

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**IMPORT SUBSTITUTION IN THE CONSTRUCTION
SECTOR: THE CASE OF SELECTED BUILDING
MATERIALS**

**By
Martha Bisrat Woldemariam**

June, 2011
Addis Ababa

IMPORT SUBSTITUTION IN THE CONSTRUCTION SECTOR: THE CASE OF SELECTED BUILDING MATERIALS

**By
Martha Bisrat**

A Project Paper submitted to the School of Graduate Studies of
Addis Ababa University in partial fulfillment of the requirements for the Degree of
Master of Arts in Economics in the School of Economics
(Applied Trade Policy Analysis)

June, 2011

Addis Ababa, Ethiopia

Acknowledgement

Above all I am very grateful to Almighty God. My sincere appreciation goes to my project advisor Dr. Adane Tuffa, whose constructive criticism, probing question and suggestions provided deeper insight into the study.

I am grateful to Dr. Abraham Tekeste and Tamerat Bekele who helped me a lot to join this program. I would like to thank the Ministry of Urban Development and Construction for its cooperation, and also Musse Menda, Abebaw Zerfu and Zuriash Patterson who assisted with the provision of necessary documents. And a special thanks to the Ethiopian Custom Authority for providing the necessary data.

List of Tables

Table 1: Reported domestic production of cement and steel products - - - -	30
Table 2: Growth rate for domestic production of the selected materials - - -	32
Table 3: Import of the selected building materials - - - - - - - - - - - - - - -	33
Table 4: Growth rate of import for the selected materials - - - - - - - - - -	34
Table 5: Foreign exchange spent on the selected materials - - - - - - - - - -	35
Table 6: Import share of the selected materials - - - - - - - - - - - - - - -	37
Table 7: Import share of the selected materials - - - - - - - - - - - - - - -	38
Table 8: Predicted import value of the selected materials - - - - - - - - - -	39
Table 9: Demand for cement -	42
Table 10: Demand for steel products -	43
Table 11: Predicted demands for the selected building materials - - - - - - -	44

List of Figures

Figure 1: Production of cement and steel products of the country - - - - -	31
Figure 2: Import of cement, steel products and aluminum products - - - - -	34
Figure 3: Trend of foreign exchange spent on the selected materials - - - - -	36
Figure 4: Prediction of cement - - - - -	40
Figure 5: Prediction of steel products - - - - -	41
Figure 6: Prediction of aluminum products - - - - -	41
Figure 7: Predicted demand for cement - - - - -	45
Figure 8: Predicted demand for steel products - - - - -	45
Figure 9: Predicted demand for aluminum products- - - - -	46

Abstract

This study investigates the domestic production, import and demand of cement, steel products and aluminum products. It assesses the foreign exchange spent for these materials, their import share and whether or not import substitution exists. Finally it predicts the import and demand for the next ten years and gives recommendations.

The major data source used for this study comes from Central Statistic Agency and Ethiopian Custom Authority. The study finds that the import share of all three categories of products is insignificant. Import substitution is only seen for steel products and almost all of the demand for cement and steel products of the country is fulfilled by domestic production, whereas all the demand of aluminum product is fulfilled using import. The foreign exchange spent for all three products is high, reaches 72 billion Dollars for the year 2001/02 Ethiopian Calendar.

The conclusions drawn from this study is that, as almost all the demand for cement and steel are satisfied using domestic production, this will be advantageous for the country to shift, only with a little more extended effort, in exporting these materials. From other countries experience it is believed that import substitution with export promotion would result in successful development policy. The prediction shows that 121,406 billion Birr will be needed to import all three categories of products for the next ten years. Hence, it will be a great achievement to save this huge sum of money using import substitution.

Table of Content

1.	Introduction - - - - -	1
	1.1 Introduction - - - - -	1
	1.2 Methodology - - - - -	5
2.	Literature review - - - - -	6
3.	Overview of the Construction Sector and Ethiopia Foreign Trade Policy - - - - -	20
	3.1 Construction Industry - - - - -	20
	3.2 Ethiopian Construction Industry - - - - -	21
	3.3 Foreign Trade Policy of Ethiopia - - - - -	23
4.	Empirical Results and Discussions - - - - -	29
	4.1 Domestic Production of the Selected Materials - - - - -	29
	4.2 Import of the Selected Materials - - - - -	32
	4.1 Demand of the Selected Materials - - - - -	42
5.	Conclusions and Recommendations - - - - -	47
	5.1 Conclusions - - - - -	47
	5.2 Recommendations - - - - -	48
	Bibliography - - - - -	51

Chapter One

Introduction

1.1 Introduction

The construction sector plays a key role in the functioning of economies, accounting for considerable share of GDP and employment opportunities. It generates a significant economic activity through linkages with other industries. The nature of the construction business requires local production, high labor and material intensity, and this helps to explain why the industry should mainly be oriented towards domestic markets. Government procurement is an important driver of demand for the sector, representing a considerable share of construction activity of the country and procurement practices can thus have a significant impact on trade in construction sector.

Import substitution is an approach that substitutes externally produced goods and services with locally produced ones. By doing so, local communities can put their money to work within their country. It is an economic policy adopted in most developing countries from 1930s to the 1980s to promote economic independence and development, by protecting and promoting domestic producers from the competition of imports.

1.1.1 Statement of the problem

As the construction of buildings in Ethiopia has just begun to boom, demand for building materials has increased rapidly in the recent years and is expected to increase further in the near future. The local production of these materials is very low and hence the demands for these

products are being met by import, which will worsen the terms of trade or the import export ratio of the country.

Import substitution policies may be considered to be technically successful if they result in a reduction of imports and an expansion of domestic production. As robust economy requires both the availability of capital and money circulation within the country, local economic development often focuses on attracting business to allow capital formation, and the employments generated by businesses will boost local income. The money earned by these jobs, will in turn be spent locally and there will be continuous flows of money into the country.

The demand for building materials continues to grow more faster than the country's capacity to produce them. It is therefore expected that this will result in a higher demand for foreign exchange. Hence, as the construction sector accounts for considerable share of GDP and employment of a country, substituting import of construction materials with domestic products will definitely be advantageous for economic development. In addition to that, import substitution may be the solution to reduce demand for foreign exchange and use it in another sector and to reduce the obstacles to the growing construction sector and promote economic growth. However, it is not clear to what extent these imported materials should be substituted with local production and what the prospects looks like.

1.1.2 Objective of the study

This project tries to look at the import substitution in the construction sector, for selected building materials. The building materials under consideration are cement, building materials made of steel (steel products) and of aluminum (aluminum products).

This study will therefore try to assess the demand and the domestic production of these building materials, the trend of their imports and exchange rate spent on them. It also tries to predict the import and demand of these products for the next ten years, and based on the assessment gives recommendation on import substitution.

1.1.3 Significance of the study

As no research has been done in the area before and that import substitution is considered to be a better strategy of development for developing countries, this study will shed light on the status of import and the efforts made so far to substitute for these materials with locally produced products. It will also shed light on future prospects of import substitution. The results of the study can help policy makers in designing further strategies of import substitution.

1.1.4 Scope and limitations of the study

The study considers only the three major building materials imported and stated above. Even if materials that are used for construction are much more than the three categories and more diversified, these are the major ones imported and significant in terms of their foreign exchange demand.

The import of the whole country and only the reported productions of these selected materials will be considered because it will not be feasible to assess the productions of all the existing companies in the country for the previous several years. To consider the demand for these materials, I will take the sum of import and local productions as literatures recommends.

The data available in the same calendar year for both import and local production begins from 1997 Ethiopian Calendar (EC) which is 2004/05 G.C. and this will give us a total of 5 years data because local production data is only available on yearly basis and until 2001 EC or 2008/09 G.C. As it is preferable to use at least ten years data for analysis, it was not possible to use the same calendar year for the whole study, however all the years are expressed using EC.

This difference in calendar year has impacted the prediction for demand, because both local production and import are to be used together to give us demand. Hence only 5 years data have been used to predict demand. It was not possible to use quarterly data here because the data available for local production is on yearly bases.

The difference in unit is another limitation. For example the units used in the supply of steel products are tons and square meters, and for cement it is given in kg or ton, hence it was not possible to convert all in tons and add them by product type. To use the same unit I have taken the value of the products in the whole study which is given in Birr and this will make all the analysis and interpretation equivalent and comparable.

Domestic production data have been taken from Central Statistical Agency (CSA) reports; the Authority has only data which has been reported. The Ministry of Trade and Industry does not have such information and it was not feasible to ask for each individual factory about their production data for the previous ten years.

1.2 Methodology

- To assess the trend of import for the selected building materials for ten years or above import data of these materials and foreign exchange rates have been collected and used.
- The demand for these building materials has been computed from the import and local production data.
- The present capacity of local building material factories has been assessed from previous studies.
- The capacity of the country to substitute for the import of these materials is assessed from previous studies.
- To analyze the data, descriptive statistics is used and using time series analysis prediction of future import and demand is undertaken with the use of Stata.

Chapter Two

Literature Review

Import substitution is a means of pursuing the consumption base theory. A country may reduce leakages by locally produced goods and services that otherwise would have been imported. The first phase of import substitution takes place behind some form of protection. The second is the transition from protection to participation on a more equal footing in the world economy. Between these two phases lies the process by which the economy achieves its metamorphosis. Import substitution and export promotion are considered as two main sets of policies which may be used to achieve industrialization. Most of the present developed market economies were achieved through industrialization and following the same route may lead to the same results. A wider economic base or diversification may lead to greater stability in national income and foreign exchange earnings. Industrialization may also reduce the country's dependence on the rest of the world and speed up technological advancement in the processes than in primary products. Because of all these and other reasons the desire to industrialize would be common to the less-developed countries and these countries may have a potential comparative advantage in some industrial activities.

Policies to promote substitution of imports included setting overvalued exchange rates and imposing tariffs to give advantages to industries within a nation. This artificial control has also raised criticisms from those who believe in market mechanism. Import substitution is criticized because it does not utilize resources in the most efficient way from the perspective of the entire society.

Import substitution is often measured by a change in the ratio of imports to the total availability which means imports plus domestic output, of a single product or category of products. If the ratio falls over time, then import substitution is said to take place in that particular sector, but aggregate imports as proportion of total GDP may not decline and may even rise; this had happened in many countries. This means that the structure of the economy is changing because some products that were previously imported are no longer imported in the same amount, while total demand for imports as a proportion of income is generally unchanged. The idea is that by replacing the imports of certain commodities by domestic production, the economy will be so modified that it will begin to be more independent, more diversified, and better able to generate increasing welfare.

Import substitution, according to the Wikipedia is defined as a trade and economic policy based on the premise that a country should attempt to reduce its foreign dependency through the local production of industrialized products (Wikipedia, 2010).

Import substitution was adopted in many Latin American countries from the 1930s until the late 1980s, and in some Asian and African countries from the 1950s onwards. The encyclopedia state that, insofar as its suggestion of state-induced industrialization through governmental spending is concerned, it is largely influenced by Keynesian thinking, as well as the infant industry arguments adopted by some highly industrialized countries, such as the United States, until the 1940s.

All developed countries used interventionist economic policies to promote industrialization and protected national companies until they had reached a level of development at which they were

able to compete in the global market. After reaching this stage these countries adopted free market discourses directed at other countries in order to open their markets to domestic products.

According to the encyclopedia, import substitution policies are used commonly through industrial policies that subsidize and plant production of strategic substitutes, implement protective barriers to trade, an overvalued currency to help manufacturers import capital goods.

Import substitution can thus be described as an attempt to reduce foreign dependency of a country's economy through local production of industrialized products, whether through national or foreign investment, for domestic or foreign consumption. It states that the real objective of import substitution is not to eliminate trade, but to lift it to higher stage of import, like high tech goods which are not as susceptible to economic fluctuations as raw materials.

These policies were most successful in countries with large populations and income levels which allowed for the consumption of locally produced products. Latin American countries such as Argentina, Brazil, Mexico, and, to a lesser extent, Chile, Uruguay and Venezuela, had the most success with import substitution. This is so because while the investment to produce cheap consumer products may pay off in a small consumer market, the same can not be said for capital-intensive industries, such as automobiles and heavy machinery, which depend on larger consumer markets to survive. Thus, smaller and poorer countries, could only implement this policy to a limited extent.

Bruton (1989) states that import substitution may be described as a development strategy that seeks to accomplish to learn from, and in general gain from, the rich countries, and at the same time, to protect the domestic economy so that the society can find its own way, and can create its

own form of development. Although, some catching up take place, the idea is not so much a matter of the less developed countries catching up with the rich. It is rather, a matter of creating an economy that is sufficiently flexible, diversified, and responsive that it can respond to and indeed create opportunities for growth and can, on its own, generate continually increasing welfare for its people.

He believes that there are no examples of an unambiguously successful application of the import substitution strategy. Protection in one form or another, however, has characterized most developing countries, including those whose development is usually classified as a success story. India has perhaps been more committed to import substitution than has another large country, and there is no doubt that the costs of this commitment have been high. There is also convincing evidence that India has achieved at the same time a technological maturity that exceeds that of any other developing country. The failure of India's strategy has been due to its method of implementation, not with strategy itself.

The author (Bruton) underlined three points that needs to be distinguished from import substitution:

- Tariffs, quotas, and other protective devices levied, to meet balance of payment difficulties. The objective in this situation is simply to curtail imports to bring the balance of payments under control and is different in effect from an import substitution policy that is carefully and explicitly worked out.
- The import substitution rationale is also distinct from the traditional infant industry argument for the protection of a particular activity. In the case of import substitution one might speak

of an infant economy that needs protection while it develops those characteristics it must have to produce rising welfare.

- Import substitution should also be distinguished from delinking, which refers to a permanent cutoff of a country in all or some respects from the rest of the world in order for truly indigenous development to occur.

The basic characteristics of a strong economy are flexibility and the capacity to transform resources into a wide range of products, and the capacity to determine its own economic destiny. There are several reasons why a non-growing economy needs protection to develop these characteristics. Protection is a means of inducing diversification and the learning upon which development is based. More accurately, perhaps it is a means of creating a process of development that is built on search and learning. The goal is to create an economy with the capacity to move in various directions as opportunities are provided and new knowledge is accumulated. In a world of continuous change in technology, tastes, political affiliations, and ideas of the good life, development is necessarily a matter of trial and error, of moving in one direction today and another tomorrow. The capacity to do this at relatively low costs is an essential characteristic of a growing economy. Import substitution seeks to create this characteristic.

Bruton states that, if the rationale of import substitution is to protect an infant economy while it matures to the point that it can perform satisfactorily in the world economy, then the society must, while protected, learn. So import substitution must create an environment in which learning occurs. There must then be strong inducement, to search, to experiment, to test and to

learn. Protection that simply assures potential producers of a known market may move investments in new directions, but it may also induce advantage for the protected monopolist, while large parts of the society remain in severe and continuing poverty. In this situation nothing really happens, and the whole process yields only costs, no returns.

He also criticized import substitution approach to development:

- The most common point is that it penalizes exports.
- The cost of restrictions was very high in many cases, and the wide variation in rates contributed greatly to leading the economy to further distortion. The cost also fell unequally on the population, thus aggravating the income distribution problem. As the cost of distortions in terms of output forgone are generally estimated to be quite low, it is not clear how much loss is involved as a consequence of distortions introduced by the trade restrictions. It is probable that the cost of distortions is greater in developing countries than in the GDP rich countries.
- The capital intensity of the investment that has taken place behind the high protection is usually explained in terms of low real interest rates and an exchange rate or import control policy that made capital artificially cheap. The result has been low rates of growth of employment and increased income inequality. The import substitution approach did not include as an essential ingredient excessive capital intensity, but that such excessiveness emerged from prevailing views on development.
- It may also be noted that much of the criticism aimed at import substitution is, in effect, the policy-making process in developing countries; more specifically, it is aimed at the often uncoordinated, unstudied way in which policies are made in many less developed countries.

Thus, trade restrictions often appear in response to an urgent balance of payments crisis and restrictive monetary and fiscal policies are imposed after inflation is well established. Similarly, decisions are made to establish a particular industrial activity and then a trade restriction is imposed to enable that activity to exist or an export promotion drive is undertaken at the same time that the domestic currency is greatly overvalued. Consistency of policy is rarely a characteristic of developing countries and this is a major reason for the emergence of certain difficulties.

Bruton has also described the experiences of India, Korea and Brazil. India began to plan its national development soon after independence, it opted for an import substitution strategy. That strategy was especially evident in the last half of the 1950s when protection from imports was made to virtually all manufacturing activities. The protection was of varied forms and was accompanied by other direct controls on the allocation of investment in terms of both its composition and its geographic location. The result was the appearance of a wide range of very high-cost manufacturing activities and the squeezing of agriculture. These policies effectively eliminated the threat of both foreign and domestic competition. Evidence shows that around the middle of the 1960s, India began to move away from the previous heavy reliance on import substitution to a new strategy which gave increased attention to exports. Even if the shift was not extreme, and did not continue very long, it did have some effect on the rate of growth of manufactured exports. The effect on export growth of the policy change in India was considerably less than in a number of other countries.

Korea followed an import substitution strategy throughout the 1950s, but shifted strongly and unambiguously to a much more export oriented policy in the very early 1960s. Given the fact of how export expansion can generate growth, it is difficult to believe that Korea grew as it did simply because it followed an outward looking, export expansion policy and it is believed that there were a lot of other factors that contributed to it. For instance, there was a willingness to change policies that did not work, an attitude of trial and error there is a mixture between market forces and direct government intervention, between public and private ownership of productive activity. There was also full commitment of President Park Chung Hee, to the economic growth without much concern for democracy or decentralization. All this and others are quite different from India, and are, more fundamental to understanding Korea's success than India.

Brazil's experience introduces two further issues; large scale, private, direct foreign investment and a rather sharp return to an import substitution strategy after the mid 1970s. Until the mid of the 1960s, Brazil pursued an import substitution strategy with considerable enthusiasm. From about 1965 it backed away from full reliance on import substitution for about a decade, and then resumed, more or less, an import substitution for about a decade. For the 1949-64 interval, import substitution accounted for 23 percent for the growth of manufacturing demand and there was no export expansion. In the 1970s, Brazil was beginning to push hard into the domestic production of capital goods and its manufactured exports grew rapidly throughout the 1960s and 1970s. In the period 1965-74, the growth rate reached 37 percent, the highest in the world, after Korea.

Brazil has long welcomed direct foreign investment, after 1964, more than any other large country, its objective was simply in terms of imitating the United States as quickly as possible. Brazil activities were more often in more advanced, more volatile activities where technology was changing rapidly because of the dominance of the multinationals. This seems to hinder learning, to hold up beginning with an established technology and having time to master it before change occurs in some other country of the world. Hence Brazil may not have learned from its import substitution activities in a way that enabled managers and workers to build from that learning in other and different activities when new opportunities appear. This is in contrast with Korea, which depended much less on foreign direct investment, and hence did not seek to have what they could not themselves construct and manage. The Koreans seem to react quickly to a situation that was closely monitored and to choose a new policy if one was failing to produce growth. They have, in a way, discovered what appears to work. This is what learning means and how it is accomplished.

Bruton stated also that, in almost all developing countries, import substitution began with consumer goods, generally consumer durables which are given heavy protection while little or no protection was given to raw materials and capital goods. If import substitution were to continue, then intermediate and capital goods production had to be protected. The main issue is not the production of capital goods themselves rather it is the creation of technological capacity, the capacity to develop a more or less continuous flow of new technical knowledge. Brazil, Korea and India have begun to produce and export capital goods and technical knowledge, and their experiences illuminate the role that capital goods production plays in import substitution and development. India has created a much broader and deeper technological base than is present in

either Brazil or Korea, or indeed any other developing country. It has accomplished this largely on its own, and its accomplishment has required a great deal of protection especially with respect to capital goods production.

He finally concluded that, India has carried out an exceptionally successful import substitution policy in the sense that it has led to the creation of an impressive indigenous technological capacity. At the same time, her output and productivity growth record is extremely unfortunate relative to that of Korea and probably Brazil. Korea's record on output and productivity growth are impressive, but it seems clear that its command of technological know-how is markedly below that of India. Similarly, Brazil, with a much larger rate of manufactured output and exports than India, still lags behind that country in technological exports and in the range of its technological capacity. There is, therefore, no simple criterion one may apply to determine which country is more successful and which is less.

Jaleel Ahmad (1976) in his paper examines the relationship between import substitution and export expansion in a developing economy from a supply standpoint. He develops a testable hypothesis and presents some preliminary results. He states that, in traditional analysis, import substitution policies in the less developed economies are believed to be in conflict with the growth of exports. His paper argues that the presumed conflict between import substitution and export expansion arises primarily from the demand orientation of the traditional analysis. The traditional analysis treats the problem of exports in a manner as if there were no constraints on the supply side. It argues that if supply considerations are introduced into the analysis, there

would appear to be no essential conflict between import substitution and export expansion in a developing economy.

The paper develops a testable hypothesis from a set of structural relations with a view to analyze in a quantitative manner the relationship between capacity creation and exports of manufactures. The hypothesis states that the growth of exports is positively related to production capacity through import substitution and through domestic demand. Given that expansion of exports requires production capacity, and that such capacity can arise either through pure domestic expansion or through import substitution, it follows that, *ceteris paribus*, export growth will be positively related to the growth in capacity. Since in a number of critical sectors the major part of domestic capacity arises through import substitution, the latter will favorably influence the growth of exports.

An econometric test has been done with cross-sectional observations for 16 manufacturing sectors, in eight developing countries for the years 1963 and 1967. The regression estimates indicate a positive and significant relationship between exports and capacity creation, both through import substitution and domestic expansion, for the total manufacturing activity. The coefficient for import substitution is higher than that of domestic expansion, indicating that the former has a stronger influence on the growth of exports. The coefficients for individual sectors provide mixed results. All of the import substitution coefficients have positive signs, this is due to the fact that sectors differ not only in the degree of import substitution that has taken place, but also in the intensity with which import substitution influences the creation of domestic capacity. Presumably, import substitution will be the dominant influence on domestic capacity

in sectors which are sensitive to movements in international comparative advantage. Moreover, there may be some minimum threshold of import substitution before export expansion could occur, although there is no direct evidence for this threshold.

Jaleel Ahmad states that, one can, therefore, infer from these results that relatively faster export growth has taken place only in those sectors which have experienced significant import substitution. There is an evident correspondence between the roles of import substitution and domestic expansion in all intermediate and capital goods sectors, except petroleum and Basic metals, in the sense that both favorably affect the growth of exports. Hence, Import substitution is likely to be the critical factor for the growth of domestic production capacity in sectors strongly oriented toward international trade, and its relationship to export growth likely to be sensitive in such sectors. By contrast, this relationship is likely to be weaker or non-existent in sectors that are heavily oriented toward domestically-traded goods.

Manu (2009) suggests that import substitution has been based on infant industry protection; instability of foreign market earnings and the need-for self-sufficiency; savings for investment, since industries are assumed to save more; a need to conserve foreign exchange and improve balance of payments.

The policy instruments supporting import substitution regimes are an assorted mix of tariffs, quotas, exchange controls and overvalued currencies, restrictions on imports, protect domestic firms from competition with producers from other countries.

He also stated that import substitution is also considered in general to have been unable to save foreign exchange. The major defect of import substitution policies, according to Bhagwati and Krueger (1973), has been their inevitably indiscriminate nature in influencing the behavior of individual firms. He describes that, another criticism of import substitution is that it eliminates the gains from trade by favoring production for domestic use over exports. This happens because of over-valued exchange rates that means a producer will earn a lower amount of domestic currency equivalent by exporting than by selling in the home market. Thus, there is a bias against exports. In addition the protective-regimes further penalize exports by tariffs on their inputs and thereby raising the costs of production as well as prices, leading to international non-competitiveness.

However, a country cannot export manufactured goods without building the capacity to produce them and capacity cannot be built without import substitution. This is because the ratio of imports to domestic production of manufacturers in many least developed countries is so high that attempts to create domestic capacity is bound to take the form of import substitution. There is thus an implication of a sequence from primary specialization, to import substitution and to exports of manufactures. This sequence is attained either by sufficiently large increases in productivity in manufacturing sectors, or through an increase in the propensity to save out of profits.

Ahmad believes that although countries that have built their development efforts around import substitution have experienced grave problems, it is still possible to pursue the policy in a more satisfactory manner. The problems arose as a consequence of the kinds of activities selected and the methods adopted to bring about their development.

Basu (2005) states that one way to prevent money from leaving the local economy is to connect local demand for goods and services with the local suppliers of those goods and services. Many of the things that, individuals or businesses need can be found from suppliers within the area but due perhaps to lack of adequate information or convenience, those things are often purchased from the outside. By substituting demand for externally produced things with locally produced things, communities can retain capital for use within the community.

He also states that import substitution benefits can be difficult to measure since import substitution strategies are often lumped with other strategies and its effects are difficult to take apart. It is often quite difficult to say whether import substitution strategies led to better economic performance or whether that performance would have come to success regardless of the strategies.

Chapter Three

Overview of Construction Industry and Ethiopian Foreign Trade Policy

3.1 Construction Industry

Construction Industry is one of the most booming industries in the whole world and is concerned with construction of smaller and large projects such as bridge, road, highways, tunnels, the construction works that involve building of real estate ones, such as residential or commercial real estate assets, and construction works that involve building up of specialized items namely, electric related works, works on woods, etc.

This industry activities include the building of new structures, including site preparation, as well as additions and modifications to existing ones. The industry also includes maintenance, repair, and improvements of these structures.

Construction Industry is a booming industry and remains so with the continuation of the development process especially in the developing countries.

According to Economic Watch (2007)

- Construction industry contributes a huge chunk to the world's GDP amounting to 10% of the same.

- This industry has immense potential in generating huge amount of employment. It has been found out that construction industry offers employment to around 7% of the total employed workforce around the globe.
- Construction Industry is the largest sector in respect of consumption of energy. It consumes around 40% of the total consumed energy through out the world.
- Resource utilization in case of construction industry amounts to half of the total resource used all over the world.

3.2 Ethiopian Construction Industry

Recently, quite a large numbers of buildings have been sprouting in Addis Ababa and in other major towns, promoted by the current supply of cash and maybe because of the lack of investment opportunities in other secure alternatives. This has both encouraged more developers to build and contributed to the recent surge in prices for land and buildings. There is doubt that this growth will be sustained because if prices get too high banks could not allow pouring so much of their loans into property, as we have started to see in the past few months, and financing could become much harder. Meanwhile buying, for instance, residential homes have been constrained by the lack of 20- or 30-year mortgage finance, so common in other countries.

As the local financial sector of the country is still underdeveloped, it may cause many problems in the real estate market and for the construction industry as a whole. Although the lack of sufficient choices of investment opportunities also contributes to the current boom in building in which many developers have seen good profits, some could still face difficulties. In any case, it

is clear that both construction and development would be better if a wider range of financing institutions and services were available.

The construction industry is one of the most important for Ethiopia because it affects all sectors of the economy. Investment in nearly every field must eventually have a construction component. Government regulations require that both contractors and consultants carry out only projects permitted within their license. This issue has restricted construction firms from diversifying their projects and forced them to purchase expensive equipment to keep on hand, as required by their licensing provisions.

Foreign participation and technical expertise in the design and construction of buildings and roads is very much needed in Ethiopia. Although the majority of Ethiopia's construction firms specialize in infrastructure rather than buildings, most of them lack the experience and the capacity to undertake major road projects. It is difficult for local companies to meet the strict pre-qualifying conditions established for projects financed by the World Bank or African Development Bank because World Bank projects require a strong capital base and extensive international experience. As a result, nearly all of the road projects go to international contractors and local firms are forced to take only small projects. Several firms are working around this issue by teaming up with international firms to meet the capital standard and win major contracts. This arrangement would also bring greater technical experience and other benefits in technology transfer (Ethiopian Business Development Services Network, 2009).

The other problem construction companies' face is in the use of technical personnel. As products become more sophisticated, the high technology equipment requires the hiring of technical experts. In addition to that, the country's booming construction sector is attracting thousands of skilled and semi-skilled laborers but skilled labor is a rare commodity and causes a major problem in the development of the sector. It is noted that skills are not cultivated within organizations or in commercial training schools and are not being passed down to the present generation. This lack of skilled laborers must be addressed to attract additional investment and improve the quality of the workforce in the construction industry.

Although most wood and concrete building materials can be obtained locally and several firms are providing sophisticated steel products, Ethiopia must depend on imports for most other inputs in the construction industry. For example, Ethiopia imports diesel fuel, explosives, steel panels, welding parts, timber and plywood, composite material panels, and bitumen from overseas. In addition, Ethiopia needs steel structure technology and manufacturing. It would be cheaper, however, to import the raw materials and manufacture steel products needed for construction locally.

3.3 Foreign Trade Policy of Ethiopia

Ethiopia's foreign trade policy has three general objectives: (1) developing and ensuring broad international market for the country's agricultural products in particular; (2) generating sufficient foreign exchange which is essential for importing capital goods, intermediate inputs and other goods and services that are necessary for the growth and development of the economy; and (3)

improving the efficiency and international competitiveness of domestic producers through participation in the international market (Ministry of Foreign Affairs, 2007).

According to Ministry of Trade the new policy directions of the Government of Ethiopia includes the following items:

- Gradual withdrawal of the state from wholesale trade activity.
- Paving the way for domestic private capital to involve in wholesale trade, the state will limit itself to issue and enforce laws and policies to regulate private wholesale trade practices.
- The state may engage itself in the wholesale trade of basic goods of mass consumption to stabilize prices.
- The state will pull out from the retail trade activity and create the necessary conditions for private capital and cooperatives to freely engage themselves in such activities.
- In the retail trade activity, the major concern of the state will be to issue appropriate regulation and directives and enforce them.
- The state facilitates all conditions top foster the participation of private capital both individually or through partnerships. The state may also participate in limited areas jointly with domestic or foreign investors.
- Foreign trade activities will be left to private capitalists except those which require special consideration and those areas will be studied and defined by law. In addition to this the state will regulate foreign trade by issuing foreign exchange and import-export regulations.

- Foreign trade will be promoted by providing fiscal incentives to exporters and export oriented undertakings. Attempts will also be made to minimize bureaucratic procedures and trade information will be provided.
- The state will ensure the prudent utilization and allocation of foreign exchange and help diversify exports so that foreign currency shortage will be eased.

The value of Ethiopian exports has shown a consistent and a remarkable growth in recent years. It was also noted that the imports of the country have shown even more pronounced increase during the same period. Consequently, the trade balance of the country has been showing a growing deficit. For example the surge in imports from ETB 7.5 billion in 1997 to ETB 40 billion in 2006 compared to the export earnings which stood at 3.9 billion and 8.8 billion in the same period led to the deterioration of the balance of trade position. This meant that the share of export in import financing (export/import) declined from 52% in 1997 to 22% in 2006/07 (Ministry of Foreign Affairs, 2007).

Import substitution industrialization, which was reinforced by the infant industry argument, has been used by developing countries in support of their industrialization process. Ethiopia, like other developing countries, adopted this policy to encourage domestic industries and to save foreign exchange. This was shown in the third Five Year Development Plan from 1968/1969 to 1972/73 G.C (Ministry of Finance and Economy). In this plan, the strategy was to promote import substitution, with the primary objective of saving substantial foreign exchange by encouraging use of locally available raw materials, particularly agricultural and mineral products, for the internal and export market. This process continued up to the end of 1991. After

the year 1992/93, the transitional government of Ethiopia adopted the policy of trade liberalization supported by both IMF and World Bank with the belief that free market helps to increase and expand exports, make the domestic economy more efficient and competitive, and results in strong and continuous growth (Sewasew Pawlos, 2002).

Ethiopia pursued policies of protectionism to develop national industrial capacity or import-substitution. In many cases, where the state pursued policies of complete industrial control, they failed miserably (Encyclopedia of the Nations). This does not mean, however, that the country should necessarily abandon all forms of protection in favor of free trade, which is theoretically designed to increase the efficiency of national industries through competition with the outside world.

In the 2000s, Ethiopia essentially combined a highly expansionary domestic interest rate policy, which in fact resulted in negative real interest rates, with a real appreciation of the birr to try and contain the resulting inflation. This policy mix tends to induce substitution of capital for labour in production and to substitute imports for domestic production while restraining exports and reducing savings. The opposite mix - higher interest rates and a lower exchange rate - induces substitution of labour for capital and domestic production for imports, while encouraging exports and domestic savings.

Dan Ciuriak and Claudius Preville when discussing Ethiopia's trade and investment state that, given that Ethiopia has tariff-free access to the world's largest economies, the European Union

and the United States, and generally faces lower tariffs in other of its major markets than it applies itself, the major factors that account for the low trade share of GDP and the yawning trade deficit must be considered to lie in its domestic economic framework. Following Ciuriak (2010), the factors that hinder Ethiopia's exports may be enumerated as follows:

- (a) The macroeconomic policy mix: the use of the exchange rate as an external anchor for domestic price stability resulted in a steep rise in the real effective exchange rate through the 2000s, undermining the competitiveness of exports and of import-competing production.
- (b) High trade costs: Ethiopia is one of the most difficult places in the world from which to engage in the global economy, ranking 123rd out of 155 countries in the World Bank's 2010 trade logistics surveys and 159th out of 183 countries in terms of trading across borders in the World Bank's 2010 Doing Business survey.
- (c) Private sector under-development: Ethiopia's industrial structure is dominated by a relatively small number of government-owned firms and conglomerates, features a high degree of market concentration, and is characterized by relatively high administrative barriers to entry (Ethiopia ranks 93rd in the world in ease of starting a business under the World Bank's *Doing Business* methodology). According to the most recent survey of Ethiopia's manufacturing sector, there were only 1,930 manufacturers in the country in 2008/09 defined as "large and medium scale" and 43,338 "small scale" manufacturing establishments, more than half of which are grain mills. These are very small numbers for a country with a total population in excess of 80 million.

- (d) Producer services: Some of the most sought after services needed to accelerate the efficiency of production in the goods sector, such as finance, telecommunications and transport, are relatively inefficient themselves.
- (e) Thick borders: Ethiopia's trade with its immediate neighbours is comparatively low in good measure because of the poor connections to the regional borders and inadequate border infrastructure; ignoring the special cases of Djibouti (for which trade statistics are distorted by inclusion of goods in transit) and Somalia as well as oil imports from Sudan, Ethiopia's two-way trade with its immediate neighbours in 2008 amounted to US\$118 million, little more than one-fifth the amount that would be expected given the size and proximity of these economies.
- (f) High tariffs applied by potential African partners: Ethiopia has good access to global markets due to zero tariffs in the major industrialized countries but still faces significant tariff barriers in its African trading partners, with a simple average of about 9.54% in the countries that are part of the Tripartite Free Trade Area (TFTA) negotiations.

Chapter Four

Empirical Results and Discussions

4.1 Domestic Production of the Selected Building Materials

The selected building materials are cement, steel products and aluminum products but as there is no domestic production of aluminum that has been reported the article assess only local productions of the rest two products. The production of steel includes iron bars, wires, nails, iron sheets, metallic door and metallic windows.

It is believed that as of 2009 G.C. the maximum capacity of the country to produce cement is about 2.89 million tons from the existing 8 factories and that their actual production as of May 2009 G.C. was 2.6 million tons a year, but as we can see in the Table 1 only less than half of this has been reported. The per capita production of the country which is about 33 kilograms is among the lowest in the world and well below levels found, say in China, which is 800 kgs per capita and India which is 125 kgs per capita (Access Capital, May 2009).

Table 1: Reported Domestic production of Cement and Steel products

Year (EC)	Cement in tons	Gross Value of Cement (in Million Birr)	Steel Products		Gross Value of Iron (in Million Birr)
			In tons	In sq. m.	
1990	782,686	427	31,276	18,268	235
1991	766,925	421	25,900	13,820	173
1992	815,632	431	31,045	22,226	225
1993	819,047	477	43,421	6,357	320
1994	919,169	485	45,113	14,004	363
1995	890,181	736	45,368	16,219	360
1996	1,415,187	18,145	91,088	14,950	1,233
1997	1,252,659	18,930	72,498	19,369	738
1998	1,312,445	15,050	156,306	52,700	2,189
1999	1,719,633	1,214	659,191	42,074	16,739
2000	1,659,127	2,851	85,799	85,597	1,477
2001	1,688,225	38,823	1,396,336	36,864	2,339,413

Source: CSA (1991 – 2002 EC)

The local production of cement and steel products has radically increased beginning 1996. As we can see from the graph there is an increase in the value of steel for years 1996, 1998 and 1999 and a fall for the years 1997 and 2000. This up and down is due to the raise and fall in price and not the quantity produced. When we see the quantitative values we see that there are increase in production for those reported in tons for the years 1999 and 2001, a fall between the two periods and an increase for those reported in sq. m. for the period 2000. As the increase for year 2001 is so extreme it has not been included in the graph. The fall in cement for the period 1999 to 2000 is also due to the fall in price and not the quantity produced.

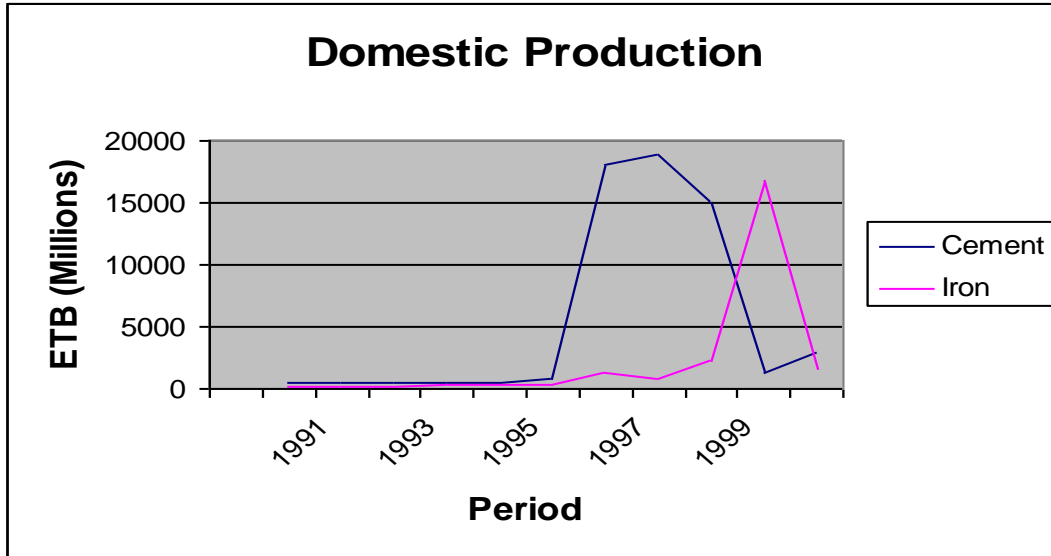


Fig 1: Production of Cement and Steel Products of the country as reported by CSA

Local steel industries are believed to operate at a maximum of only 40% (Fortune, March 2011). Production capacity of the major 14 basic metal companies exceeds 1 million tons and half of them have been recently installed. According to a 5-year projection, steel consumption grows 28% per year and the 2014/15 G.C. demand will reach 3 millions ton. According to the 5-year projection, domestic production will grow faster than the steel consumption grows. This will result surpassing the total demand in 2014/15 G.C. (JICA, 2010)

The steel industry of the country heavily depends on raw material import. The only locally available raw material in the country is scrap metal, which factories buy for between 2.80 Birr and 3.20 Birr a kilogramme. Although, iron ore is believed to exist in Ethiopia, it is not mined in the country. Bars and billets are produced from iron ore, coiled wire rods, from which nails are made, and coiled sheets are imported as raw materials.

Table 2: Growth rate for domestic production of the selected material

Material	1995	1996	1997	1998	1999	2000	2001
Cement ('000)	736	18,145	18,930	15,050	1,214	2,851	38,823
Growth Rate	0.52	23.65	0.04	-0.20	-0.92	1.35	12.62
Steel products	360	1,233	738	2,189	16,739	1,477	2,339,413
Growth Rate	-0.01	2.43	-0.40	1.97	6.65	-0.91	1582.90

Source: Author's calculation

The growth rate for local steel and cement production are very irregular, the average growth rate for cement is about 3.1 which makes it increasing in general. The average growth rate for the steel products is about 0.86, excluding the last year data, which is extremely high. Hence the production of steel shows in general an increasing growth rate.

4.2 Import of the Selected Building Materials

The import of steel products includes steel bars, wires of iron, semi products of iron, flat rolled iron, hot rolled iron; angles, shapes and section of iron; L or T sections of iron and the likes. The aluminum products includes aluminum structure and parts of structures, bars, rods and profiles of aluminum, door, windows and their frame, tubes and pipes of aluminum, nails and the likes.

Imports of cement have grown continuously since 1998/99, when the Ministry of Trade and Industry allowed contractors and investors who can get foreign currency from external sources to import cement. It has been estimated that cement consumption has risen by an average of 30 percent per year during the past four years, well above the growth rate seen during this period for both overall GDP (around 11 percent) and for construction sector growth (around 10 percent). Ethiopia's cement consumption growth was roughly four times the growth in global cement consumption, which has risen by only 7 percent in recent years (Access Capital, 2009).

Table 3: Import of the Selected Building Materials

Year (EC)	Cement CIF_Value(ETB)	Steel Products CIF_Value(ETB)	Aluminum Products CIF_Value(ETB)	Total Import of the Country (in Million ETB)
1989/90	4,816,681	432,632,947	19,569,505	7,491
1990/91	9,245,211	557,675,898	56,861,706	10,392
1991/92	958,046	382,312,089	48,954,808	11,069
1992/93	451,517	445,398,668	52,925,266	10,431
1993/94	461,402	698,984,292	76,967,717	15,342
1994/95	1,152,107	692,342,808	58,101,436	13,725
1995/96	1,534,935	1,235,025,686	96,671,005	22,988
1996/97	1,493,949	1,209,818,425	152,116,112	22,956
1997/98	3,509,639	2,160,181,128	205,062,471	25,235
1998/99	68,665,793	2,039,202,651	193,978,988	39,889
1999/00	1,220,237,864	3,445,649,698	377,700,864	48,691
2000/01	1,536,438,249	4,256,431,150	551,264,012	79,438
2001/02	1,933,653,661	4,458,170,718	575,708,193	80,802
2002/03	517,048,889	4,587,809,689	476,865,258	126,926

Source: Ethiopian Custom Authority (ECA) (2003 EC)

The fall in import of cement for the year 2002/03 may be because the government has re-instated its ban on private sector cement imports. Imported cement retail prices are very close to domestic cement retail prices, despite the fact that import prices on a CIF basis alone are well below local retail prices. As an example data for the first four months of 2009 show that cement import prices (CIF basis) averaged Birr 152 per quintal though retail prices averaged Birr 276 during this time frame, implying that, Birr 124 of the retail price of domestic cement reflects some combination of domestic transport costs, official charges, and retailer margins.

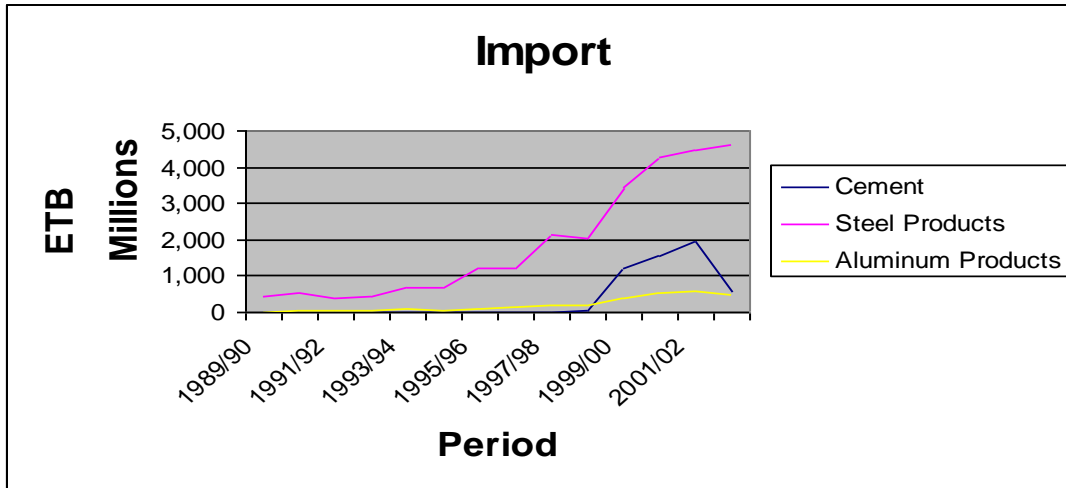


Fig 2: Import of cement, steel products and aluminum products

The import trends of all three materials under consideration are increasing, except cement for the period 2002/03 for the reason stated above, and steel products are the ones with greater value.

In monetary terms, for the year 1997-2001 EC the share of the local industry for both cement and steel is very high compared to the import. During these periods the gross value of local production was about 98 billion Birr for cement, a large sum in comparison with the 3 billions Birr of imports and 2,363 billion Birr for steel products, again a large sum in comparison with the 18 billions Birr of imports.

Table 4: Growth rate of import for the selected materials

Material	1996/97	1997/98	98/99	99/00	2000/01	2001/02	2002/03
Cement ('000,000)	1	3	69	1,220	1,536	1,934	517
Growth Rate	-0.03	1.35	18.56	16.77	0.26	0.26	-0.73
Steel products ('000,000)	1,210	2,160	2,039	3,445	4,256	4,458	4,588
Growth Rate	-0.02	0.79	-0.06	0.69	0.24	0.05	0.03
Aluminum Products ('000,000)	152	205	194	378	551	576	477
Growth Rate	0.57	0.35	-0.05	0.95	0.46	0.05	-0.17

Source: Author's calculation

The growth rate of import for all three products are very irregular; for cement the highest are 18.6 and 16.8 for the two consecutive years 1998/99 and 1999/2000; it remained unchanged for the years 2000/01 and 2001/02 and declined for the 2002/03. The average growth rate of cement import is about 3.48 and hence increasing in general. The average import growth rate for steel products is about 0.28 and 0.27 for the aluminum products which are increasing but very insignificantly.

4.2.1 Foreign exchange spent on the selected materials

Table 5: Foreign exchange spent on the selected materials

Year (EC)	Average Exchange Rate (Birr/USD)	Foreign Exchange Spent			Total Foreign Exchange Spent ('000)
		Cement ('000)	Steel Products ('000)	Aluminum Products ('000)	
1989/90	6.712	32,330	2,903,832	131,351	3,067,512
1990/91	7.116	65,789	3,968,422	404,628	4,438,839
1991/92	7.942	7,609	3,036,323	388,799	3,432,730
1992/93	8.21725	3,710	3,659,952	434,900	4,098,563
1993/94	8.45845	3,903	5,912,324	651,028	6,567,254
1994/95	8.5678	9,871	5,931,855	497,801	6,439,527
1995/96	8.6034	13,206	10,625,420	831,699	11,470,325
1996/97	8.6364	12,902	10,448,476	1,313,736	11,775,114
1997/98	8.6664	30,416	18,720,994	1,777,153	20,528,563
1998/99	8.6986	597,296	17,738,208	1,687,346	20,022,850
1999/00	8.9659	10,940,531	30,893,350	3,386,428	45,220,309
2000/01	9.7641	15,001,936	41,560,219	5,382,597	61,944,753
2001/02	10.4205	20,149,638	46,456,368	5,999,167	72,605,173

Source: Ethiopian Custom Authority and National Bank of Ethiopia (2003EC)

As both the import of all three categories of products and the average exchange rate has increased in the previous years the foreign exchange spent on these products increases to reach 72.6 billion dollars for the year 2001/02, which is a huge amount.

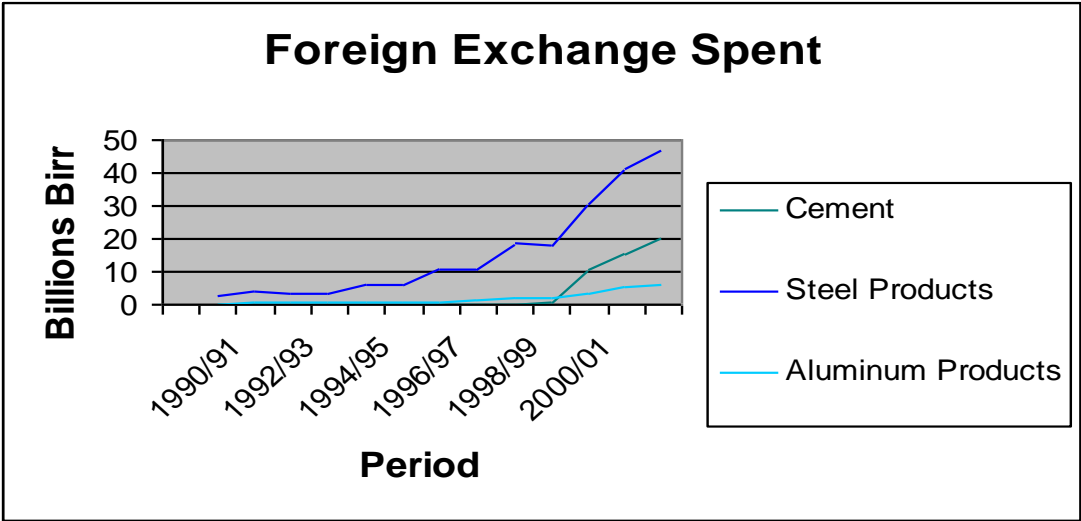


Fig 3: Trend of Foreign exchange spent on the selected materials

4.2.2 Import share

The import share tells us how important a particular product is in terms of the overall import profile of a country. As the computed result in the Table 6 shows, the import share of cement and aluminum products are very insignificant. The import share of steel product varies from 3.45% to 8.56%, which is still very low.

Table 6: Import share of the selected materials

Year (EC)	Import Share of Cement	Import Share of Steel Product	Import Share of Aluminum Product
1989/90	0.064	5.776	0.261
1990/91	0.089	5.366	0.547
1991/92	0.009	3.454	0.442
1992/93	0.004	4.270	0.507
1993/94	0.003	4.556	0.502
1994/95	0.008	5.044	0.423
1995/96	0.007	5.372	0.421
1996/97	0.006	5.270	0.663
1997/98	0.014	8.560	0.813
1998/99	0.172	5.112	0.486
1999/00	2.506	7.077	0.776
2000/01	1.934	5.358	0.694
2001/02	2.393	5.517	0.712
2002/03	0.407	3.614	0.376

Source: Author's calculation

4.2.3 Import substitution

Import substitution is often measured by a change in the ratio of imports to the total availability which means imports plus domestic output, of a single product or category of products. If the ratio falls over time, then import substitution is said to take place in that particular sector.

Table 7: Import substitution for cement and steel products

Year (EC)	Cement		
	Domestic output + Import (‘000)	ratio of imports to the total availability	Change in ratio of imports to the total availability
1997	3,252	0.614819	
1998	6,508	0.798339	0.183519779
1999	803,426	0.99786	0.199520707
2000	810,561	0.997953	0.000093000
2001	1,619,492	0.998958	0.001004446
Year	Steel Products		
	Domestic output + Import (‘000)	ratio of imports to the total availability	Change in ratio of imports to the total availability
1997	2,474,497	0.701798	
1998	4,131,132	0.47023	-0.23156779
1999	19,344,882	0.134708	-0.33552207
2000	7,762,188	0.809707	0.674998934
2001	2,351,983,960	0.005345	-0.80436284

Source: Author’s calculation

The ratio to total availability for the cement is increasing and the ratio of import to total availability for the steel products in general, is falling over time. Hence, from the above definition of the measure we may say that import substitution exist for steel products.

4.2.4 Forecasts of the import of the selected materials

The forecasts are made with the existing 25 quarterly import data, for the next ten years, using univariate times series analysis. Autoregressive process model of order two has been used and the models regressed using stata for all three categories of materials are given bellow and the summarized results of the prediction done using these models are given in Table 8.

$$Y_t = -0.33Y_{t-1} + 0.13Y_{t-2} + \varepsilon_t \quad \text{for cement}$$

$$Y_t = -0.34Y_{t-1} - 0.66Y_{t-2} + \varepsilon_t \quad \text{for steel}$$

$$Y_t = -0.42Y_{t-1} - 0.58Y_{t-2} + \varepsilon_t \quad \text{for aluminum}$$

Where ε_t is a serially uncorrelated innovation with a mean zero and a constant variance.

Table 8: Predicted import values of the selected materials

Year (EC)	Cement (‘000 Birr)	Steel Products (‘000 Birr)	Aluminum Products (‘000 Birr)
2003	486,871	5,520,239	644,361
2004	653,880	6,279,314	732,750
2005	742,934	6,955,628	816,147
2006	831,988	7,631,942	899,545
2007	921,042	8,308,257	982,942
2008	1,010,096	8,984,570	1,066,341
2009	1,099,150	9,660,885	1,149,738
2010	1,188,204	10,337,199	1,233,134
2011	1,277,259	11,013,513	1,316,533
2012	1,366,312	11,689,827	1,399,930
2013	1,355,366	12,366,142	1,483,329

Source: Author’s calculation

All the import of the three categories of product will increase continuously for the next ten years to reach 1.4, 12.4 and 1.5 billion Birr of value for cement, steel products and aluminum products, respectively.

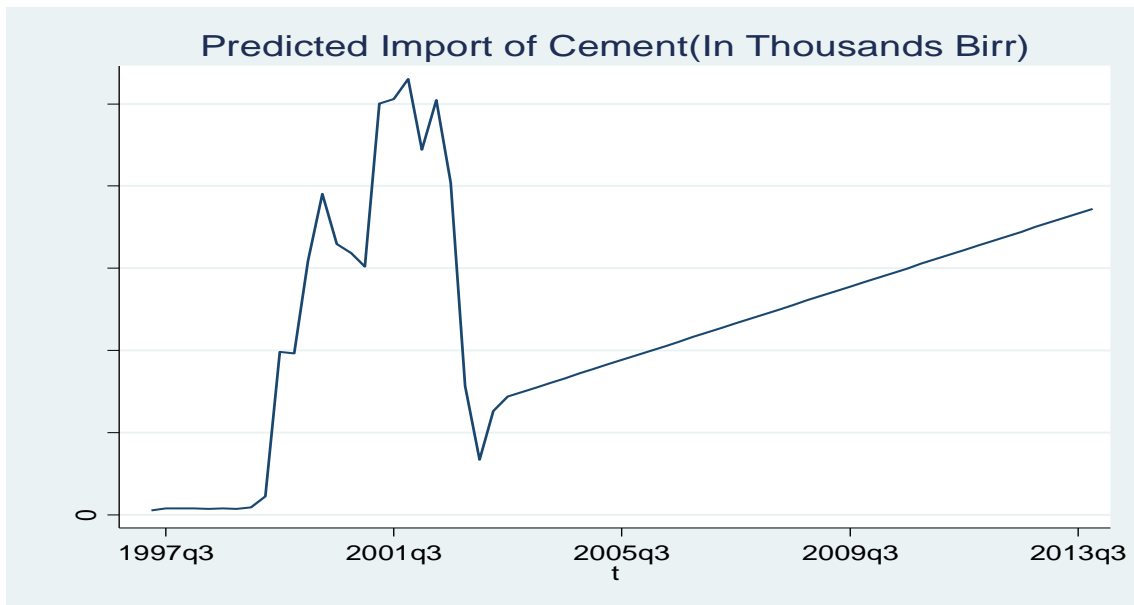


Fig 4: Prediction of Cement¹

As we can see from the graph the prediction for the import of cement increases for the next ten years but do not go as far as the import of 2007-2009. This may be due to the fall of import in 2010 which has contributed to lower the prediction. According to the prediction, a total of 10,933 billion Birr is needed to import cement for the next ten years.

As time series analysis makes the prediction beginning from the period of the existing data, the graph includes the prediction of both the next ten years and previous years.

¹ This prediction was done using the existing data beginning from 1997.

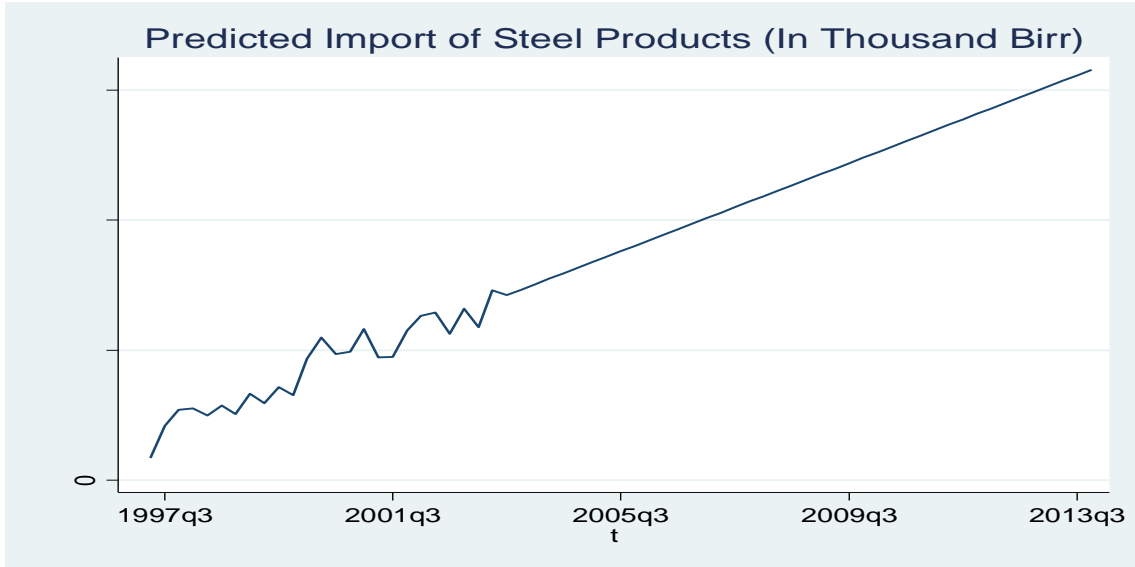


Fig 5: Prediction of Steel Products

From the prediction of steel products import, we see that import increases continuously for the next ten years, and a total of 98,748 billion Birr is needed to fulfill the import demand of these products.

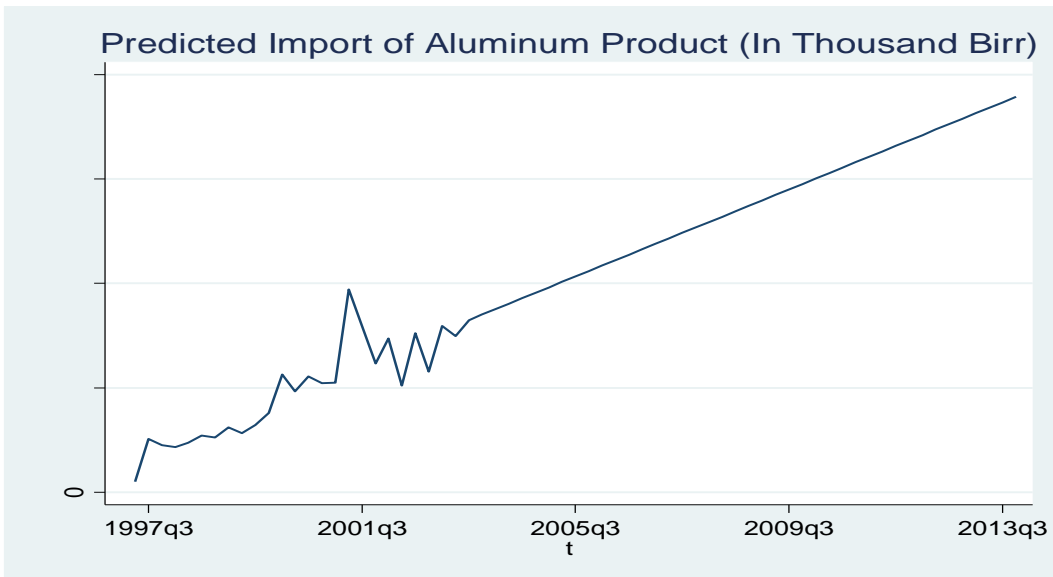


Fig 6: Prediction of Aluminum Products

From the prediction for import of aluminum products we see that import increases continuously for the next ten years and a total of 11,725 billion Birr is needed to fulfill the import demand of these products. Hence, to import all three categories of products 121,406 billion Birr will be needed for the next ten years.

4.3 Demand for the Selected Building Materials

4.3.1 Demand for the selected materials

The demands are computed by adding the selected materials domestic production and their imports together. As there is no local production reported for aluminum products the import is taken as the demand, considering that local production is zero. Hence, as the demand for aluminum is the same as its import, here we only consider the demand for cement and steel.

Table 9: Demand for Cement

Year (EC)	Local production of Cement ('000,000 ETB)	Import of Cement ('000,000 ETB)	Demand for Cement ('000,000 ETB)	Local production share in %	Import share in %
1997	18,930.30	1.99	18,932.31	99.99	0.01
1998	15,049.78	5.19	15,054.98	99.97	0.03
1999	1,213.87	801.71	2,015.58	60.22	39.78
2000	2,851.51	808.90	3,660.41	77.90	22.10
2001	38,823.28	1,617.80	40,441.09	96.00	4.00

Source: CSA and ECA (2003 EC)

The computed percentage in Table 9 shows that, except for the two years (1999 and 2000), the country's demand for cement for the rest three years was satisfied using domestic supply. The import for steel, takes the greater share of the demand for the years 1997 and 2000, which are

70.18% and 80.97%, respectively, and almost all of the demand for the year 2001 was satisfied by domestic supply (Table 10).

Table 10: Demand for Steel

Year (EC)	Local Production of Steel ('000,000 ETB)	Import ('000,000 ETB)	Demand for Steel products ('000,000 ETB)	Local production share in %	Import share in %
1997	737.90	1,736.60	2,474.50	29.82	70.18
1998	2,188.55	1,942.58	4,131.13	52.98	47.02
1999	16,738.96	2,605.92	19,344.88	86.53	13.47
2000	1,477.09	6,285.10	7,762.19	19.03	80.97
2001	2,339,413.76	12,570.20	2,351,983.96	99.47	0.53

Source: CSA and ECA (2003 EC)

4.3.2 Prediction of demand for the selected materials

As the data available for both domestic product and import in the same calendar year are only for the five years (1997 to 2001), the prediction values for the future twelve years, have been done using only these five years data and univariate times series analysis. Autoregressive process model of order two has been used and the models regressed using stata for all three categories of materials are given bellow and the summarized results of the prediction done using these models are given in Table 11.

$$Y_t = -0.002Y_{t-1} - 0.99Y_{t-2} + \varepsilon_t \quad \text{for cement}$$

$$Y_t = -1.84Y_{t-1} + 1.00Y_{t-2} + \varepsilon_t \quad \text{for steel}$$

$$Y_t = -0.01Y_{t-1} - 0.99Y_{t-2} + \varepsilon_t \quad \text{for aluminum}$$

Where ε_t is a serially uncorrelated innovation with a mean zero and a constant variance.

Table 11: Predicted demands for selected building materials

Year	Predicted Demand ('000,000 birr)		
	Cement	Steel Products	Aluminum Products
2002	51,056.73	1,086,218.00	1,538.64
2003	41,352.58	1,989,758.00	1,631.69
2004	46,577.50	2,405,213.00	1,900.87
2005	51,802.41	2,820,668.00	2,170.04
2006	57,027.33	3,236,124.00	2,439.22
2007	62,252.24	3,651,579.00	2,708.40
2008	67,477.16	4,067,035.00	2,977.57
2009	72,702.07	4,482,490.00	3,246.75
2010	77,926.98	4,897,945.00	3,515.92
2011	83,151.90	5,313,401.00	3,785.10
2012	88,376.81	5,728,856.00	4,054.28
2013	93,601.73	6,144,312.00	4,323.45

Source: Author's calculation

All the demand for the three categories of products will increase continuously for the next ten years to reach 93.6, 6.1 and 4.3 billion Birr of value for cement, steel products and aluminum products respectively. The prediction for aluminum demand should have been the same as its import prediction in section 4.2, because no local production has been added. But as we can see in Table 11 it has a different and much higher value. For example, the predicted values for the year 2013 shows 1.5 billion Birr for the import (Table 8) while the predicted value for the demand shows 4.3 billion Birr (Table 11) which is 2.87 times higher. This may be because demand has been predicted using only 5 year data while, the import prediction has been done with 25 quarterly data which will make it more accurate.

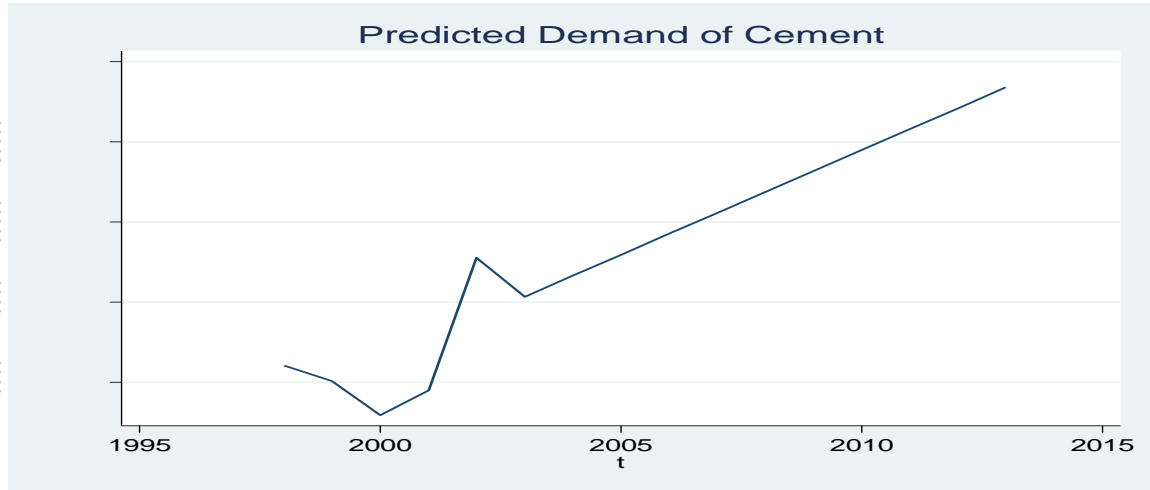


Fig 7: Predicted demand for cement in millions Birr.

The prediction of cement demand shows that a continuous increase for the next ten years, and a total of 742.25 billion Birr is needed to produce and import these products. This is on average 67.48 million Birr per year. As time series analysis makes the prediction beginning from the period of the existing data, the graph includes the prediction of both the next ten years and previous years.

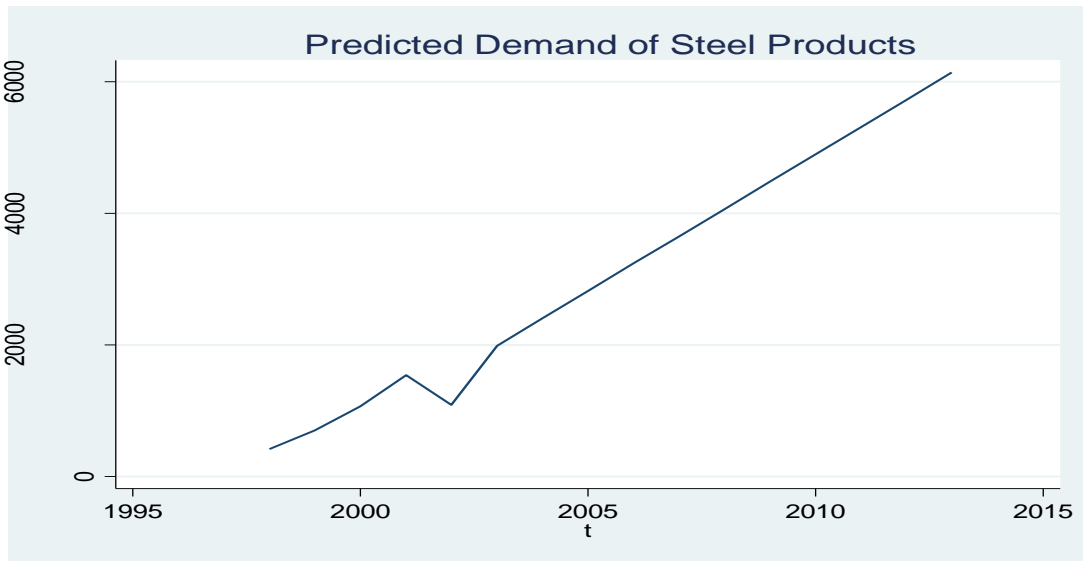


Fig 8: Predicted demand for steel in million Birr.

From the prediction of steel demand, we see that it increases continuously for the next ten years, and a total of 44,737 billion Birr is needed to produce and import these products, which means that an average of 4,067 million Birr per year is needed.

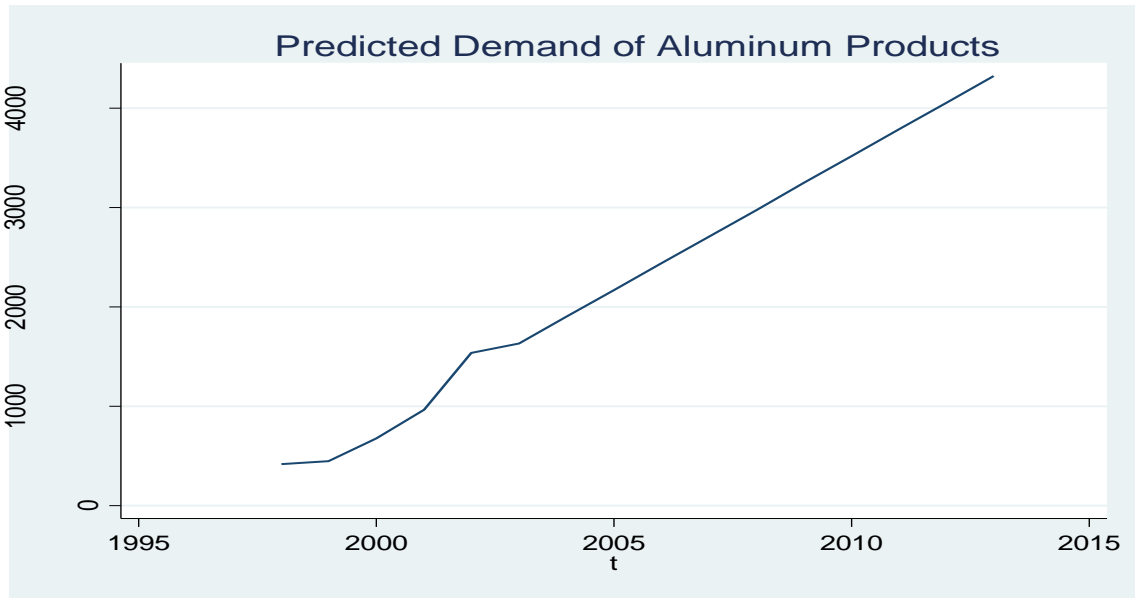


Fig 9: Predicted demand for aluminum in millions Birr.

The prediction of aluminum demand also shows a continuous increase for the next ten years, and a total of 32.75 billion Birr is needed to produce and import these products; which is on average 2.98 million Birr per year.

Chapter Five

Conclusion and Recommendations

5.1 Conclusion

The domestic production of cement is about 15,836 million Birr a year beginning 1996 (EC) with an average growth rate of 2.58 per year. The import value of this material is about 379 million Birr a year with an average growth rate of 2.70 per year, and for this import we spend on average 3.6 billion Dollars a year. For the next ten years we are expected to spend at least 11 billion Birr or on average 994 million Birr per year, of foreign exchange to import cement. Even if lots of factories got into the business of producing cement, we do not see import substitution for this product, because they have not begun or fully begun to produce. From the demand computed in this study we can say that the demand for cement is almost fulfilled by domestic product.

The domestic production of steel products is about 39 billion Birr a year beginning 1996 (EC) with an average growth rate of 1.83 per year (excluding the supply of 2001 which is 140 times larger than the next highest supply of 1999). The import of these materials is about 2 billion Birr a year with an average growth rate of 0.23 per year, and for these import we spend on average 15.5 billion dollars a year. For the next ten years we are expected to spend at least 99 billion Birr which is on average 9 billions birr yearly, to import these materials. Even though it is little, we do see import substitution for these products. From the demand computed in this study we can say that the demand for steel products is mostly fulfilled by domestic product.

The import of aluminum products is about 210 million Birr a year with an average growth rate of 0.35 per year, and for these imports we spend on average 1.76 billion Dollars a year. For the next ten years we are expected to spend at least 12 billion Birr which is on average 1 billion Birr a year, on foreign exchange to import these materials. We do not see import substitution for these products, because no aluminum products have been reported produced in the country, hence the demand for this material is fully fulfilled by import.

As stated earlier the share of the local industry for the year 1997-2001 Ethiopian calendar was 98 billion Birr for cement, a large sum in comparison with the 3 billions Birr for imports and 2,363 billion Birr for steel products, again a huge sum in comparison with the 18 billions Birr for imports. Hence we can conclude that most of the demand of these two categories of products is being fulfilled by local producers.

Although the import share for all of the selected products is very low and insignificant and that most of the demand of the country is being fulfilled by local producers, in total for all the three categories of materials we need to spend 121 billion Birr in foreign exchange for the next ten years, which is around 11 million Birr a year.

5.2 Recommendations

Studies show that, the group of countries that were hardly hit by the drastic increase in oil prices that occurred in 1973 were poor countries that had relied on inward-looking or import substitution strategies. The export oriented economies of the Far East seem to have been

impacted less badly. Although their terms of trade also deteriorated drastically, they seem nevertheless to have shown a greater flexibility in adjusting to the shock.

It is believed that countries relying on import substitution strategies only had very low reserves of foreign currencies and have to cut back their imports immediately. Countries that had relied upon promotion of exports were better able to adjust to the new circumstances, because they had a better foreign exchange situation and can push their exports further to offset at least partially the adverse impacts of terms of trade.

The mainstream of academic researchers seems to favor export-promoting strategies. They argue for policies to enhance each country's particular advantages relative to world economic conditions. Others, primarily spokesmen of developing countries, believe that import substitution is the best policy available for the developing countries and emphasize industrialization as major avenue for development.

As we have seen from the empirical findings, the values of the domestic supplies of both cement and steel products exceeds the value of what we imports; that is 15,457 million Birr for the cement and 37 billions for steel products and the import share of all three materials is very insignificant. The demand for both cement and steel are almost satisfied by domestic products, hence, with a little bit of effort we can cover the demand for these materials and if we extend more effort we can even export these materials, gain foreign exchange and have a better terms of trade.

We have to think also of extracting locally available raw materials, like iron ore and others which can be used for local production and also for exporting purpose as diversifying export and reducing import are the major strategies to sustain growth.

Bibliography

Wikipedia the free encyclopedia, “Import Substitution Industrialization”;

Franklyn A. Manu (2009). “Import Substitution and Export Promotion: a continuing dilemma for developing countries?” **Journal of International Business and Economics**.

Avik Basu (2005). “Import Substitution as Economic Development”, **Urban and Regional Planning- Economic Development Hand book**.

BAA (June 2001). “UK construction Materials and Import Substitution”

Henry J. Bruton (1989). “A consideration of Import Substitution” **Journal of Economic Literature**, vol. 36 No. 2 PP. 903-936.

Access capital (May 2009), “Investing in Ethiopia”

Wondimu Degnitu (Septemeber 2000). “A case study of Zuquala Steel Rolling Mill Journal of the ESME”.

Rajneesh Narula, (December 2002). “Switching from Import Substitution to the “New Economic Model” in Latin America: A case of not learning from Asia”.

Kishore G. Kulkarni and Kip Jan Meister (July 2009). “Trouble with import substitution and Protectionism: a case of Indian Economy” **Indian Journal of Economic and Business**, Denver.

Eduardo Silva (2007). “The Import-Substitution Model: Chile in comparative Perspective” **A Latin American Perspective**, vol.34 No.3.

Matt Nolan (August 8, 2007). “Import Substitution, good or bad?”

- Massimo Geloso Grosso, Anna Jankowska and Frediric Gonzales (December 2008). “Trade and Regulation: The Case of Construction Services” **OECD Expert Meeting on construction services**, Paris.
- Kenneth J. Arrow (October 1954). “Import substitution in Leontief Model” **Econometrica, Journal of the Econometric Society**, vol. 22 N04 pp 481-492
- John T. Cuddington (April 1981). “Import substitution Policies: A two-sector, Fix-Price Model” **The Review of Economic Studies**, vol. 48 No2 pp 327-342
- Samuel A Morley and Gordon W. Smith (September 1970). “On the Measurement of Import substitution” **American Economic Association**, vol. 60, No.4 pp 728-735
- George Fane (July 1973). “Consistent Measures of Import substitution” **Oxford Journals, Oxford University Press**, vol.25, No2 pp. 251-261
- Fortune (march 13, 2011). “Steeling Ethiopia’s Metal Industry”
- Sewasew Pawlos (October, 2002) “The Relationship Between Import and GDP Growth in Ethiopia: An Empirical Analysis” **MSc. Thesis**, Addis Ababa University.
- Dan Ciuriak and Claudius Preville (September, 2010) “Ethiopia’s Trade and Investment: Policy Priorities for the new Government”
- Ministry of Foreign Affairs of the Federal Democratic Republic of Ethiopia (November, 2007). “Foreign Trade Promotion Manual for Ethiopian Diplomatic Missions” **Economic and Business Affairs Directorate**, Addis Ababa.

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**IMPORT SUBSTITUTION IN THE CONSTRUCTION
SECTOR: THE CASE OF SELECTED BUILDING
MATERIALS**

**By
Martha Bisrat**

Approved By:

Signature
