public" enterprises(see Table 3.4). This is so because public enterprises contribute most to total manufacturing production. However, private manufacturing output distribution across industrial categories provides a somewhat different picture. The output shares of leather and metal are increased and that of textile is decreasing in recent years, but otherwise the

structure of output appears constant throughout the two decades under review(see Table 3.5).

Table 3.4: THE PERCENTAGE SHARE OF OUTPUT BETWEEN SUB-SECTORS IN INDUSTRIAL PUBLIC MANUFACTURING INDUSTRIES

Year	Food	Beverage	tobacco	Textile	Leather	Wood	Paper	Chemical	Non metal	Metal
1975-79	22	11	5	25	5	1	4	20	2	5
1980-84	22	12	6	17	5	1	3	26	2	5
1985-89	21	16	6	16	7	1	3	22	3	5
1990-93	23	19	8	17	10	2	5	7	4	5

Source: CSA Annual Statistical Bulletin (various issues)

Table 3.5: THE SHARE OF PRIVATE MANUFACTURING VALUE PRODUCT BY SUB-SECTORS

Year	Food	Beverage	textile	Leather	Wood	paper	Chemical	Non metal	Metal
1975-79	32	11	12	3	14	7	10	3	8
1980-84	31	7	10	5	9	6	15	4	13
1985-89	23	7	7	9	6	6	7	3	32
1990-93	20	5	5	14	10	4	9	3	31

Source: CSA Annual Statistical Bulletin (various issues)

Table 3.6: PERCENTAGE SHARE OF CONSUMER-GOODS; DURABLE CONSUMER GOODS AND CAPITAL-GOODS AND OTHER GOODS IN PRIVATE MANUFACTURING INDUSTRIES

year	The share of non-consumer goods	The share of durable consumer goods & capital	The share of other goods	The ratio of consumer goods to durable consumer goods and capital goods
1975-79	59	24	17	2.48
1980-84	53	26	21	2.34
1985-89	46	41	13	1.44
1990-93	43	44	13	**1.00**

Source: CSA Annual Statistical Bulletin (various issues)

The development in the consumer and capital good producing industries is showed in Table 3.6. The ratio of consumer to durable-goods production in private manufacturing is showing a declining trend. However, this does not necessarily indicate the path of development suggested in the introduction of this chapter is followed, since total value of manufacturing product was not growing over the years.

The suggested interpretation of the trend in the ratio of consumer to durable goods production(i.e., industrialization is taking place) is also unwarranted since public/private asset transfers are taking place without altering the overall picture in a significant way. Indeed, as shown in Table 3.7 the share of private manufacturing output, which was about 4 per cent(of total manufacturing production) rises to 7 per cent during 1990-93. The socialist government of Ethiopia increased its ownership share in manufacturing through a nationalization drive and direct investment allocation.

Table 3.7: PERCENTAGE SHARE OF MANUFACTURING VALUE PRODUCT BY OWNERSHIP

Years	Public (%)	Private (%)
1975-79	93.0	7.0
1980-84	96.0	4.0
1985-89	95.5	4.5
1990-93	93.0	7.

Source: CSA Annual Statistical Bulletin (various issues)

The share of total industrial employment in private manufacturing enterprises is far less than the share of public enterprises. The average share of labour-force employed in public industrial enterprises was 85 per cent in the period 1975-79, and 91 per cent in the period 1980-84, 93 per cent in the period 1985-89, and 92 per cent in the period 1990-93.

The overtime rise in the public employment shares resulted from the increases in the number of public enterprises following the nationalization derive of the 1970s and in relative decline in the number of private manufacturing enterprises.

Table 3.8: THE PERCENTAGE SHARE OF LABOUR-FORCE IN MANUFACTURING SECTOR BY OWNERSHIP

Years	Public	Private
1975-79	85	15
1980-84	91	9
1985-89	93	7
1990-93	92	8

Source: CSA Annual Statistical Bulletin (various issues)

Government policy has also caused the flow of disproportionately high number of skilled workers to seek employment in public enterprises where pay and working conditions are also better than in private manufacturing enterprises.

Table 3.9: PERCENTAGE SHARE OF FIXED ASSETS OF MANUFACTURING INDUSTRIES BY OWNERSHIP

Years	Public	Private
1975-79	91	9
1980-84	96	4
1985-89	97	3
1990-93	96	4

Source: CSA Annual Statistical Bulletin (various issues)

Table 3.10: THE SHARE OF FIXED ASSETS BY SUB-SECTORS IN PRIVATE MANUFACTURING INDUSTRIES.

year	food	beverage	textile	leather	wood	paper	chemical	non-metal	metal
1975-79	30	4	9	2	12	11	11	6	15
1980-84	20	5	11	3	9	11	17	6	18
1985-89	20	2	8	7	6	11	10	6	30
1990-93	12	2	8	21	11	7	10	2	26

Source: CSA Annual Statistical Bulletin

Regarding fixed assets two points may be made. First, as a result of government policy, public sector enterprises own over 90 per cent of the fixed asset in manufacturing(see Table 3.9). Fixed assets in private manufacturing today are only about 4 per cent of the total. Second, recent private investments were made mainly in leather and metal which have increasing share of the fixed asset (see Table 3.10).

CHAPTER FOUR

4. METHODOLOGY OF THE STUDY AND DEFINITIONS OF THE VARIABLES

In this study econometric and non-parametric techniques are used. The first method is applied to test the effects of the hypothesized determinants of investment on private manufacturing investment. The second method is used to measure the severity of major problems of industrial expansion and new investment in the country. Non-parametric techniques are importantly employed to indicate the extent of the severity of problems on industrial activities in various locations.

The source of data for the econometric approach is the Ethiopian Central Statistical Agency(ECSA), Ministry of Economic Development and Cooperation, and International Financial Statistics. Regarding the application of non-parametric techniques, we used the data generated by means of questionnaire administered on a selected sample of manufacturing enterprises.[31]

Specification of Private Industrial Investment Model

The specification of private investment model draws the recent literature on investment behaviour with the appropriate consideration of Ethiopian private industrial sector. The relevant recent work on which the private manufacturing investment specification is based includes the empirical studies

[31] Zewdie and Zekrie(1995).

by Chhibber and Shafic(1990), Solimano(1990),Chhibber and Van Wijnbergen(1988), Blejer and Khan(1984), Musalem(1988) and Schmidt-Hebbel and Muller(1991).

According to accelerator principle, the desired stock of capital is assumed to be proportional to expected output.

$$K_t^* = aQ_t^e \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where, K_t^* is capital stock that the private sector wishes to have in period t; Q^e_t is the corresponding expected level of output in period t; and **a** is constant i.e., capital output ratio. The desired gross fixed investment can be expressed as:

$$I_t^* = K^*_t - K_{t-1} + \delta K_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$I_t^* = K_t^* - (\delta K_{t-1} - K_{t-1})$$

$$I_t^* = k_t^* - (1-\delta) K_{t-1}$$

let L be lag operator and $Lk_t^* = K_{t-1}$,

then $$I_t^* = [1-(1-\delta)L] K_t^*$$

Since, $K_t^* = aQ_t^e$, $I_t^* = [1-(1-\delta)L] aQ_t^e$ $\ldots\ldots\ldots (3)$

Where I^*_t is the desired level of investment in period t;

δ is depreciation rate;

k_{t-1} is capital stock in period t-1;

$K_t^* - K_{t-1}$ is new capital stock or net investment; and

δk_{t-1} is depreciation cost.

Using partial adjustment for time lags to build, purchase, maintain, and install capital, actual gross investment is assumed

to adjust to the difference between desired investment in period 't' and the actual investment in a previous period.[32]

$$(I_t - I_{t-1}) = b(I_t^* - I_{t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where, I_{t-1}= actual investment in period t-1, and

b= speed of adjustment and its value is assumed to be

$0 \leq b \leq 1$.

If b=1, $I_t^* = I_t$ meaning complete adjustment, and

If b=0, $I_t = I_{t-1}$ meaning no adjustment.

According to Blejer and Khan(1984) and Chhibber and Van Wijnbergen(1988), the speed with which private industrial investors respond to the gap between desired and actual investment depends on the factors that influence the ability and initiatives of private investors to implement their projects. Those factors are expectation of profitability, credit availability, government expenditure, and real interest rete. Mathematically, the adjustment coefficient(b) is specified as[33]:

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[32] Due to time to design, build and instal capital goods, there is a lapse between the time the investment decision is made and the time period investment is actually materialized and measured. The gives rise to lags in the effects of policies and/or shocks on investment. There are several ways to capture these features in investment function. One is to introduce lagged independent variables in the equations. An other is to specify a gap between current and desired investment as a partial adjustment process. This latter specification is adopted in this study.

[33] Blejer and Khan(1984), and Chhibber & Wijnbergen (1988) used such specification. However, more variables are included in this specification.

$$b=b_0+\frac{1}{(I_t^*-I_{t-1})}[b_1\pi+b_2RR+b_3C+b_4G] \ldots\ldots(5)$$

Where, π is profit, RR is real interest rate, C is real credit availability, G is government real capital expenditure and other variables are as defined above.

Substitute equation (5) to (4)

$$(I_t-I_{t-1})=b(I_t^*-I_{t-1})$$

$$I_t-I_{t-1}=[b_o+\frac{1}{I_t^*-I_t-1}(b_1\Pi+b_2RR+b_3C+b_4G](I_t^*-I_{(t-1)})$$

$$(I_t-I_{t-1}) = b_o(I_t-I_{t-1}) + b_1\pi + b_2RR + b_3C + b_4G \quad (6)$$

$$I_t = b_oI_t^* + b_1\pi + b_2RR + b_3C + b_4G + (1-b_o)I_{t-1)}\ldots\ldots(7)$$

Substitute equation (3) to (7) to get

$$I_t=b_0[(1-(1-\delta)]LQ_e+b_1\Pi+b_2RR+b_3C+b_4G+(1-b_0)I_{t-1}\ldots(8)$$

Equation (8) is an investment model which has been estimated in various empirical studies. The inclusion of the explanatory variables in such model is determined by the interest of the study and the availability of the data. Hence, based on the data availability and the time lag for the effects of explanatory variables on private industrial investment, this model is modified for estimation purposes as follows.

$$I_t=\beta_0+\beta_1\Delta LGDP_{t-i}+\beta_2\Delta LTCr_{t-i}+\beta_3\Delta L\pi_{t-i}+\beta_4\Delta LG_{t-i}+\beta_5 RR_{t-i}+\beta_6 I_{t-i}+\beta_7 D1+\beta_8 D2 \quad \text{---(9,}$$

$$I_t=\alpha_0+\alpha_1\Delta LGDP_{t-i}+\alpha_2\Delta LICr_{t-i}+\alpha_3\Delta L\pi_{t-i}+\alpha_4\Delta LG_{t-i}+\alpha_5 RR_{t-i}+\alpha_6 I_{t-i}+\alpha_7 D1+\alpha_8 D2 \quad \text{..(10}$$

Where, t= time,

i= the number of lags in years,

I = gross investment on fixed assets in manufacturing sector,

DLGDP = change of logged Gross Domestic Product,

DLΠ = Change of logged profit of manufacturing sector,

DLG = change of the log of Government total capital expenditure,

R = real interest rate,

DLTCr = change of total private credit,

DLCr = change of credit approved for private manufacturing sector,

D_1 = dummy for government policy(0 for Derg regime and 1 for otherwise).

D_2 = dummy for drought and war(1 for drought and war periods and 0 otherwise).

(All variables are in real terms using GDP deflator)

Equation (9) and (10) are a simple transformations of equation (8) only for empirical estimation purpose.

To estimate the specified models (equation (9) and (10)), time series data includes the period 1970/71-1994/95 for the variables included in the models. The variables are measured as follows.

Q^e in equation (8) is approximated by real Gross Domestic Product (**GDP**) in equation (9) and (10) which is included as suggested in the accelerator theory which relates investment to the lagged change of output.

C in equation (8) is real credit availability which is measured by using two alternative proxies. The first is by total credit availability to private sector (ΔLTCr) in equation (9). The second is by total loan approved to private manufacturing industries (ΔLICr) in equation (10).

Regarding operational profit of enterprises (π), it is argued that enterprises normally base investment decision on expected (future) profits. It is not, however, common for entrepreneurs in developing countries to estimate future yields of investment. Rather they use current profit level as a basis for investment decision, i.e., the future yield of an investment is approximated by current level of profits. We have , therefore, used operational profit (revenue less cost) of enterprises as an index for profit (π).

The measure used for government capital expenditure (**G**) in equation (8) is the yearly gross government capital expenditure adjusted by implicit **GDP** deflator. The coefficient of ΔLG_{t-i} in equation (9) or (10) is thus a measure of the response of private industrial investment to government total capital expenditure which is not decomposed into its infrastructure and non-infrastructural components. Its sign is indeterminate at 'priori'

since the 'net effect' is determined by the effects of capital expenditure in infrastructure and non-infrastructure which are influencing private industrial investment opposite directions.

RR is real interest rate which is computed as nominal interest rate less inflation.

CHAPTER FIVE

5. EMPIRICAL ESTIMATION AND INTERPRETATION OF PRIVATE INDUSTRIAL INVESTMENT MODEL

5.1. Estimation of the Model

The specification of investment model has been shown in chapter three. In this section the private investment model is estimated and the results are reported.

It is argued that most macroeconomic time series variables are non-stationary in the sense that their mean and variance are functions of time. The application of unit root tests have showed this fact. On the other hand, the standard classical estimation methods are based on the assumption that the mean and variance of time series data are constant and independent of time. Hence, this assumption is violated as far as the time series variables are non-stationary.

Due to this, the classical estimation methods to estimate the relationship between variables with non-stationary data give misleading inference which is referred to as 'spurious regression problem'.

Therefore, estimating an economic model using time series data should start by examining the stationarity of the variables included in the model by assessing their order of integration.

The statistical test for stationarity of a variable can be made by using Dickey Fuller (DF) test and Augmented Dickey Fuller (ADF) test. Then, the univariate unit root tests are presented in Table **5.1** below.

As shown in Table **5.1**, the variables are stationary at their level(I(0)) or first difference(I(1)). Thus, the short run static models are estimated using Ordinary Least Squares(OLS) and the results are presented in Table **5.2** below.
The specified models to be estimated are:

$$I_t = K + D_1 + D_2 + DLGDP_{(t-1)} + DLG_{(t-2)} + DLICr_{(t-1)} + DL\Pi_t + RR_t + I_{(t-2)} \quad \ldots (6.1)$$

$$I_t = K + D_1 + D_2 + DLGDP_{(t-1)} + DLG_{(t-2)} + DLTCr_{(t-1)} + DL\Pi_t + RR_t + I_{(t-2)} \quad \ldots (6.2)$$

(The variables are defined as in chapter three equation (9) and (10)).

These two equations are estimated to show the effects of total credit to private sector, the credit availability to private manufacturing sector, government capital expenditure, retained earnings, and real interest rate on private industrial investment. except the first two variables, other variables are the same for two equations.

TABLE 5.1: RESULTS OF THE UNIVARIATE UNIT ROOT TESTS.

Variables	observations (n)	DF-Test		ADF-Test	
		without trend	with trend	without trend	with trend
DLGDP	23(22)	-8.4001	-8.2131	-4.4993	-4.4533
DLΠ	23(22)	-6.2876	-6.1823	-4.5907	-4.5861
DLG	23(22)	-4.6953	-4.5821	-6.3247	-6.1577
R	23(22)	-3.4170	-3.9490	-3.5600	-3.6400
I	23(22)	-6.002	-5.9138	-6.6047	-7.0004
DLTCr	23(22)	-4.9968	-4.8556	-5.2331	-5.0722
DLCr	23(22)	-6.3883	-6.5306	-5.6663	-6.6262

95% critical value for DF

Without trend= -2.9970
With trend = -3.6219

95% critical value for ADF
Without trend= -3.0039
With trend = -3.6331

Note: 1. Figures in brackets in column n are for ADF-test
2. Figures in DF and ADF are calculated values.
DF-Test= Dickey Fuller Test
ADF-Test= augmented Dickey Fuller Test

TABLE 5.2: RESULTS OF THE REGRESSION OF SHORT-RUN PRIVATE INDUSTRIAL INVESTMENT MODEL FOR THE PERIOD 1970/70-1994/95

variables	Equation	
	6.1	6.2
K	83488 (2.06)[a]	84470 (2.14)[a]
D_1	231973 (1.62)	260168 (1.94)[a]
D_2	-302080 (-1.91)[a]	-322638 (-2.00)[a]
DLΠ(-1)	369934 (3.73)[a]	349791 (3.75)[a]
I(-2)	-0.47 (-2.24)[a]	-0.46 (-2.18)[a]
DLG(-2)	86643 (0.92)	90111 (0.95)
DLGDP(-1)	71755 (0.18)	21150 (0.05)
R	-1778 (-0.36)	-1124 (-0.22)
DLCr(-1)	11806 (0.85)	...
DLTCr(-1)	...	16826 (0.53)
R^2	0.78	0.78
R-Bar square	0.65	0.65
F-Statistics (8,21)	5.86	5.83
AR [F(1,12)]	0.74	0.99
ARCK [F(1,20)]	3.56	3.79
REMSEY [F(1,20)]	0.707	0.607
N.CH-SQ [Chi-SQ(1)]	0.158	0.207

Note: figures in parenthesis are t-ratio, and a: significant at 5%
AR = serial correlation test statistic using lagrange multiplier test of residual serial correlation with a null of no serial correlation,
ARCK = Heteroscedasticity test statistic based on the regression of squared residuals on squared fitted values with a null of homoscedasticity of the error term,
REMSEY = Remsey's Reset test using the square of the fitted value for functional form test statistic with a null of no functional form misspecification problem, and
N.SQ = Normality test statistic based on a test of skewness and kurtosis of residuals with a null of no such problem.

Except private industrial investment and real interest rate, other variables are not stationary at level as indicated in Table **5.1**. Therefore they have been differenced once in order to get stationary series and then the short-run effects of those variables can be captured in a short-run model (see Table **5.2**.)

5.2. Interpretation of regression results

Looking at the diagnostic test statistics, it may be said that the model is well specified. The only problem was that of heteroscedasticity problem. It is solved using White's heteroscedacity correction method. A test of structural break (i.e., the plot of Cumulative Sum of recursive residuals at 5 per cent significance) has not indicated a structural break.

With a 'priori' knowledge, the partial coefficients of the estimated models have theoretically meaningful signs. Using t-test, except the coefficients of retained earnings(profit), dummy and lagged private industrial investment, all coefficients are found to be statistically insignificant at 5 per cent level with 11 degrees of freedom. The overall explanatory power of each estimated model(R^2) is significant at 5 per cent level.

The coefficient of the lagged change of LGDP(log of gross domestic product) has insignificant effect on private industrial investment but it has the appropriate positive sign. This implies that the change of LGDP(one year lagged) is not serving as an indicator of expected demand for manufactured goods in the

country. The growth of real gross domestic product has not resulted the demand for manufactured goods which would have initiated potential investors to undertake industrial investment. The insignificance effect of DLGDP is due to the fact that GDP has been changing little during the period under study. Such results have been investigated in some developing countries. An empirical study by Temitope W.Oshikoya indicates positive but insignificant effect of GDP on private investment in Tanzania. This empirical study also found that the effect of the change of GDP was negative for middle-income countries (Cameroon, Moroco, and Mauritius) and positive but insignificant for low income countries (Malawi, Tanzania, Kenya, and Zimbabwe).[34] The stagnation of GDP growth rate and low level of real income resulted a narrow domestic demand for manufactured goods and in turn low level of private industrial investment in limited manufacturing activities.

The short-run effects of lagged change of total credit(DLTCr) to private sector, total credit to private manufacturing sector(DLCr), and real interest(R) on private industrial investment are statistically insignificant with the appropriate signs. This is due to the fact that approved bank credit was not disbursed at the right time, on the one hand, and the amount of credit disbursed to finance private industrial investment was too low, on the other hand. The financial institutions in Ethiopia have been controlled by the state and they are undeveloped. Investors were not able to finance a marked part of investment

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[34]35. Temitope W.Oshikoy(1994).

let alone all investments to be financed through credit. During the period under consideration , real interest rate was not a means of credit rationing. Rather credit was allocated on the ground without considering scarcity value. Only a few investors who can afford high collateral requirements and credit procedures were provided with credit which was low to finance industrial investment.

Retained earnings proxied by the enterprises' operational profit has a significant coefficient implying that private investors have used their own fund to finance industrial investments. This is the case where financial sector is undeveloped and access to credit is limited. The lack of easy access to loans made retained earnings (own funds) a significant determinant of private manufacturing investment.

The lagged gross investment has negative and significant effect which signifies that once investment is undertaken in lag periods, additional investment is not exercised in the current period. This may be resulted due to lower capital utilization of already invested capital in manufacturing activities.

The rate of government capital expenditure has positive but insignificant effect on private industrial investment. But this result must be interpreted with caution. This is because the effect of government capital expenditure on private industrial investment is two fold. It will have either complementary or substitute effect. The government capital expenditure in our

model specification was not distinguished between infrastructure and non-infrastructure components. Hence, the coefficient of government capital expenditure indicates the net effect of government capital expenditure. The implication of this result is that the "crowding-in" effect of government capital expenditure is offset by its "crowding-out" effect on private manufacturing investment.

CHAPTER SIX

6. THE PROBLEMS AND CONSTRAINTS OF PRIVATE MANUFACTURING INDUSTRIES IN ETHIOPIA

This chapter tries to identify the major problems and constraints which hinder the development of Ethiopian private manufacturing industries and recommend some possible remedies that could help to enhance the development of the sector.

Firm level interviews help to know what private manufacturing entrepreneurs perceived the major constraints facing the enterprises' operation and expansion. The data on the problems and constraints of Ethiopian private industries, collected by Dr. Zewdie Shibrie and Ato Zekrie Negatu have been used in this study. They prepared questionnaire for industrialists in 1995 and the data covers **Addis Ababa, Bahir Dar, Awassa, Makalle, Nathareth and Dire Dawa**. The problems were categorized into eight.

These are:

1. Technology related problems,
2. Market related problems,
3. Financial related problems,
4. Policy related problems,
5. Infrastructure related problems,
6. Input related problems,
7. Human resource related problems, and
8. Socio-political related problems.

Under each category, several constraints were listed. In this case, respondents were asked to rank each constraint on scale 0 to 3 according to its degree of severity.

The seriousness of each constraints were weighted as follows:

Seriousness	Weight
very Serious	3
serious	2
Not so serious	1
Not applicable	0

Research which relies heavily on sample interviews may often lead to unwarranted generalizations. Hence, caution should be made in interpreting the results. This is because, first, the sample size is small and the measures are qualitative. The responses from this small sample might not reflect the perception of all entrepreneurs in the country. Second, the interviews were also conducted only in six areas, as a result, the results from this sample may not work for other areas, especially for rural areas. Third, since some problems might be specific for specific enterprise, the identified problems from aggregated responses' of industrial owners and/or investors may not necessarily be applied for all industries.

Nevertheless, since a number of private industries are established in these sample areas and also since they represent the various regions of the country (i.e.,they are regional capitals), the result of the data is expected to indicate the major problems of private manufacturing industries in the

country. In particular, the results help to show explicitly the seriousness of constraints facing the manufacturing industries in these areas.

Hence, this study basically aims to address the question '**what are the most serious obstacles for the development of private manufacturing sector in Ethiopia and what should be the remedies for these problems?** The problems are, of course, interdependent and mutually re-enforcing. It is not only one factor that affects industrial development but the interactions of many factors together.

An independent and comprehensive list of the problems of manufacturing industry's growth may be difficult to discuss. The focus will be, thus, to identify the most serious ones and to indicate how they retard the development of private manufacturing industries in Ethiopia.

6.1. TECHNOLOGY RELATED PROBLEMS

Problems related to "technology" are listed in Table 6.1.

Table 6.1: LIST OF TECHNOLOGICAL RELATED PROBLEMS BY DESCENDING ORDER

list of problems	weight	X^2	AV.NR.WT
1. Lack of spare parts and components	325	3.00	0.66
2. Lack of technological information	312	11.84	0.63
3. Inappropriateness of technology	277	10.72	0.56
4. Lack of support services for technology	265	10.09	0.54
5. Obsolescence of technology	212	12.25	0.43
6. Lack of know-how	185	9.84	0.38

Note: *AV.NR.WT=average normalized weights.*
The Critical Value of the test of independence statistic $[X^2_{(0.01,8)}] =$ ***20.09***

To determine whether or not the effects of technology related problems have different impact on different localities, **CHI**-square ($\mathbf{X^2}$) hypotheses test for independence is used. The $\mathbf{X^2}$ - statistic is computed as follows.

$$x^2 = \frac{(f_o - f_e)^2}{f_e} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.1)$$

Where, $\mathbf{X^2}$ is calculated CHI-square statistics,

$\mathbf{f_o}$ is actual frequencies or number of respondents who rank a given problem as very serious or serious and so on in each region from where this data is collected, and

$\mathbf{f_e}$ is expected frequencies or expected number of respondents who are estimated to rank a given problem as very serious or serious and so on in each region.

The expected frequencies are calculated using the formula;

$$f_e = \frac{r_t c_t}{g_t} \quad \ldots\ldots\ldots\ldots\ldots (5.2)$$

Where, r_t is the total number of respondents from all sample areas who have given identical rank(weight) for a given problem as serious or very serious and so on,

c_t is the total number of respondents of a given region(location), and

g_t is the grand total number of respondents of all regions included in the survey.

On the basis of the above formulae, we can determine whether ranking of a specific technological related problem is related to different regions in Ethiopia or not.

The **calculated CHI**- squares(shown in the 3rd column of Table 6.1) are less than the value of **tabulated CHI**- square so that the null hypothesis, which is that the ranking of the degree of seriousness of a given technological problem is independent of industrial location, is accepted at 1 per cent level of significance and 8 degrees of freedom. It is concluded, therefor, that the degree of severity of technological related problems are independent of industrial location.

In addition to the test of independence, the **Kendall test of concordance** was carried out to determine whether or not the sets of ranks exhibit a similar pattern, which will indicate that

entrepreneurs in different towns who ranked the same constraints tend to agree or not.

The concordance test statistic is calculated as:

$$X^2 = \frac{12\sum R^2 - 3n[k(n+1)]^2}{kn(n+1)} \quad \ldots\ldots\ldots\ldots\ldots\ldots (5.3)$$

Where R= sum of the ranks assigned to each constraints

n= number of constraints that are ranked

k= number of sample areas i.e., towns.

The calculated concordance test statistic is **24.09** which is greater than the critical value of **11.07** at **5** percent and **5** degrees of freedom. The conclusion drawn from the calculations is that the sets of ranks indeed exhibit a significant(at 5 per cent) level of agreement in various regions.

These two tests imply that, *other things being equal*, any action or measure which has an impact on technology will have the same incidence across regions, no matter whether it is in Addis Ababa, Makalle, Bahir Dar, Nathareth, and Dire Dawa. Since of ranking of the seriousness of technological related problems is independent of regional disparity,and exhibits similar patterns in each region, we can identify the most serious technological problems of Ethiopian manufacturing industries at macro-level which will assist in designing industrial policies and strategies.

To identify the most binding technological related problems for six areas which are assumed to give the country wide picture, the weights given to each constraint are aggregated. The weights are also normalized along a scale of 0 to 1. Those constraints ranked close to zero are non-applicable, those constraints ranked close to 0.33 are not serious, those constraints ranked close to 0.67 are serious, and those constraints ranked close to 1 are very serious problems.

The weights and average normalized weights given to the severity of each technological related problem are presented in Table 6.1 under columns 2 and 4 respectively. The former shows the relative severity while the latter indicates the absolute severity. The problems are listed according to their descending order based on the weights and averaged normalized weights given to them.

Accordingly, the most serious technological related problems are lack of spare parts and components, lack of technological information, inappropriateness of technology, and lack of support services for technology. Under incomplete technological information about spare parts which are available abroad, it is difficult to look for, choose and import them. Relatively, lack of technological information is the second serious handicap to both existing and potential industrialists. This compels industrialists to depend largely on informal sources of information in evaluating and choosing technologies. So, it is possible to say that the decision to acquire a given technology will not be made on the basis of empirical evaluation and

conscious understanding of its efficiency to utilize the available raw materials, skill and other local resource.

Industrialists tend to simply imitate technologies which are already in use by others, which causes manufacturing to concentrate on similar industrial activities. In addition, equipments which are found costly and evaluated poorly based on informal information, are unlikely to be efficient or compatible to the existing needs.

Lack of support services for technological innovation and adaptation is also the third most serious technological problem for private manufacturing industries in Ethiopia. For example, Consultancy services for industrial project preparation and technological choice are undeveloped. Potential investors undertake investment with their own project ideas. They are not supported by professional consultation. At a low level of industrial development and with limited exposure to technology and science, entrepreneurs have limited capability to choose appropriate technology.[35]

Therefore, with incomplete information and the absence of an established entrepreneurial class, Ethiopian manufacturing industrial sector encountered not only with lack of spare parts and components but also with inefficient and inappropriate technology. To alleviate these problems, private and government

[35] Teshome Mulat (1994)

provision of technological information and technical support to entrepreneurs is required.

6.2. MARKET RELATED PROBLEMS

In order to identify the major factors that limit the markets for domestic manufactured goods in Ethiopia, we have to, first, determine whether there is a relationship between ranking of a given market related problem and regional disparity. Secondly, the extent of agreement in ranking market related problems in different regions is tested. The calculation procedures are the same as before and the results are shown in Table 6.2.

The conclusion to be drawn from these calculations are:

1. the ranking of market related problems is independent of location(regions), and
2. the ranking system of market related problem by locations (regions) exhibits significant agreement(the calculated concordance statistic, X^2 =28.05 is greater than the critical test statistic, $X^2_{(1,18)}$ =16.92).

So, it is possible to identify the major market related problems of the Ethiopian private manufacturing industries using the weights of each problem and normalized weights. Accordingly, unfair competition with local sources, over concentration of business in the same industry, lack of information on export markets, limitedness of local markets, consumer's bias against local goods, and unfair competition with imported goods appeared to be the most outstanding six market related problems.

Table 6.2: LIST OF MARKET RELATED PROBLEMS BY DESCENDING ORDER

list of problems	weight	X2	AV.NR.WT
1. Unfair competition from local sources	305	7.45	0.62
2. Over concentration of businesses in the same industry	295	18.94	0.60
3. Lack of information on export market	273	10.77	0.56
4. Limitedness of local markets	263	6.50	0.54
5. Consumer bias against local products	261	7.47	0.53
6. Unfair competition from imports	259	10.67	0.53
7. Product quality problem	222	11.76	0.45
8. Inability to meet the requirements of export markets	221	1.67	0.45
9. Pricing problems	198	16.14	0.40
10. Lack of access to export markets	183	10.18	0.37

Note: AV.NR.WT= averaged normalized weights

The critical value $\mathbf{X^2_{(0.01,18)}=34.805}$

'Unfair' competition has apparently resulted from the presence of illegal or unlicensed industries. Unlicensed (illegal)manufacturing enterprises avoid taxes, licence fees and other charges. They also absorb a considerable amount of costs such as use of own labour, residential house as industrial premise, and extensive use of family(unpaid) labour. These measures undercut price offers by formal sector manufacturers.

Over-concentration of firms in the same line of production(often focused on the production of limited range of consumer goods) or replication of industrial activities is the second major factor

that limits the market share of individual firms. As it is discussed in section 6.1 of this chapter and section 2.7 of chapter 2, this over-concentration resulted from the lack of technological information and choice, lack of market information, restrictions imposed on industrial activities during the previous government, and 'imitation behaviour' of industrial entrepreneurs. Another factor limiting market shares is high transportation cost which makes the production uncompetitive in distant markets.

Production for the export market is not a serious option to solve the marketing problem for two reasons. First, poor technology and high costs of production reduce price and quality competitiveness. Secondly, market information which is lacking for the domestic market is even more lacking for foreign markets.

This narrow domestic market for domestic manufactured goods is also partly aggravated by import liberalization and smuggling. The domestic manufacturing industries could not compete with imported commodities partly due to the nature of incentive structure adopted in the country. The immediate effect of trade liberalization will be negative for those industries which were protected in the previous periods.

6.3. FINANCE RELATED PROBLEMS

To identify the major financial related problems, the same procedures as in section 6.1 and 6.2 are applied. Accordingly,

ranking of a specific financial related problem is independent of regions under consideration and respondents' ranking system in those regions showed similar patterns.

The average normalized weights are between **0.62** and **0.79** which indicate that all listed financial related problems are serious constraints of entrepreneurs. However, high collateral requirements and high interest rate are relatively the most serious problems.

High collateral requirement implies both entrepreneurs' risk averse behaviour and higher collateral assets requirement by banks in relation to what entrepreneurs can afford. The former is due to the fact that entrepreneurs identify industrial projects based on their knowledge under incomplete technological information, lack of export market information and undeveloped consultancy service for project preparation. In such a case the risk for collateral agreement will be high. The latter case shows the monopolistic nature of financial sectors which adopted a 'take-it or leave- it' approach towards borrowers. Unless competition in financial sector is developed, the lending system of banks would not be flexible and interest rate remain distorted.

What should be noted here is that large sized immobile assets and large scale private business activities were nationalised during the Derg regime, and other small scale business activities too were restricted and intentionally suppressed.

Prohibitive collateral requirement has adverse effect on private investment. relaxing it would be a step in the right direction, but unlikely to change the status qou unless complementary reforms in other areas of policy are also taken in tandem.

Table 6.3: LIST OF FINANCE RELATED PROBLEMS BY DESCENDING ORDER

list of problems	weight	X^2	AV.NR. WT
1. High collateral requirements	390	17.35	0.79
2. high interest rate	379	10.99	0.77
3. Inappropriate allocation and administration of industrial development fund	362	14.15	0.74
4. Lack of information on possible sources of finance	357	11.97	0.73
5. Restrictive clauses by assisting agencies on the utilization of funds	356	6.25	0.72
6. Restrictions of collateral to specific assets	350	12.74	071
7. Shortage of working capital	340	9.31	0.69
8. Bureaucratic practices of financial institutions	318	10.06	0.65
9. Lack of access to formal credit facilities	307	12.54	0.62

Note: *AV.NR.WT=averaged normalized weights*

The critical value for independence test statistic $X^2_{(0.01,16)}=32.00$

Based on respondents response and the prevailing economic realities of Ethiopia, and more particularly on the development of financial institutions, one can argue that the capital market in the county has been imperfect and credit has been miss-allocated.

6.4 POLICY RELATED CONSTRAINTS

The response of industrialist to policy related problems shows their perception about industrial policies of the country. The test-statistic for independence showed that the ranking of a specific policy related problem is independent of location factor. The concordance test statistic indicates strong similarity of ranking the policy related problems in the six regions (since, the calculated $X^2=33.35$ and the critical value of $X^2_{(0.05,16.92)}) = 22.362$)

Table 6.4: LIST OF POLICY RELATED PROBLEMS BY DESCENDING ORDER

list of problems	weight	X^2	AV.NR.WT
1. Unfair and arbitrary tax assessment practice & procedures	399	34.64	0.81
2. High customs duty and tariffs on imported inputs	340	22.55	0.69
3. Problems of land use policy and practice	339	11.76	0.69
4. Improper and bureaucratic implementation of policies	329	13.10	0.67
5. Lack of information regarding policies	301	13.63	0.61
6. Policy bias against small scale industries	294	16.37	0.60
7. Licence issuance and renewal problem	286	27.30	0.58
8. problems of foreign exchange auction policy	252	13.29	0.51
9. Low import duties on competing products	245	16.87	0.49
10. Labour law and employment policy of the government	156	13.54	0.31

Note: AV.NR.WT=averaged normalized weights

The critical value for independence test statistic $X^2_{(0.01,18)}=34.805$.

Except labour law and employment policy, all of the listed policy issues are serious problems for respondents. Unfair and arbitrary tax assessment and procedures, high custom duty and tariffs on imported inputs, problem of land use policy, and improper and bureaucratic implementation of policies are among the most serious policy problems for all regions.

In Land Revenue Department tax collection system is not based on systematically accepted procedures such as income statement reports of enterprises. Private Small Industrialists normally do not keep audited books of account (financial statement), tax assessment is arbitrary and based on the whelms of corrupt and ill-trained tax assessors.

High customs duty and tariffs on imported inputs is the second most serious problem identified by respondents. Most manufacturing enterprises are dependent on imported inputs and the heavy import duty is reflected in the high cost of production which in turn(by lowering the rate of return on investment) makes investment in these industries un alternative business proportion for private firms.

6.5. INFRASTRUCTURE RELATED PROBLEMS

Various types of 'infrastructure' related problems have been identified as constraints on private industrial performance.

Table 6.5: LIST OF INFRASTRUCTURE RELATED PROBLEMS BY DESCENDING ORDER

list of problems	Weight	X^2	AV.NR.Wt
1. Difficulties in getting land for industrial use and expansion	365	17.57	0.74
2. Absence and /or inadequacy of municipality waste disposal services	355	3.32	0.72
3. Shortage of electricity	340	19.74	0.69
4. High cost of land	322	19.4	0.66
5. High cost of utilities	312	4.51	0.63
6. High cost of transport	310	7.64	0.63
7. Shortage of telephone	306	3.78	0.62
8. Improper administration of infrastructural service	302	3.89	0.61
9. Lack of maintenance and support facilities	273	8.65	0.56
10. High cost of fuels	270	12.39	0.55
11. Shortage of water	265	26.40	0.54
12. Shortage of communication facilities	247	17.57	0.50
13. Lack of transport facilities	218	21.34	0.44
14. shortage of fuels	181	38.28	0.37

Note: *AV.NR.WT= averaged normalized weights*
The critical value for independence test statistic $X^2_{(0.05,26)}=45.89$

The term infrastructure, however, means different things. Different studies identified different sets of 'infrastructure' to constitute impediments to industrial growth. For example, public utility, docks, water supplies, and electricity are included by Lewis, while transport, public utilities, schools and hospitals are identified by Higgins, and Hirshman considered law and order, education, public health, transportation,

communication, power, water supply, irrigation and drainage as infrastructural constraints.[36] So, lack of unanimity on the definition of infrastructure has forced researchers to come with their own operational definition. Physical linkages such as road, rail or river transport promote the mobilization of resources and outputs between different localities. Lack of communication and transportation are among the greatest obstacles to industrial productivity because physical isolation means not only inability to sell and buy products and inputs but above all it imposes a barrier to information flow between localities.

Except for the shortage of transport facilities and fuels, all listed infrastructure related problems are identified as "serious problems" by the respondents.

The first most serious identified problem is the difficulty in getting land(access to land) for industrial use and expansion. The high cost of land is ranked as the fourth problem. This shows that, even though entrepreneurs are 'willing' to pay, they could not get land at all or on time. In practice the lease policy has given priority in land allocation to those entrepreneurs who have relatively large investments.

Lack of waste disposal services has created a serious space problem since the accumulation of scarp and waste products cause environmental hazards.

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[36] Cited in Tegegne G. Egziabber (1995).

6.6 INPUT RELATED PROBLEMS

Some 12 problems are identified relating to domestic input availability and the difficulties of using imported inputs.

At a policy level rationing of raw material for industries is eliminated since 1992. The most serious problems of input related problems are unavailability of local inputs, high cost of imported inputs and un reliability of domestic sources of inputs.

Table 6.6: THE LIST OF INPUT RELATED PROBLEMS BY DESCENDING ORDER

list of problems	Weight	X^2	AV.NR.WT
1. Unavailability of local inputs	337	9.62	0.68
2. High cost of imported inputs	332	10.06	0.68
3. un reliability of domestic sources of inputs	326	9.40	0.66
4. High cost of local inputs	279	2.98	0.57
5. Shortage of hard currencies for imported inputs	265	20.69	0.54
6. Bureaucratic customs and port cleaning for imported inputs	260	12.39	0.53
7. Lack of information regarding alternative sources of imported inputs	259	5.02	0.53
8. un reliability of foreign sources of inputs	259	25.7	0.53
9. Unfair competition for local inputs	254	7.61	0.52
10.poor quality of local inputs	251	14.74	0.51
11.Difficulties in obtaining letters of credit for imported inputs	243	4.51	0.49
12.Poor quality ofimported inputs	199	14.11	0.40

Note: *AV.NR.WT=average normalized scores*

The critical value for the test of independence statistic $X^2_{(0.01,22)} = 44.29$

The test result in Table 6.6 show that "input related problems" do not show location bias, i.e., they are ranked(on a scale of degree of severity) the same way in all sample areas.

6.7 HUMAN RESOURCE RELATED PROBLEMS

In general lack or shortage and high costs of skilled labour are constraining factors to the growth of private manufacturing industry. The average normal scores(weights) indicate that manpower related are not serious factors affecting manufacturing activities. The ranking of the human resource related problems(on the basis of degree of severity) by respondents in various regions is not different. (See the results in Table 6.7).

Table 6.7: THE LIST OF HUMAN RESOURCE RELATED PROBLEMS BY DESCENDING ORDER

list of problems	Weight	X^2	AV.NR.WT
1. Lack of manpower with appropriate technical skills	197	12.82	0.40
2. Low productivity of labour	184	8.81	0.38
3. Absence of industrial discipline and ethics	177	9.03	0.36
4. High cost of technical personnel	177	11.77	0.36
5. Lack of manpower with supervisory skill	155	10.41	0.27
6. High cost of supervisory and managerial skill	149	5.29	0.30
7. Lack of manpower with managerial skill	134	1.99	0.27
8. High employee turn over	115	7.89	0.23

Note: AV.NR.WT=average normalized scores

The critical value of the test of independence statistic $X^2_{(0.01,14)}=29.14$

CHAPTER SEVEN

7. CONCLUSION AND RECOMMENDATIONS

The industrial output accounted for 9-15 per cent of GDP over the period 1975-1993. The role played by private manufacturing industry in the economy was greatly affected by government policy. The privatization programme under the Structural Adjustment Program(SAP) and the new investment laws which are in the process of being implemented have not significantly changed the picture. Recent growth in the relative size of private manufacturing investment(see chapter 3) must be interpreted with caution. First, the privatization programme has shifted some enterprises from the public to private sector without necessarily adding to the total manufacturing activities. Second, the shifting of the capital ceilings under the previous investment law and the introduction of incentives that are directly related to the size of investible capital have led to the appreciation of the size of fixed assets. Private manufacturers would mark-up their capital to benefit from the incentive provisions in the new investment law.

The response of private manufacturing investment to GDP, credit availability, government capital expenditure and real interest rate are statistically insignificant. The profit of manufacturing enterprises, dummy and the lagged investment variables have significant effect on private manufacturing investment. These regression results do not, however, give a strong warrant to draw

a conclusion about the determining factors affecting private manufacturing activities. Due to the rigid regulatory restrictions imposed upon private manufacturing investment, and the lack of significant change both in private industrial investment and its hypothesised explanatory variables, the results of the estimated model are not sufficient to interpret the behaviour of private investment in the country. Consequently, we have attempted to augment this by primary data source from a recent questionnaire return administered in some six regional capitals.

The conclusions drawn from the questionnaire returns are three: First, the severe constraining factors to private manufacturing investment are sets of market, financial, infrastructure, policy, technology, and input related. Second, the root causes for these problems are many and interdependent. Third, the degree of severity of these problems is independent of location of the enterprises.

Based on these findings the following recommendations are made:

1. Since the degree of severity of the problems faced by private manufacturers/investors are similar in all places, policy makers may concern themselves more with the solutions to common problems than with location specific problems. But, this is a general policy indication of the results and it may not be useful to belabour this point. First, finding solutions to common problems through federally located systems might not reduce policy administration cost

significantly since problems of investment can find solution only through decentralized decision making systems. Second, investment problems may have unique solutions which can be solved only at the enterprise level.

2. Identifying the most binding constraints for the expansion of enterprises and implementation of industrial projects is a very important step in setting priorities for reform to promote private manufacturing investment. Thus, it is essential to target the constraints that are most binding in practice.

3. The expansion of private manufacturing investment could not be seen away from the general development of the economy, and income level of the population. Hence, the industrial strategy in Ethiopia has to be designed along the development of other sectors, particularly agriculture.

4. Elimination of credit ceilings and non-competitive access of public sector to bank credit are among the main features of financial sector reform. It would contribute significantly to the expansion of enterprises and establishment of new industries. Approved credit to private sector should be disbursed on time to facilitate project implementation period. A reform is also required to reduce or relax high collateral requirements and procedures of bank credit to private industrial investors.

5. The government has to design its capital expenditure in such a way that creates "crowding-in" effect for private industrial investment. Public infrastructure networks are essential factors for private manufacturing industries. Since the scarcity of these services hindered the expansion of manufacturing industries, infrastructure investment has to be given priority by development planners.

6. The arbitrary tax collection mechanisms and the poor and ineffective regulatory procedures of concerned government agencies compel industrialists to undertake underground industrial activities. Such policies and practices will deter the initiative of private investors to investment. To achieve industrial development, private industries should not be seen as tax generating. Therefore, the burden of tax on private manufacturing enterprises must be minimized.

7. The problem of getting land for industrial establishment and expansion is one of the most bottlenecks (identified by respondents) for private industrial investment in Ethiopia. This problem requires an immediate solution without which new investment is not expected.

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DECLARATION

I, the undersigned, declare that this thesis is my own original work and has not been presented in any university. All sources of materials for this thesis have been fully acknowledged.

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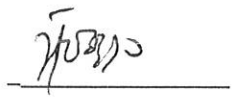
Signature: 

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