

T.C.

MARMARA ÜNİVERSİTESİ

SOSYAL BİLİMLER ENSTİTÜSÜ

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**RISING FOOD PROCES AND POVERTY: THE CASE OF
AFRICAN COUNTRIES**

Yüksek Lisans Tezi

DUYGU ÇAĞLAR

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Doç. Dr. MAHMUT TEKÇE

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ÖZET

Geçtiğimiz yıllarda etkisini artıran ve 2008 yılına gelindiğinde bir kriz etkisi yaratan yükselen gıda fiyatları, bugün halen yükselişine devam etmekte ve özellikle yoksul ülkeler olmak üzere global çapta bir çok ülkeyi etkilemektedir. Uzun zamandır bu duruma karşı gerek tarım sektörünün geliştirilmesine, gerekse gıda fiyat stabilizasyonunun sağlanmasına yönelik çalışmalar devam ederken, bir yandan da gıda fiyatlarından oldukça fazla etkilenen yoksulluk istatistiklerinin düşürülmesine uğraşılmaktadır. Bu çalışmada, global verilerin yanı sıra, Kenya, Etiyopya ve Mozambik'in verilerine de yer verilerek; yükselen gıda fiyatlarının sebep ve sonuçlarının yanı sıra, özellikle yoksul ülkelerde daha gelişmiş bir tarım sektörü ve gıda piyasasına sahip olmak ve yoksulluk oranlarını düşürmek için ne gibi politikaların geliştirilmesi gerektiği ve mevcut politikaların temelinde ne gibi sorunlar yattığı incelenmiştir.

Jel Kodları: I32, I38, Q17, Q18

Anahtar Kelimeler: Yoksulluk Ölçümü ve Analizi, Hükümet Politikası; Refah Politikalarının Karşılığı ve Etkileri, Uluslararası Ticarete Tarım, Tarım Politikası; Gıda Politikası

ABSTRACT

In recent years, food prices have been in a tendency to increase and in 2008, a food price crisis happened. Food prices are still increasing today and affecting most of the countries in the world, especially the poor ones. In response to this situation, some policy actions and efforts have been applying in order to improve agricultural sectors, food security, food price stabilization and reduce poverty levels recently. In this study, besides global statistics, the data of Kenya, Ethiopia and Mozambique is used. Besides analyzing the reasons and results of the high food prices; the policies that should be developed in order to have a better agricultural sector and food market especially in poor countries and reduce poverty, and problematic parts in the existing policies have been examined.

Jel Codes: I32, I38, Q17, Q18

Key Words: Measurement and Analysis of Poverty, Government Policy; Provision and Effects of Welfare Programs, Agriculture in International Trade, Agricultural Policy; Food Policy

PREFACE

This master thesis is a result of my studies during my undergraduate level studies and also first year studies in this master program. I would like to thank some people who never hesitate to support me during my studying and preparation period of my thesis.

My special thanks go to my mom, for always being my best friend and standing by me all the time,

To my best friends for their joy, patience and support even in the bad times,

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Duygu ÇAĞLAR

June 2012, Istanbul

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LIST OF ABBREVIATIONS

CPI: Consumer Price Index

EU: European Union

FAO: Food and Agriculture Organization of the United Nations

FED: Federal Reserve System

GAFSP: Global Agriculture and Food Security Program

GATT: General Agreement on Tariffs and Trade

GDP: Gross Domestic Product

GHI: Global Hunger Index

GNI: Gross National Income

HDI: Human Development Index

HDR: Human Development Report

MPI: Multidimensional Poverty Index

PPP: Purchasing Power Parity

UN: United Nations

US: United States of America

WB: World Bank

WDI: World Development Indicators

WFP: World Food Program

WTO: World Trade Organization

INTRODUCTION

In recent years, there have been global food price changes. In 2008, food prices have reached a peak and food markets couldn't be recovered totally since then. Food prices are still continue to increase although there have been small decreases in the food price indexes. In order to understand the nature of these changes in food prices, initially, commodity price cycles topic have been analyzed in this study. In order to understand the food price changes, one can start with the commodity price analysis for a better understanding of the theoretical framework. After understanding the macroeconomic determinants of the commodity cycles such as growth in demand, macroeconomic policies, interest rates, uncertainty, factors that affect supply levels and so on, the reasons for the food price changes are analyzed greater in detail. There are cyclical or short term reasons and structural or long term reasons for food price changes. Changes in food prices and food crisis have two main impacts on countries, one is macroeconomic impacts and the other is the poverty impact. For the purpose of this study, poverty impact has been emphasized after analyzing and understanding the concepts and reasons of poverty, because, higher food prices have greater impacts on poor people. In order to understand poor countries situation during a food crisis, three countries from Africa is chosen. The socio economic conditions, trading patterns, poverty conditions and food production and consumption information of Ethiopia, Kenya and Mozambique have been analyzed for a better understanding of poor countries. Of course, these statistics may differ from country to country, but basically the policy solutions and actions that should be taken during food crisis for improving agriculture, food security and reducing poverty are generally similar for all poor countries. After analyzing these three countries statistics, the general policy solutions and actions for poor countries and households are emphasized. Then, finally, there are remarks concluded about the entire study.

CHAPTER 1

LITERATURE SURVEY ON FOOD PRICES AND POVERTY

In order to understand the aim of this study, we should think to follow a literature survey with the order of the chapters and topics.

1.1 LITERATURE SURVEY ON COMMODITY PRICE CYCLES

Especially for the food price fluctuations, understanding the commodity price cycles is crucial. For commodity prices study, the study of Borenzstein and Reinhart (1994, p. 236) states that the traditional approach to the commodity price analysis is generally focused on the demand side and needed to be developed. So, it emphasizes the commodity supply analysis and it develops a broader demand analysis. On the supply side, technological changes are very important to commodity price changes. Again, China's increasing effect on manufactures and recently industrializing countries have also important effects on international commodity markets. In addition, some international commodity agreements have considerable effects on commodity prices. Moreover, some agricultural, fiscal and other type of policies in industrial countries affects severely the commodity prices. Again, inventories have an impact on the commodity price changes.

In Valiente (2011, p. 1), the most important factors that affect commodity prices are defined as follows: physical and financial trading practices, financial market access, market abuse and surveillance, competition and market structure, sustainability of current supply and demand.

Byrne, Fazio and Fiess (2011, p. 23) consider that the commodity prices are one of the most important factors for developing and developed country economies. Using Factor Augmented VAR approach, it is found that commodity prices, that may create supply and demand shocks, are negatively related with the real interest rates and uncertainty.

Cashin, McDermott and Scott (2002, p. 277) brings out the idea of the ups and downs in the commodity prices are an important issue especially for the policy makers in commodity exporting countries. Also, in this study it is found that commodity price decreases last longer than commodity price increases. In addition, they have found that the probability of an end of a price decrease (or increase) is independent of time which has already spent in the price decrease (or increase).

Cashin and McDermott (2002, p. 196) specifies that commodity price movements can have serious effects on terms of trade, real incomes, fiscal positions on commodity dependent countries and macroeconomic stabilization. Also, policies that are developed for commodity price cycles, consider long run declines in price trends are less important than implications of increasing price volatility. Another feature of the commodity prices according to this paper is that the large and long lived commodity price changes may not give an appropriate prediction about commodity cycles. However, the rapid and unexpected changes in the commodity prices give more information about their behavior.

The general idea of the study of Adler and Sosa (2011) is that the emerging markets' commodity dependence and points out that a country's commodity dependence is very important in case of a commodity price shock. Also, a country's vulnerability to a commodity price shock is mostly determined by flexibility and quality of its commodity price policies. Limited exchange rate flexibility, weak external position, easy monetary policy and financial dollarization are defined as negative effects on the commodity price shocks on domestic output.

Frankel and Rose (2009, p. 9), implies that especially after 2008, the agricultural and mineral commodity prices have increased sharply due to the strong global growth especially in India and China, easy monetary policies including low interest rates, speculations and risk causing from uncertainty.

In Frankel (2006, p. 2), it is stated that the monetary policies affect the commodity prices especially agricultural and mineral commodities. In this study, it is also found that there is a relationship between real interest rates and real commodity prices through a negative effect of interest rates on carrying to hold commodity inventories.

In order to understand the fluctuated food prices and food price crisis, studies that analyze the movements of commodity prices and commodity price cycles are important. Now, we should look at the studies on food prices and food price crisis.

1.2 LITERATURE SURVEY ON FOOD PRICES AND FOOD PRICE CRISIS

Food prices study is analyzed by many researchers. In Headey (2010, p. v), it is mentioned that wheat, maize and rice prices have risen sharply recently. Besides the known reasons that are also mentioned in our study such as financial speculation, depreciation of US dollar, low interest rates and low grain stocks and so on, the trade conditions is considered for the largest export markets for rice such as Thailand, maize, wheat and soybeans such as United states. In this study, it is found that when price surges increase, the surges in the export volumes also increase. By considering this demand surges, it is stated that the trade conditions have a greater role than it was previously analyzed. Also, actions on developing international grain market should be on international policies agenda.

In Headey and Fan (2008, p. vi), rising oil prices, depreciation of US dollar, bio fuel demand and commodity specific explanations are specified as the more important reasons for food crisis and a large gap is found between the macro and micro impacts of the food crisis in the developing countries.

The study of Braun (2008, p. 1), implies that some policy actions that should be taken against recent food and agriculture crisis including improving and expanding emergency responses and humanitarian assistance due to food and cash transfers, child nutrition and poor people especially for protecting the consumption levels; eliminating food export bans for stabilizing grain price volatility and price reductions; undertaking fast-impact food production programs due to promoting agricultural growth by creating access to seeds, fertilizers, credits for small farmers, irrigation, electricity, water just like traditional Green Revolution programs; changing bio fuel policies due to stabilizing and even reducing bio fuel production based on grains and oil seeds which can decrease wheat and maize prices; calming the markets by regulations, controlling speculative capital in the agricultural markets, coordinating grain reserves, setting import financing facility for creating a better environment for countries to have access to food supplies with reasonable price levels even in the crisis. In addition, investments in social protection and agricultural development and growth should be improved. In social protection programs, food and cash aid programs, pension systems, employment programs and school feeding should be developed. Also, health and nutrition programs to prevent malnutrition, protect the poor and increase school participation rates. Agricultural investments, which include studies and expenditures in infrastructure, services, technology, agricultural research, should also be developed in order to obtain higher returns on agriculture and reduce poverty levels due to lower food prices, higher employment levels and production. Moreover, a completion of Doha Round successfully is important to high food prices issue. The recent high food prices can be considered as an opportunity to make changes in agriculture through market access, domestic support and export subsidies.

Ivanic and Martin (2008, p. 18) explains that high food prices have negative effects on poverty and make poverty level to increase. Net food buyer countries are affected most by the high food prices. This is less obvious for urban households but rural households are affected more by high food prices although many rural households can obtain more income from higher food prices. It is the case of a household being whether net food seller or net food buyer. High prices in staple foods can decrease poverty by increasing incomes of poor farmers but this effect is offset by the opposite impacts of high food prices on poor households who are net food buyers. But, the recent increases in food prices are seemed to be effect poverty in many countries negatively.

In the study of Aksoy and Dikmelik (2008, p. 16), it is pointed out that high food prices have a negative effect on poor households because most of the poor people are net food buyers and some policies such as export bans and taxes, import tariffs against this situation have been developed. These policies have negative effects on developing and industrial countries' agricultural policies. Also, most of the poor countries are net food importers and high food prices can easily hurt them. In low income countries, high levels of taxation in agriculture through lower commodity prices can be considered as rural poverty. However, in many low income countries, food production is a main activity in rural and agricultural areas. The main idea is that high food prices can be an advantage or a disadvantage according to the condition of households that are net food seller or net food buyer.

According to Christiaensen (2009, p. 6), there are four failures detected for the policies and market actions developed against food crisis. Firstly, governments should make reinvestments on agriculture with focusing on public goods and more public accountability for global food supply. Second, food and fuel relations should be removed by revising the EU and US agro fuel policies. Third, more information and food stock sharing, a stricter regulation by WTO on export restrictions and globally managed buffer stock provide better food self sufficiency in many countries. Fourth, sustainable market based food security system only

happens with well functioning national social safety nets.

Islam and Buckley (2008, p. 1) signifies that besides the reasons and results of the recent high food prices also points out that higher food prices can be risky or beneficial according to being a net staple food seller or net staple food buyer and extent to which wages are adjusted to reflect high food price inflation.

Wise and Murphy (2012, p .27) denotes that in order to solve the food crisis the issues that should be focused on are as follows: levels of financial support for rural and agricultural development, small scale farmers and women actions, low input practices and agro ecology, food crop production for domestic consumption, native seeds productivity, public and private financing balance and balance between market mechanism and government actions, reduction of impacts of energy crop development on food prices, reduction of price volatility, increasing agricultural investment, the role of changing climate conditions for agricultural production, policies that curb the concentration of market power among transnational firms for the food system and protection of policy spaces for developing countries to manage their food and agricultural policies.

In the study of Headey, Malaiyandi and Fan (2009, p. 2), it is mentioned that food, fuel and financial crises have become very significant for the effort of reducing poverty globally. In many countries, when food prices increased, poverty is also increased. In the short run, the oil and bio fuel relation has an influence on food prices, but export restrictions and panic in the markets have created the crisis. According to this study, supply response in many countries during food crisis is strong. But, the effects of financial crisis have led more people become poorer and have food insecurity. Also, global food system has been changing. Energy and food prices have adjusted to a higher equilibrium and they have more volatility. Trade protection issues have gained importance again and investments in agriculture have been rearranged. These changes can cause opportunities and risk together and there is a need for international action with further research.

Zeza et al. (2009, p. 2), explains that the poorer households and who have limited endowment assets and access to agricultural inputs have been mostly affected by the food price crisis. So, policy actions should be developed by looking at the households access to assets and inputs, livelihood strategies and other conditions that affect the distribution of the effects of the food price increases.

After investigating the studies about the food prices and recent food price crisis which would be useful for the purpose of this study, the following section includes the literature survey on poverty and African food crisis topics.

1.3 LITERATURE SURVEY ON POVERTY AND AFRICAN FOOD CRISIS

One of the most important aspects and results of the food crisis is the rising poverty levels. According to Piachaud (2002, p. 11), types of capital are distinguished as financial, physical, human, public infrastructure and social capital. In order to reduce poverty, policies should consider all types of capital, not just the human capital and investments should be made not only on human capital but also on the other four types of capital.

Headey and Fan (2010, p. 101), explains that by giving the right incentives and opportunities to farmers, traders, scientists and the others, it is possible to reduce poverty and hunger levels for millions of people around the world. The main action that should be taken is that understanding the main problems and developing suitable policy actions that include the needs of both national and international food systems.

In Ames et al. (2001, p. 2), poverty is defined as a multidimensional concept that includes the aspects of nutrition, health, education and shelter and it includes social, political and cultural issues beyond its economic side. The policies for reduction of poverty require macroeconomic stability. Because economic growth is a key factor that affects poverty and

macroeconomic stability is a requirement for high and sustainable growth.

In the 2011 study of FAO, named “The State of Food Insecurity in the World: How does international price volatility affect domestic economies and food security?”, it is explained that the import dependencies especially in the African countries were an important reason for being affected by the economic and food crisis. The food prices have been in a tendency to be volatile in the future and high food prices create food insecurity even in the short term. This food price volatility mostly affects small scale farmers and poor consumer households and they become vulnerable to poverty. Big price changes in the short term can affect development in the long term. However, high food prices can lead further agricultural investment growth and food security in the long run because high prices can be considered as an incentive with a supply response. A policy of increasing food security should include increasing agricultural productivity, policy predictability and openness in trade. Lastly, agricultural investment is very important to providing long term food security.

In the study of Wodon et al. (2008, p. 10), it is stated that the increase in rice, wheat, maize and other cereal prices besides milk, sugar and vegetable oil prices can easily lead a considerable amount of increase in poverty in many West and Central African countries in which there are high number of poor households. The amount and magnitude of poverty that increased due to high food prices can change from country to country. Also, high increases in poverty can lead deeper levels of poverty for the households who are already poor. 50% of increase in food prices creates poverty between 2.5% and 4.4% in the share of population. It is between 3.7% and 5.2% in the urban areas and between 2.2% and 4.1% in the rural areas. The impact is 3.5% for a typical country in Sub Saharan Africa. These impacts are very large and food price crisis can lead 30 million additional people to fall into poverty.

Abbott and Battisti (2009, p. 36), denotes that the policy responses of African governments and developing countries have contrasted for food price crisis. International

organizations and institutions, development banks, donors have emphasized the importance of agricultural development in the long term. National African governments have been focusing the interventions for market stabilization through trade and domestic policies.

Wodon and Zaman (2008, p. 22), points out the higher food prices have a negative effect on net poor consumers in the Sub Saharan Africa and this negative impact is bigger than the positive impact of the higher food prices on the poor producers. Also, mostly applied policy response for higher food prices in the Sub Saharan countries is reducing taxes on food when outside the region price controls and consumer subsidies is mostly used. In addition, Sub Saharan countries are mostly dependent on food based safety net programs and they are scaled up in response to the higher food prices. Benefits coming from reducing import tariffs on staples may accrue to non poor. Also, social protection programs are considered but regional targeting is more effective to meet the needs.

According to Rena (2007, p. 7), the poverty in the Horn of Africa can be reduced by socio economic developments and regional integration, sustainable development, agricultural development, development of rural infrastructure and household employment.

Diao, Headey and Johnson (2008, p. 548) explains that, in Africa, poverty reduction, agricultural growth due to productivity growth and resulting in increased farmer incomes, increased regional food security, more economic transformation can be achieved by scaled up agricultural investments with developing small scale farmers' productivity and improving infrastructure investments.

In the study of Pratt and Yu (2008, p. 41), it is emphasized that the African agricultural productivity has been in a tendency of rising for the last 40 years. They used Malmquist index and their estimates reflected a recovery of the Sub Saharan Africa's agriculture between the years of 1984 and 2003 after a very long time of poor performance. Malmquist index with some of its components also consisted of efficiency and technical changes indexes. These changes were

coming from the changing structure of outputs and use of inputs. Also, policy changes that were applied by the African governments between 1980s and 1990s and technological changes were other reasons of this agricultural recovery in Sub-Saharan Africa. According to this paper, Ethiopia and Mozambique showed great performances on agricultural total factor productivity growth between 1994 and 2003, for about 40% of growth including growth in land and labor productivity due to more fertilizer use per hectare and worker. Again Kenya showed high levels of productivity growth due to the high fertilizer use and changing in input compositions.

Now, we should consider analyzing the studies specifically focus on the poverty and food crisis in our chosen countries, which are Ethiopia, Kenya and Mozambique.

1.4 LITERATURE SURVEY ON POVERTY AND FOOD CRISIS IN ETHIOPIA, KENYA AND MOZAMBIQUE

For Ethiopia, Kenya and Mozambique, the useful studies denote the ideas and expressions as follows:

In Dercon (1999, p. 8), Ethiopia is defined as one of the poorest countries in the world with high levels of rural poverty and vulnerability. Also dependency rates are high and most of the poor depend on agriculture for their livelihood. In Ethiopia, poverty is closely linked with the lack of human, physical and social capital.

Bogale, Hagedorn and Korf (2005, p. 101), define the rural poverty in Ethiopia is mostly dependent on lack of household resource endowments to land, human capital and oxen. This paper also suggests that the poverty reduction policies could be effective with geographic targeting and gender policies by supporting female headed households.

Enquobahrie (2004, p. 26) suggests that for a poverty reduction in rural and urban levels

in Ethiopia, policies should include the disparities in access to resources, productive assets, services and investment in human capital, institutional weaknesses to delivering services to the poor, participatory development and decentralization, inflexibilities of policies both for rural and urban land policies and development strategies, involvement of the poor people in development initiatives and social organizations.

In Geda et al. (2005, p. 14), the poverty in Kenya on the household level in both urban and rural regions of the country is defined to be mostly dependent on the level of education, household size and the engagement in agricultural activity. Investing in agricultural sector and increasing productivity is crucial for reducing poverty. Educational levels are very low and primary education and female education is very important for reducing poverty levels especially in rural areas.

According to Simler et al. (2004, p. xii), the poverty reduction strategies for Mozambique both for the urban and rural level should include increased level of investment in education, sustained economic growth, investments in agriculture and agricultural productivity increases, improvement in infrastructure in rural areas and reduction the numbers of the dependent people in households.

Fox, Bardasi and Van den Broeck (2005, p. 1), explain that, in Mozambique's urban and rural areas, poverty levels decreased between 1996-1997 and 2002-2003 due to the income growths in both agricultural and non agricultural sectors. Reasons for this decline in poverty are that inequality didn't change in high levels and aggregate growth in consumption reached households who are poor and increased their consumptions.

In addition to the studies above, periodical reports on global food markets prepared by FAO, yearly Human Development Reports United Nations Development Program, Multidimensional Poverty Index information prepared by Oxford Poverty and Human

Development Initiative, yearly World Development Indicators prepared by World Bank would be valuable for the purpose of this study.

We should continue with analyzing the poverty concept and its aspects, because poverty is one of the most important aspects of the high food prices.

1.5 POVERTY ANALYSIS

The aim of this study is to realize the recent trends of poverty and food price indicators, observe the relationship between recently rising food prices and poverty especially for some African countries and develop some political analysis and solutions in order to reduce the effect of poverty through rising food prices in these countries.

In order to understand the purpose of the study clearly, we should start with some definitions that will be appear in the following sections of the study.

In general, poverty is a condition in which people can not satisfy their basic needs. It is has many dimensions and usually defined as lack of well being. Poverty concept by World Bank (2000) is defined by Haughton and Khandker (2009, p.2) as deprivation in well being. Poverty includes low incomes and the inability of people to purchase the basic goods and services which are inevitable for survival. Poverty concept also includes low levels of health, education, access to clean water, medical services and sanitation, lack of self confidence, sense of powerlessness, physical security and voice, absence of rights such as freedom of speech, insufficient key capacity and opportunity to better one's life. Viewed in this way, poverty can be considered as a multidimensional concept. In the following parts of this study, we will use Multidimensional Poverty Index to understand the poverty levels.

Poverty is usually measured as absolute poverty and relative poverty:

Absolute poverty can be called as the minimum level of consumption for people in order to survive. It defines the minimal requirements which are inevitable to purchase and afford minimal standards of food, clothing, health care and shelter. Relative poverty can be defined as the condition in which some of the people in the society are below the average well being level of that society. By this definition, people who have incomes and expenditures less than the average of the income and expenditures of the society are called relatively poor. ¹

Other important aspects of poverty are hunger, malnutrition, undernourishment and under nutrition. Hunger can be defined as a status of the human body that has lack of food in a certain time and needs to have some food immediately. Malnutrition is the condition in which a person can't maintain his normal body activities such as physical movements (walking, running, talking and so on), understanding and learning, recovering from an illness, maintaining pregnancy status, being able to lactate and so on. Undernourishment concept is usually stands for the nutrition level of people which has lack of enough calories in order to satisfy their minimal physiological needs. It is a measure of abilities of countries to have access to food. Undernutrition is a concept which defines the long term low levels of food consumption according to FAO. It usually refers to the energy, protein, vitamin and mineral deficiencies. ²

When analyzing poverty trends, it would be reasonable to mention about inequality and vulnerability besides the concepts above.

Inequality includes the analysis of the efficient distribution of concepts which are crucial for the poverty analysis, which is our case, such as consumption and income among the whole

¹For further information about Absolute and Relative Poverty, please visit the web site of World Bank, <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPA/0,,contentMDK:20242879~menuPK:435055~pagePK:148956~piPK:216618~theSitePK:430367,00.html>

² For further information about Hunger, Malnutrition, Undernourishment and Under Nutrition, please visit the web site of Hunger Glossary of World Food Program, <http://www.wfp.org/hunger/glossary>

population. When analyzing poverty, the examination of inequality is a must if people think and believe that the welfare of individuals of the society they live in depends on the economic position (welfare, income and consumption levels) of others. Vulnerability concept, just like the inequality, can have many dimensions according to the research area. In the poverty analysis, vulnerability can be defined as the probability and the risk of being poor in the future even if the person is not poor in the present time. This concept is usually related and studied with the effects of climate and weather shocks such as droughts and floods which can easily affect the agricultural production volumes, price crisis such as a sharp decrease in agricultural products price, financial crisis, and so on. Vulnerability concept is very crucial in analyzing and understanding the production and investment tendencies, and developing policy recommendations, solutions and strategies against poverty.

The last two concepts, inequality and vulnerability, are not the exact same thing with poverty but they are related to the poverty analysis.³

In order to understand the relation between to food price changes and poverty structure of the chosen African countries above, causes of poverty should be examined in detail.

1.5.1 The Causes of Poverty

Poverty can be a result of many different structures in a country. The causes of poverty are not necessarily the same for all countries. So in order to understand the poverty structure of the countries, each country should be examined specifically.

Poverty can have regional (country base), community, household and individual conditions depending on the analysis.

³ For further information about Inequality and Vulnerability, please look at Haughton, J. and Khandker, S.R., 2009., p. 3, Handbook on Poverty and Inequality, The World Bank, Washington DC

1.5.1.1 Poverty at Regional Level: Regional poverty can be considered as country wide poverty condition which is mostly exist due to geographical characteristics, climate conditions and government actions.

Having hard conditions to access the markets due to regional isolation from the other markets is a very important cause of regional poverty. Because, being far away from the markets makes the prices fall, producers obtain lower incomes and transportation costs increase. Also, lack of available and high quality land and low level of mine resources can be considered as geographical characteristics.

Moreover, bad climate conditions such as periodical floods and droughts which directly affect the agricultural production level and unexpected hurricanes can increase poverty level especially for the economies which are mostly based on agricultural production because these climate conditions can easily destroy most part of the produced goods and stocks of agricultural goods.

In addition to these reasons, activities of governments directly affect the poverty conditions. Low levels of infrastructure and public services, inadequate communication technologies and environmental politics, lack of security and ineffective justice system, markets that are not efficient and developed enough due to political, economic and market instability can be counted as the main determinants of regional poverty on country base.

Moreover, social structure of the society is very important characteristic of regional poverty. Inequality among people who have different ethnics, races and gender is a very crucial reason for poverty. For instance, in some societies, women and some people from different races have some difficulties to get a job because of the social division norms and beliefs of the society that they live in.

The causes of regional poverty mentioned above require political and institutional efforts

and reforms to be reversed. Poverty reduction strategies should be developed with taking political, institutional and social structures of the society into consideration with effective governance and management strategies.

There are different poverty levels as following:

1.5.1.2 Poverty at Community Level: Poverty at community level is highly related to the infrastructure and social capital.

The availability of paved roads for easier access, electricity, effective education and medical opportunities in the area, being close to the big markets, local administrative centers and employment areas, high social mobility and effective land distribution are very crucial for defining poverty at the community level.

In addition to these mentioned above, existence of social networks and institutions have gained importance. For a reduced poverty level in a community, removing social barriers and making the social institutions increase actions for poor people is a requirement. Social institutions can be defined as local networks and organizations for poor people. These kinds of networks are important for analyzing the basic needs of the poor and they have a crucial role for increasing the protection of the needs of them. They are also helpful for reducing the poverty level and increasing mutual trust to the community. For example, a close relationship with other traders for a poor producer can create less transaction costs and more secure trading atmosphere. These social organizations can be considered as an important aspect of the social capital which is a dimension of development.

According to World Bank, social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence

shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together.⁴

Social capital is actually coming from the socio-political theory and a sociological concept which identifies the function of social relationships and cooperation between individuals and groups in order to obtain benefits in an economic or collective action. Social capital can be defined narrowly and broadly. In a narrow view, social capital can be considered as social capabilities of an individual such as social problem and conflict solving, ability for cooperation and behave respectively. A broader view of the social capital is the ability for coordination and collective action among families and local communities for being successful at the mutual aims and obtaining mutual benefits for development. A macro view of the social capital includes social and political point of view that shapes and organizes social and institutional structures which are the main determinants of economic development. The conditions of the institutions such as government, rules of law, regime of the country have important effects on the economic development and changing the poverty levels. These views of social capital from narrow to macro are complements and supportive to each other for economic development.

1.5.1.3 Poverty at Household and Individual Level: The determinants of poverty at the household and individual level will be examined below.

First of all, the size and the structure of the household is a major determinant of poverty. Because, many observations have shown that the size and structure of the households which are poor and not poor are very different from each other. In general, poor families are in a tendency to be the more crowded than others which are slightly richer. Also, the poor households have

⁴ For further information about Social Capital, please visit World Bank's website, <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTTSOCIALCAPITAL/0,,contentMDK:20185164~menuPK:418217~pagePK:148956~piPK:216618~theSitePK:401015,00.html>

more children under age 15 and less elder members over age 60. However, better off families have less children under age 15 than the poor households and usually headed by an elder member over age 60.

Another determinant of poverty at the household level is the dependency ratio. The dependency ratio is important because it shows the approximate ratio of people economically inactive (net consumers) to economically active (net producers). If the dependency ratio of a household is greater, it means greater poverty for that household. This logic should be taken into consideration when comparing the countries according to their dependency ratios. The greater dependency ratio is also important for the government because more expenditure by government is desired. Also, the government expenditures on health, education, social security and so on are mostly used by the people who are economically inactive. So, more government spending will turn into taxes that are collected from the people who are economically active. In the calculation of the dependency ratio, it is assumed that people under age 15 and over age 65 are economically dependent. Also, people who are between the ages of 15-64 are assumed to be economically independent and active. Of course there could be exceptions according to the norms, life standards and income levels of the households who live in different societies. If the exact number of the estimates (number of people who are economically inactive and who are economically active) is available, then more precise results can be obtained. Dependency ratio indicates the effects of changes in population age conditions for economic and social development.

$$\textbf{Dependency Ratio} = [(\text{Population (0-14)} + \text{Population (65+)}) \cdot 100] / \text{Population (15-64)} \quad \textbf{[5.1]}$$

The Child Dependency Ratio and Aged Dependency Ratio can be obtained from the Total Dependency Ratio which is formulated above.

$$\textbf{Child Dependency Ratio} = [\text{Population (0-14)} \cdot 100] / \text{Population (15-64)} \quad \textbf{[5.2]}$$

$$\textbf{Aged Dependency Ratio} = [\text{Population (65+)} \cdot 100] / \text{Population (15-64)} \quad \textbf{[5.3]}$$

In order to understand the dependency ratio issue better, it would be reasonable to talk about some statistics. According to World Bank database, in 2010, dependency ratio was 95 for Afghanistan, 51 for Germany, 50 for US and 48 for Australia. Germany, Australia and United States are developed countries in comparison to Afghanistan, so their dependency ratios are very lower than the Afghanistan's. The dependency ratio was 81 for Ethiopia, 82 for Kenya and 90 for Mozambique in 2010.⁵

Another determinant which affects poverty is the gender of the head of the household. It is widely seen that the households with women heads are poorer than the others. Because, in many cases, women face a high level of discrimination and so they tend to have less equal standards of employment and income paid, lower literacy ratio, less access to land and so production opportunities. The social norms and point of view for women in a society shapes the opportunities that women could have to fight against poverty. However, in some cases, poverty rates of the households that are headed by women wouldn't necessarily be higher than the households that are headed by men because of the social and historical aspects of the society. For example, if a war had existed in the recent times, then the number of women headed households and their inevitable participation to labor force could increase.

The size of the household, the dependency ratio and the gender of the head of the household are the determinants of poverty which have demographic characteristics. There are also economic characteristics that affect poverty besides income, which has a direct effect of poverty, such as employment status of households and properties that the households have.

The employment status of the households include the questions of how many individuals are employed in the household, how many jobs do they have, how many hours do they work (do they have a part-time job or a full-time job), how often do they change their jobs and so on. The answers of these questions can all affect the poverty at the household level.

⁵ For further information about dependency ratio statistics, please visit the World Bank website, <http://data.worldbank.org/indicator/SP.POP.DPND>

Moreover, the properties such as land, buildings, machineries and agricultural production equipments, household stuff and miscellaneous, other inventories, assets such as savings in the form of money, stocks and bonds of the household which affect the wealth are the other determinants of poverty at the household level. However, there could be some problems in identifying poverty by looking at the property of the household. The declaration of wealth and the measurement of the values of some inventories can be problematic. Also, identifying the depreciation of the goods could also be problematic because of the variable life spans of the assets and different acquisition times of the assets in every household.⁶

Besides the demographic and economic characteristics, there are some social characteristics in determining the poverty, just like Piachaud (2002, p. 12) and Ames et al. (2001, p. 2) suggest. The determination of the social characteristics is widely analyzed by looking at the health, education and shelter status of the households.

For the health status, the important indicators are the nutrition and disease conditions with taking the infant and juvenile mortality into consideration, availability for access to health services and usage of these services by the poor households and the households that are not poor.

For the education status, educational level of the households (literacy rates, number of schooling years and so on), availability of the education opportunities (available primary and secondary schools in the area) and usage of these educational services by the poor and non poor households is important. Also, in the international statistics, the average expenditure for the education per child is another determinant for poverty analysis.

Shelter status includes the standards of size and sort of the building that is lived in, the ownership and rental condition of the house, availability of the electricity, drinking water,

⁶ For further information about the Causes of Poverty, please look at Haughton, J. and Khandker, S.R., 2009., p. 145-159 Handbook on Poverty and Inequality, The World Bank, Washington DC

communication technologies and energy resources, transportation, paved roads and so on for the poverty analysis.

After analyzing the poverty concept and its aspects, the data and statistics that are used in this study are examined below.

1.6 DATA AND STATISTICS

The information of the data and statistics that are used in the study is as follows in order of appearance:

Dependency ratio statistics is taken from World Bank database for the year of 2010 and for the countries of Afghanistan, Australia, Ethiopia, Germany, Kenya, Mozambique and United States.

The Food Price Index prepared by FAO includes the average prices of 5 commodity groups (Meat, Dairy, Cereals, Oil and Fat, Sugar), and weighted with the average export shares of each commodity groups for 2002-2004. There are totally 55 commodity quotations that are considered by FAO commodity specialists which reflect the international prices of the food commodities.

Meat Price Index is also prepared by FAO which is calculated from average price of four types of meat and weighted by world average export trade shares for 2002-2004. Quotations consist of two poultry products, three bovine meat products, three pig meat products and one ovine meat product. If there are more than one quotation exist for a given meat type, they are weighted by fixed trade shares which are assumed. Prices belong to the most recent two months may be estimates and subject to revision.

Dairy Price Index includes butter, SMP, WMP, cheese, casein price quotations, the average of these prices is weighted by the average export trade shares of the worlds for 2002-2004.

Cereals Price Index includes grains and rice price indices and weighted by their average trade shares for 2002-2004. The Grain Price Index includes the International Grains Council wheat price indexes with the average of 9 different wheat price quotations and 1 maize export quotation, after reflecting the maize price into its index and converting the base of the International Grains Council Index to 2002-2004. The Rice Price Index includes 3 components with average prices of 16 rice quotations; the components are Indica, Japonica and Aromatic rice varieties and the weights for combining the three components which are assumed fixed trade shares of the three varieties.

Oil and Fat Price Index includes the average of 11 different oils with the inclusion of animal and fish oils, and weighted by the average export trade shares of each oils for 2002-2004.

Sugar Price Index uses the International Sugar Agreement prices for 2002-2004 as its base.

In this study, we use the data of Food, Meat, Dairy, Cereals, Oils and Fat and Sugar Price Indexes for the years between 1990 and 2011.

Cereal, Wheat, Coarse Grain and Rice World Stock to Use Ratios' data, reflecting the amounts as percentages and covering the years between 2001 and 2011, is taken from FAO, from the section of Cereal Supply and Demand Brief Data.

Agriculture Commodity Price Index, Food Price Index, Grain Price Index data is taken from the World Bank Commodity Price Data, covers the years between 2001 and 2011 and uses the values of the year 2005 as the base. The data is also in current US dollar terms. Grain Price index includes the price data for maize, barley, rice, sorghum and wheat. Food Price Index data

includes cereals with rice, wheat, maize and barley, and vegetable oils and meals, other foods such as bananas, fish meal, meat, oranges, sugar, shrimp, some beverages such as coffee, tea and cocoa and agricultural raw materials. Agricultural Price Index covers all of these above.

All the information about production, supply and trade values for cereals including wheat, coarse grain and rice is taken from FAO, Cereal Supply and Demand Brief Data Section. All the values are in millions of tonnes. The data covers the years between 2001 and 2011.

Trade Weighted Dollar Index data is taken from OANDA. Trade Weighted Dollar Index reflects the FRB Atlanta trade-weighted dollar index which is a summary statistic for tracking and analyzing the foreign exchange movements of the U.S. dollar. Trade Weighted Dollar Index consists of the value of the United States Dollar against some major currencies of countries such as European countries with a bigger weight with Euro, Canada, Japan, Mexico, China, United Kingdom, Taiwan, Korea, Singapore, Hong Kong, Malaysia, Brazil, Switzerland, Thailand, Philippines, Australia, Indonesia, India, Israel, Saudi Arabia, Russia, Sweden, Argentina, Venezuela, Chile and Columbia. The index is calculated for the geometrical mean of the bilateral exchange rates of the included currencies. The weight which is considered to be the value of each currency in this calculation is based on the trade data. The data we used belongs to the years between 2003 and 2011.

Energy Price Index data is taken from World Bank Commodity Price Data and uses the values of 2005 as the base. The values are in current US dollar terms and including the price data for coal, crude oil and natural gas. The data covers the years between 1990 and 2011.

Fertilizer Price Index data is taken from World Bank Commodity Price Data and uses the values of 2005 as the base. The values are in current US dollar terms and including the prices of the fertilizers including diammonium phosphate, phosphate rock, potassium chloride, triple super phosphate and urea. The data covers the years between 1990 and 2011.

Total bio fuels, biodiesel and ethanol consumption and production data is taken from the International Energy Statistics of US Energy Information Administration. The data reflects the values in thousand barrels per day. The data covers the years between 2000 and 2010.

Energy, Agricultural Commodity and Metals&Minerals Prices Index data is taken from World Bank Commodity Price Data. The data is in terms of current US dollar terms and take the values of 2005 as the base. It covers the years between 2000 and 2011.

In the poverty analysis of our three chosen countries, we use Multidimensional Poverty Index (MPI) and some additional information. Multidimensional Poverty Index data is taken from Oxford Poverty and Human Development Initiative and World Development Indicators of World Bank. Multidimensional Poverty Index points out a person's living standards, educational status and health conditions at individual level. In our study, we use 2011 MPI data and other additional data. In addition, the data belongs 2005 for Ethiopia, 2009 for Kenya and Mozambique. MPI has three dimensions and these three dimensions consist of ten different aspects such as Years of Schooling and School Attendance in Education dimension (each is equally weighted at 1/6), Child Mortality and Nutrition in Health dimension (each is equally weighted at 1/6), Electricity, Drinking Water, Sanitation, Flooring, Cooking Fuel, Assets in Living Standards dimension (each is equally weighted at 1/18). In the MPI calculations, a person is considered as multi dimensionally poor if that person doesn't have one third or more of these dimensions. Multidimensional poverty is calculated by multiplying Incidence of Poverty and Average Intensity across the Poor. In order to understand what these concepts mean, we can continue with some definitions here. Incidence of Poverty or headcount ratio (H) concept identifies the proportion of population that is multi dimensionally poor. Average Intensity Across the Poor (A) means that the average intensity of the poor people's poverty. In other words, it reflects the average proportion of aspects and indicators that poor people are deprived. People who are considered as to be 'Vulnerable to Poverty' are the ones who are deprived in 20-30% of weighted indicators. People who are considered to be MPI poor are the ones who are deprived in

at least 33% of weighted indicators. Finally, people who are considered to be in ‘Severe Poverty’ are the ones who are deprived in over 50%.

Percentage of Population Live Under \$1.25 a day, Percentage of Population Live Under \$2 a day, National Poverty Line Statistics for Ethiopia, Kenya and Mozambique for 2011 data is taken from World Development Indicators of World Bank and Oxford Poverty and Human Development Initiative. The data belongs 2005 for Ethiopia and Kenya, 2009 for Mozambique.

Human Development Index of 2011 which is an indicator that includes three dimensions of human development which are a long and healthy life, knowledge and decent standard of living. Life Expectancy at Birth values which implies the number of years that an infant can expect to live if the patterns of age specific mortality rates at the time of birth don’t change during infant’s life. Mean Years of Schooling which indicates the average number of years of education that aged 25 or older people have, converted from education attainment levels using official durations of each level. Expected Years of Schooling which indicates the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age specific enrolment rates persist during the child’s life. GNI per capita reflects the income of economy created by production and its ownership of production factors, less the incomes paid for the usage of production factors obtained from rest of the world, converted to international dollars using purchasing power parity and divided by midyear population. Non income HDI which indicates the HDI value computed from only life expectancy and education indicators. Human Development Index Statistics for Ethiopia, Kenya and Mozambique for 2011 is taken from the 2011 Human Development Report.

Changes in HDI between 2000 and 2011 for Ethiopia, Kenya and Mozambique reflect the data changes between 2000 and 2011 and the data is taken from the Human Development Report 2011.

Population, Food Consumption and Number of Undernourished People for our

chosen countries from 1990 to 2008 which is the most recent year is taken from FAO.

Global Hunger Index statistics for Ethiopia, Kenya and Mozambique is taken from the Global Hunger Index Report 2011 and reflects the changes from 1990 to 2011.

Food Production Index data for Ethiopia, Kenya and Mozambique is taken from the database of UN. Data belongs to the years of 2000, 2005 and 2009 and takes the year 1999-2001 as base.

The import and export trade value information in terms of US dollar of our chosen countries for Food and Live Animals between the year 2006 and 2010 is taken from UN Comtrade Database.

Top Exported and Imported Food and Live Animal Commodities data for Ethiopia, Kenya and Mozambique between 2006 and 2010 is taken UN Comtrade Database and covers the years between 2006 and 2010.

Exchange Rates of Ethiopian Birr, Kenyan Shilling and Mozambique New Metical Against US Dollars from 2000 to 2009 data is taken from UN Database.

After looking at the entire concepts and aspects of our study, now we can start with the commodity prices topic.

CHAPTER 2

MACROECONOMIC DETERMINANTS OF THE COMMODITY PRICE CYCLES

We should start with focusing on the main determinants of this study, which is the case of rising food prices especially in some African countries results in poverty. However, before analyzing the reasons and results of the recent food price changes, we should look at the theoretical background and macroeconomic determinants of the commodity price cycles. This topic would be helpful to understand the main trends and fluctuations of the food prices in a theoretical manner.

In order to develop effective policies, it is important to understand the movements of the commodity prices in the shape of cycles or long term trends. Because, the rising prices of the commodities and the food can create some political and economical instabilities internally and internationally. So, at this time policy makers should develop sustainable warning systems against the shocks to prevent big loss and poverty around the world.

The old studies about the commodity prices were mostly focusing on the demand conditions for explaining the commodity price behaviors. But, recently, especially after 1990s, these traditional approaches have started to be inadequate for understanding the commodity prices. (Borensztein and Reinhart, 1994, p. 236) Also, it should be stated that demand and supply factors are crucial in explaining the movements of commodity prices cycles. For the purpose of this study, we should consider all macroeconomic determinants of the commodity price cycles.

It is argued that the growing economies create more income and demand which affects

the commodity prices. In reality, economies that have been emerging and that have growing GDPs recently, such as China and India have started to create bigger demands because of their rising incomes. So, the differences between supply and demand levels create price volatilities. For our study, it is important to point out that, besides other commodities, the demands for the luxurious food items such as meat that in large part is produced by feeding grain to livestock have risen because of the emerging markets' increased income.

Moreover, monetary policies implemented by the central banks are important for price movements. If there is more liquidity in the market, more pressure occurs for the prices to increase. At first, when the amount of money is increased, interest rate will decrease. Then, investment and consumption will increase due to the interest rate fall. So, when investment and consumption tendencies are increased, if policy makers don't apply any policy against this situation, price expectations will increase so the prices and wages will go up due to the shift of negatively sloped Aggregate Demand Curve to the right. This will lead contractionary monetary policies by increasing interest rates gradually applied by the central banks. As the supply of money is decreased due to the contractionary monetary policy, interest rate will increase, so investment and consumption tendencies will decrease. This means that negatively sloped Aggregate Demand Curve will shift to the left and prices will go down. The main point here, the economic policy makers should be aware of the impacts of the policies that they apply, because monetary policies (either expansionary or contractionary) are so related to the price movements through interest rate channel, just like Frankel (2006, p. 5) suggests.

Competition standards of the economy can affect the price levels of the commodities. For example, if there are special agreements between a few big industrial companies, the usage of special price indexes as a result of this cooperation in the competition conditions can easily determine and affect the price level. Also, political, economic and market environment is an important determinant of price formations. If there are political or economic instabilities (so market instabilities), production levels can be in a tendency of declining and the prices can easily

increase. Besides these, the production technologies are directly related with the commodity supply levels. Technology level of a country with the consideration of trade factors is also a crucial determinant of export and import levels of that country through the supply channel. In addition, transportation cost for the producers is another determinant of the commodity price changes. If there are high transportation costs of commodities from producer to markets, the prices of the commodities can easily rise. Also, non competitive market activities can shape the price standards. Again, weather conditions (periodical or non periodical floods, storms, droughts and so on) are crucial especially for agricultural production volumes which can be considered as one of the main determinant of price levels. Moreover, policies and restrictive rules can affect the supply levels in an economy so price levels can change. For example, in order to maintain the environmental protection, more agricultural production or more mine extraction can be restricted by the authorities and that means the low levels of supply and high levels of prices. Thus, emerging markets issue becomes important here again. If there are excessively strong incentives to increase the profits to very high levels, the growth of the emerging markets by using the natural resources at a high level, even wasting should be controlled because, in this case, if nothing's done, the economic policies against high commodity prices can easily be considered as meaningless.

With a similar insight, there are four real variables that affect the commodity prices. These variables are the real interest rate, risk and uncertainty, global demand with the growth of real GDP of big economies and the oil prices in real terms from the supply side. In the study of Byrne, Fazio and Fiess (2011, p. 23) it stated that real commodity prices are negatively correlated with the risk and return. In the same study, real commodity prices are considered to be positively related with the economic growth of USA and oil prices in real terms. In this study, it is pointed out that there is a negative relation between the commodity prices and risk and uncertainty besides the effect of risk and uncertainty on the commodity prices is considered immediate. The study supports the idea of commodity prices are temporarily affected by the interest rate as a

result of a negative relation. Moreover, it is pointed out that the effect of risk and return has a greater impact on commodity prices than supply and demand shocks.

Another determinant of commodity prices is exchange rate. The important part of this topic is the commodity prices in currencies. It is obvious that commodity prices (especially non-oil commodities) are affected by dollar exchange rate besides inflation and real changes. When analyzing some statistics which we will mention later in this section, the change in the value of the dollar against other major currencies is directly related to the cycles of the commodity prices. Usually, when dollar depreciates, commodity prices are in a tendency of increasing and when dollar appreciates, commodity prices start to go down. So, the existing relationship between the prices of commodities in dollars and prices of currencies in dollars is not unusual. Also, monetary policies should be considered in this case again because when the monetary policy of US is easy, dollar starts to depreciate and dollar commodity prices are increased just like in the late 1970's and the early 1990's. When monetary policy is started to be contractionary, dollar starts to appreciate and dollar commodity prices are decreased as in the early 1980's and the late 1990's. Moreover, the inflation which makes a currency less valuable affects commodity prices for increasing. Again, disinflation should be expected to decrease the commodity prices.

However, while analyzing the exchange rate and commodity prices relation we should be aware that there may not be a necessary causal relationship between the exchange rates and the commodity cycles. Factors that affect the exchange rates and value of dollar can also cause the commodity cycles. The change in the value of the dollar can easily affect real terms and the factors that affect the appreciation or depreciation of dollar can also cause commodity cycles. For example, a great productivity growth and appreciation in dollar cause commodity prices to decrease. However, the effect of the exchange rates on the commodity prices can be considerable in the short term. In the long term the exchange rate effects don't matter very much. Also, a floating exchange rate system can be considered as a shock absorber as Mundell (2003) suggests. Because, in a fixed exchange rate system, the central banks order the fund flows through

purchasing net inflow of funds into the country or giving foreign currency to the foreign exchange markets to be even with the international outflow of funds. By doing this, fund flows are prevented to be affected from the exchange rate between the country's currency and any other currencies. In fixed exchange rate exercise, balance of payment surplus or deficit is the net change in the central banks' foreign exchange reserves. However, floating exchange rate system in which exchange rate changes is allowed up to a certain level or totally allowed, the central banks don't have any intervention to exchange rate for protecting the value of its currencies or devaluating them. In this exercise, the foreign exchange reserves of the central banks don't change at all.

Exchange rates are highly correlated with the inflation and interest rates. Central banks have and influence over exchange rates and inflation intervening and changing the interest rates. Any increase in the interest rates affects foreign capital and makes them to come into country, and then exchange rate starts to increase. However, the influence of the interest rate is mitigated if there is any factor which leads the currency of the country goes down such as higher inflation in the country than the other countries. Of course, the decrease in the interest rate creates a tendency for exchange rates to go down.

As we know that the current account is one of the two primary determinants of the Balance of Payments and it defines the balance of trade between a country and its trading partners for goods and services. If there is a deficit in current account, it means that the country's expenditures on the foreign goods and services are more than it receives. If this is the case, the country should borrow foreign capital to reduce the deficit level. The excess demand for foreign currency makes the country's exchange rate decrease until the domestic goods and services are cheap enough for foreigners and foreign goods and services are very expensive to create sales for domestic interest. That can explain the effect of exchange rates on commodity prices. So, floating exchange rate system which is mentioned above can be a good application for the commodity price shocks because of these reasons. However, this may not be the case for the highly

dollarized economies. Also balance sheet effects usually limit the exchange rate flexibilities. It is observed that the exporter countries which prevent the corruption of the fiscal and external positions have been in a better situation in a bust period. A better fiscal capability might help a country to reduce a commodity price shock effect.

For additional information, we would be better if we know that when the currency of a country appreciates against US dollar, Euro or any other currencies, it means that this country's exports will probably decrease due to its appreciated currency. When the export level decreases, the terms of trade ($\text{Price Exports} / \text{Price Imports}$) will also decrease. The terms of trade can also be explained as the quantity of imports that can be purchased by selling of a fixed quantity of exports. When terms of trade ratio increases, it means that more imports can be purchased for a given level of exports. This ratio is mostly explained by exchange rate because when a country's currency appreciates against other currencies, domestic prices for its imports decrease. However, the appreciation of its currency doesn't directly affect the produced commodities just like its exports and so on.

The price of exports of a country is mostly influenced by the appreciation or depreciation of its currency. If the value of a currency is increased due to an increase in the interest rate, terms of trade can also increased. However, this may not be the case because the exporters are not necessarily in a better position due to increased prices of exports for the other countries. Because, other countries could decrease their purchase due to increased prices so the export volumes of the country can easily decrease. So, it is an undesirable condition for a commodity exporting country.

In a broad view, the main characteristic of commodity prices is their cyclical behavior. These cycles are crucial especially developing countries which are commodity exporters. Because, the commodity price cycles directly affect the revenues that are obtained from the commodity exports. In the study of Cashin et al. (2002, p. 292), there are some result found about

the commodity price booms and busts. It is observed that the duration of the busts exceeds the duration of the booms by nearly a year. Also, the amount of price decrease in a bust is found to be higher than the amount of the price rebounds in a boom. But, in the booms the rate of change in prices is faster than the rate of change in the busts. Moreover, there is no relationship between the duration of a boom and a bust with their probability of ending. Their duration and probability of ending is independent of time. In addition, there is not enough evidence for mentioning about a consistent shape of a commodity price cycle. Because the importance of price booms and busts is unrelated to their duration. These characteristics should be considered especially for commodity dependent economies for preparing stabilization policies.

In a global concern, generally it can be summarized that the recent developments in economic growth patterns and financial stabilities of the countries are the main determinants of the commodity price cycles, according to Adler and Sosa (2011, p. 26).

After examining the macroeconomic determinants of the commodity cycles in a theoretical manner, understanding the reasons for fluctuations of the world food price cycles would be easier. Before examining the reasons of the food price changes, it is reasonable to look at the overview of the recent food price changes.

CHAPTER 3

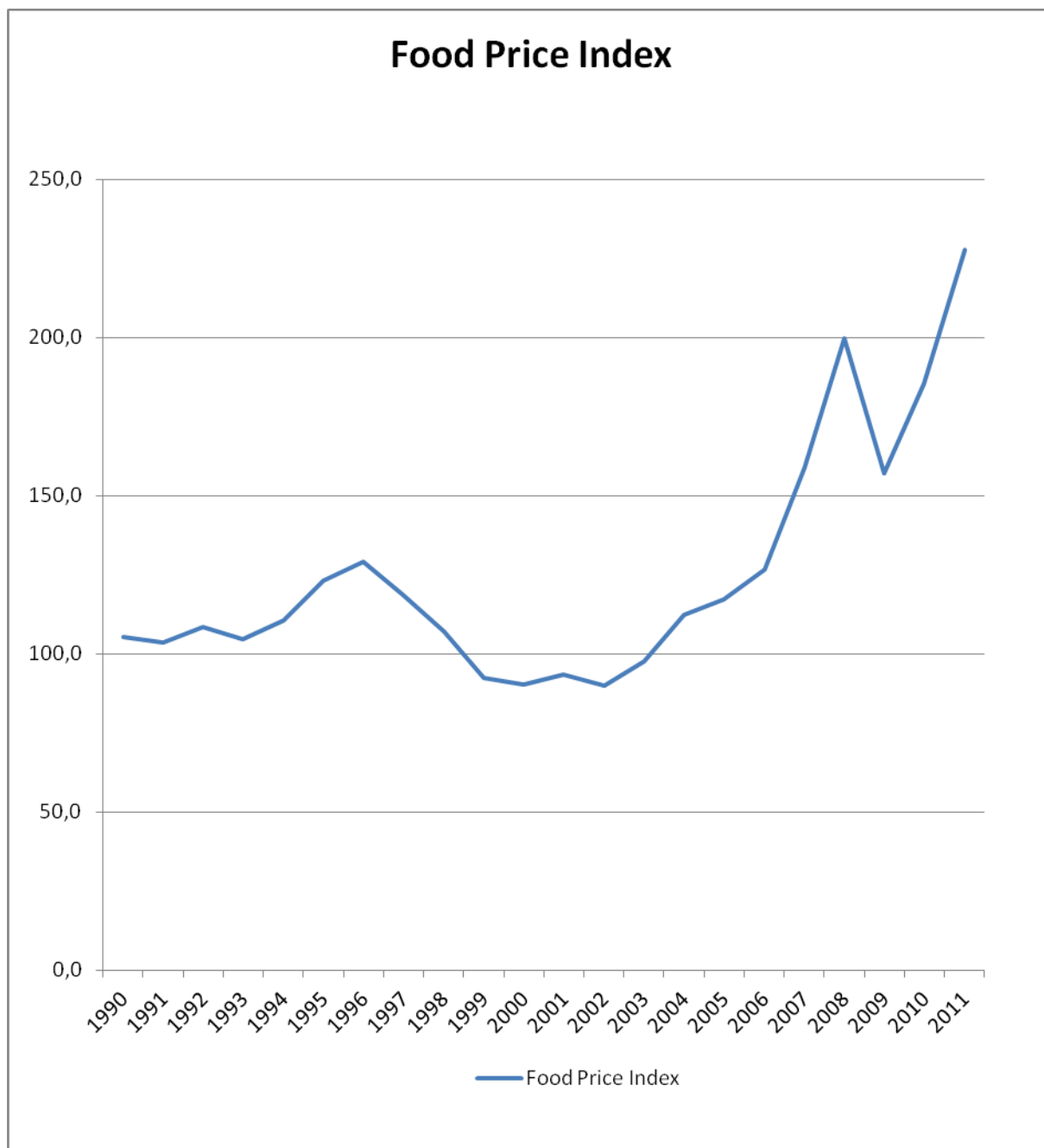
FOOD PRICE CHANGES

3.1 AN OVERVIEW OF THE RECENT FOOD PRICE CHANGES

Recently, the global food prices have started to be volatile. One of the main arguments of the high food prices is the poverty. Especially in less developed countries around the world, high food prices leads to the poverty level to increase. The main reason of this condition is the case that the people in the poor countries have to allocate most of their incomes for the food. So, when the food prices increase, poor people who have barely purchase daily food become poorer. The main changes in the food prices can be viewed from the graphs below.

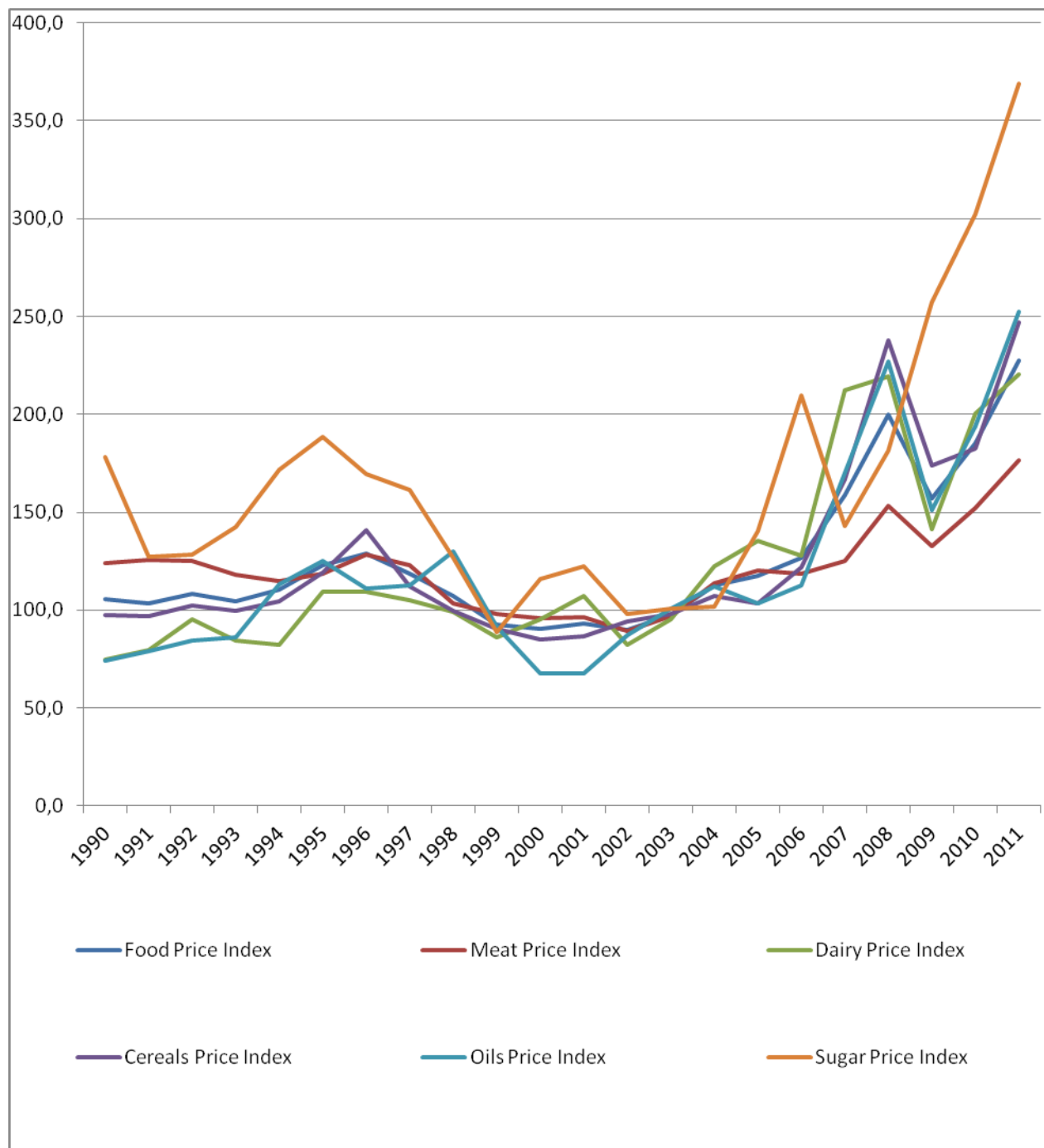
When taking the values from 2002 to 2004 as the base, annual changes of the food prices according to the values between 2002 and 2004 are shown in the Food Price Index Graph (Graph 3.1). As the most important progress, in 2008, a food crisis made a peak point of the food prices as can be seen in the graph. Then prices have become to be normal after 2008, however, they have started to be volatile and in a tendency of rising in 2010 and 2011 again.

The next graph (Graph 3.2) shows the food, meat, dairy, cereal, oil and sugar price indexes together. The base values are the price values of the years between 2002 and 2004 again. It is obvious that all of the basic food prices have been in a tendency to move nearly together. So, just like in the Food Price Index Graph, prices of the meat, dairy products, cereals, oils and sugar were higher in 2008 because of the food crisis and they have been rising in 2010 and 2011 again.



Graph 3.1: Food Price Index

Source: www.fao.org (2002-2004=100)



Graph 3.2: Food Price Index, Meat Price Index, Dairy Price Index, Cereals Price Index, Oils Price Index, Sugar Price Index

Source: www.fao.org (2002-2004=100)

After looking at the recent trends of the world food prices, the reasons for these price changes in short term and long term are analyzed in the following section.

3.2 REASONS OF THE RECENT FOOD PRICE CHANGES

Analyzing the reasons for the soaring food prices is a very crucial topic to understand because, unlike other commodities, food is necessary commodity for people to survive. So, any increase in food prices has very important impacts on the poor people around the world. As we mentioned earlier, poor people have to spend large portions of their incomes on food for their livelihoods. So, in case of any food price increase, many people are at risk of being poor because of the substitution they have to make between their food consumption and other necessities and people who are already poor are at risk of hunger and malnutrition. Especially after the food crisis occurred in 2008, concerns about the rising food prices have increased and food price expectations have remained high since then.

Before analyze the reasons in detail, making a list of the short term and long term reasons that affect the food price trends would be good.

In short term, low harvests in some exporting countries against low world cereal stocks and reserves can be a notable reason for the food price changes. It would be reasonable to say that the food stocks are at the lowest level since 1980s. This case causes the creation of speculations about the food prices. Also bad weather conditions are another short term reason for food price changes. Speculation for commodity prices occurred in financial markets by investors who look

for an option different than stocks and shares is an important reason. In addition, trade shocks including export restrictions, import surges and bad weather conditions such as droughts are noticeable. Some countries which are alarmed by the high prices have imposed taxes, minimum prices, quotas and outright bans on exports of staple foods that have supported the high world prices. In addition, decline in US dollar and low real interest rates should also be counted for the food price changes.

In long term, there are some fundamental factors in supply and demand side that affect the world prices and make them rise. On the supply side, oil prices have been a crucial reason recently. The oil prices have been in a trend of rising sharply in recent years and this situation has caused the cost of farming increase through the prices of fuel and fertilizer. In addition, high oil prices have made the food prices increase by causing cost of transport and shipping to rise.

Oil prices are also related with the demand side. When oil prices have increased, most forms of bio fuel have been started to use and compete with oil and gas, so that foods may be diverted to energy production. An expansion in the bio fuel production is expected to increase some of the food prices significantly.

The demand side includes some other aspects other than the bio fuel usage. There is a rising demand for food from rapidly growing emerging economies. On demand side, strong increase in demand especially in China and India can be counted as a main reason. When economies develop, more people become to be richer and demand higher value food. As incomes of people in these countries rise, their diets change. The consumers in these countries are now demanding higher value foods such as fish, meat, dairy, fats, fruit and vegetables. Also, they are reducing the consumption of share of grains and tubers. For instance, in the non-OECD countries, human consumption of wheat and rice will increase by just 0.8% and 1% a year between 2007 and 2016. However, an increase in consumption of feed grains of 1.5%/year to meet the demand for livestock products.

One of the most important reasons for the food price rises is the population increase in the world. It is expected to be around nine billion people in 2050s. Also, population growth causes bad climate changes and it is a fact that affects the food prices indirectly. There has been a desertification in some regions of Africa and China which causes floods and changes in precipitation conditions. This also affects the agricultural production.

In addition, productivity decline is a very important reason for the food price changes. Also falling Research & Development activities is another aspect of the low productivity.

There are a number of different reasons for the food price changes as we mentioned above. The fluctuations can be seen mostly in the international prices of cereals, particularly for the most important staple food grains, rice and wheat which are produced and consumed in Asia. The factors that affect the food prices can be identified as ‘cyclical factors’ and ‘structural factors’. The cyclical factors are considered as the short term phenomena which will weaken as the time goes but the structural factors are considered as the medium to long term factors which emphasize the situation that these high food and cereal prices will continue in the future and stay as a problem. These cyclical and structural factors can affect the food prices by raising the demand for the food products or by reducing the supply of foods.

Although they can be indicated as in a trend of little increasing from 2008, the cereal stocks in the world have been falling recently which means that the production growth of the grains stays below the consumption growth of grains. This decline in stocks is a result of these cyclical and structural factors. It also caused the market price fluctuations for rice and wheat.

In the following two sections, the cyclical and structural factors will be examined.

3.2.1 Cyclical Factors:

Cyclical factors are the factors that affect the food prices in the short run. Among the cyclical factors, we can consider the bad weather conditions, declining stocks and reserves, speculation, depreciation of US dollar, low interest rates and trade restrictions.

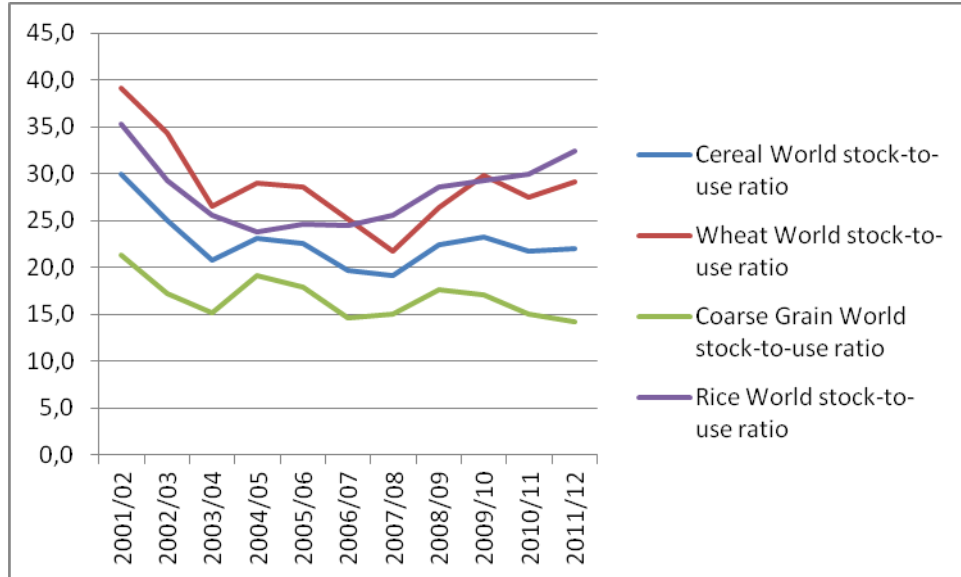
3.2.1.1 Weather Conditions

The weather conditions have reduced the level of harvests recently especially in the producer countries. For example, the wheat production in the world declined in the year of 2006 because of the drought in Australia. It decreased output around the rate of 60%. In addition, there were floods in some parts of South Asia which caused the level of harvests reduce. Again, cold weather in Viet Nam reduced the harvests especially for the rice. By looking at these examples, weather conditions can be a noticeable reason especially for the harvest levels. Low production levels can easily lead to low supply levels and high food prices.

3.2.1.2 Low Stock Levels

The total supply of the agricultural goods consists of current production and available stocks together. Agricultural stock is one of the most important indicators of food importer countries because the food stock of their food suppliers is crucial. Agricultural stock is also important for self sufficient countries for their food security. The condition of country is also important, because a country acts different according to being a basic agricultural food consumer or exporter. Exporters of the basic agricultural goods have generally been in a tendency of keeping not much stocks and reserves to their export destinations if there is a price rise expected. Also, it would be reasonable to state that at the low levels of stocks, if there small changes exist

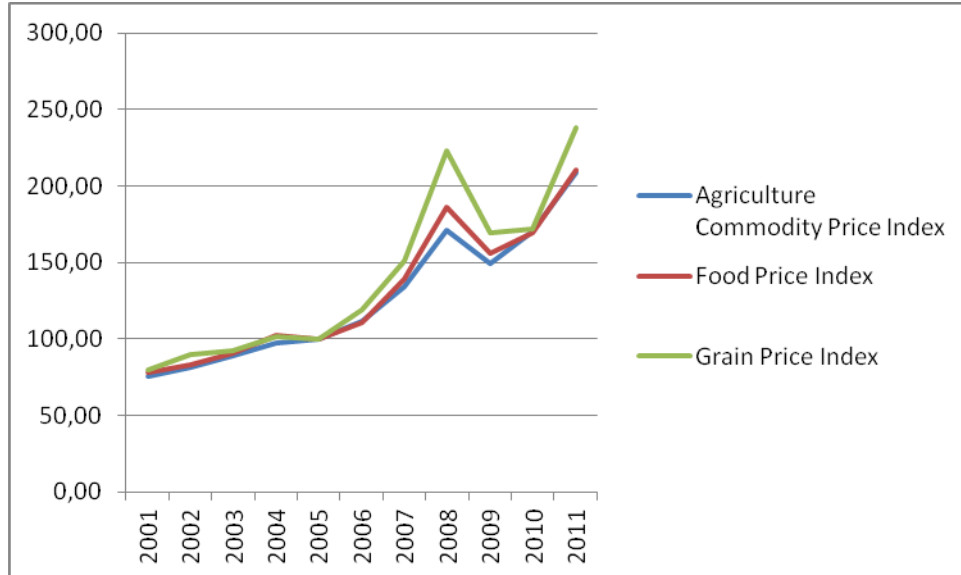
in supply, it can lead a rapid price changes. It is generally accepted by the agricultural academicians that countries should have stocks around 17-18% of their total consumption. Agricultural stocks is very important in analyzing the food crisis occurred recently, because there have been much more fluctuations is stock than in production levels. It is usually accepted by the economists that the high stocks can lead to the low food prices. It is also observed that the agricultural food stocks for basic food commodities have been in a tendency of declining in the recent years. The latest trends can be seen in the graphs below.



Graph 3.3: Cereal, Wheat, Coarse Grain and Rice World Stock to Use Ratios

Source: FAO, Cereal Supply and Demand Brief Data, Percentage Values

As it can be seen in the Graph 3.3, cereal, wheat, coarse grain and rice stocks have been in a declining trend through the early 2000s, increased between 2003 and 2004 then decline again until nearly 2007. After 2007, stocks started to increase again and after the year 2008 in which food crisis occurred stocks have started to decrease again respectively. Rice stocks have increased since 2008 and wheat stocks have increased since 2010. Coarse grain stocks have been in a tendency of declining since 2008 and cereal stocks have declined a little since 2009.



Graph 3.4: Agriculture Commodity Price Index, Food Price Index, Grain Price Index

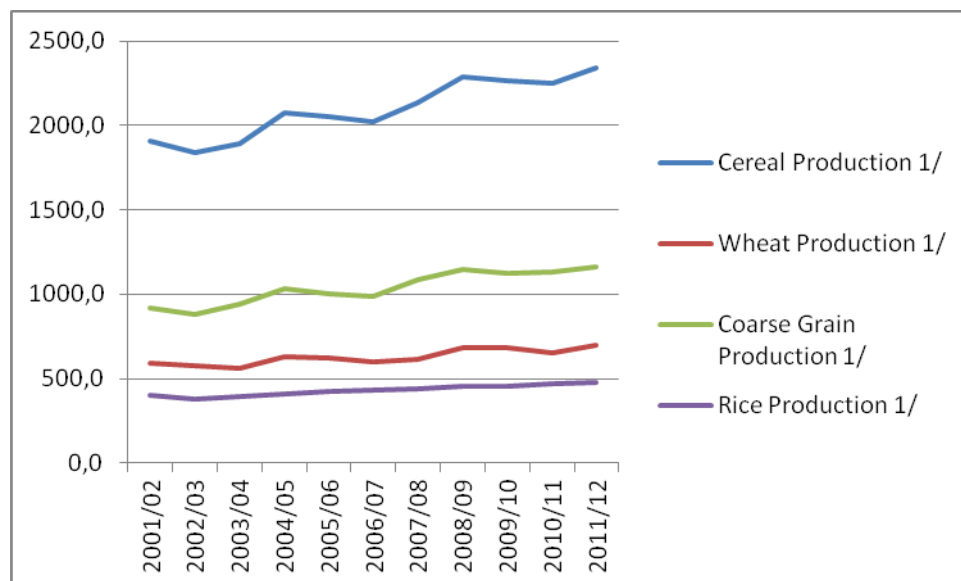
Source: World Bank Commodity Price Data, 2005=100, Current US Dollar Terms

When we compare Graph 3.3 with Graph 3.4 which shows the Agriculture Commodity Price Index, Food Price Index and Grain Price Index together, we can observe that cereal, wheat, coarse grains and rice stocks have been moving oppositely with the indices in Graph 3.4. So, it sticks with the usual case because the prices were increasing softly until 2007 as opposite of stock levels shown in Graph 3.3, then prices have had a peak in 2008 during the food crisis when the stocks were low and newly started to rise again. After 2008, the stocks have increased softly but prices have decreased relatively. Then, after a short time, stocks started to decrease again and prices started to increase till now.

It would be reasonable to search for the reasons behind the stock changes. There can be demand and production level effects which are related to other factors such as weather

conditions or bio fuel usage. Bad weather conditions and high demand levels can lead low stocks and low stocks create high food prices or vice versa. In addition, stock levels can easily be affected by the decisions of the policy makers. They can decide the level of the stocks; for example, if they think the levels are very high they might reduce it. Moreover, there is a two-way causality between food prices and the stock levels. Low food prices can lead to a tendency to hold low levels of stocks or vice versa.

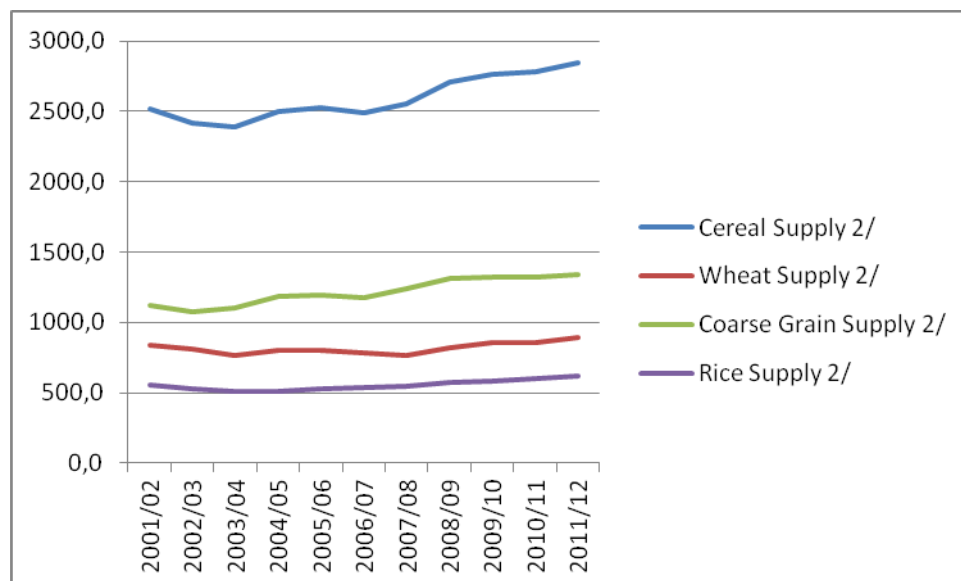
When looking at the latest trends in food stocks, it would be reasonable to say that the stocks have been decreasing recently in a broad point of view. So, recall the causality between stocks and food prices, low stocks can indirectly lead high food prices. We should say that the low stocks have been mostly affected by the other factors which are the primary causes for the food price changes. Low stocks are symptom of the crisis, rather than being an exact cause of the crisis, just as Headey and Fan (2010, p. 52) points out.



Graph 3.5: Cereal, Wheat, Coarse Grain and Rice Production

Source: FAO, Cereal Supply and Demand Brief Data, Values are in Millions of Tonnes

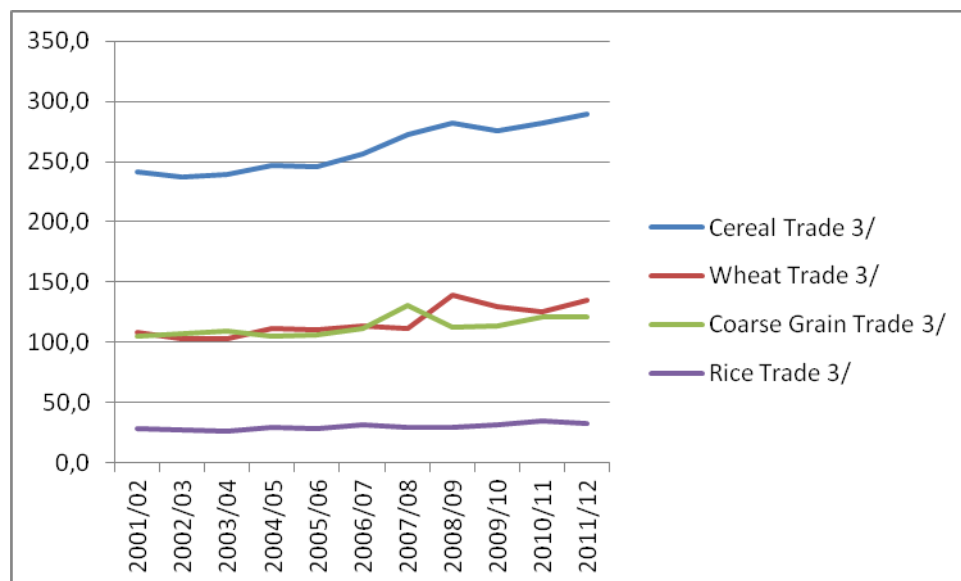
According to Graph 3.5, cereal including wheat coarse grain and rice production levels has been in a tendency of fluctuating in the same way even though the volumes are differing. From 2001 to 2011 they all have increased generally although there were small decreases in 2002 and 2006 for coarse grain, in 2003 and 2010 for wheat. Rice production has risen a little but hasn't reflected a reasonable change.



Graph 3.6: Cereal, Wheat, Coarse Grain and Rice Supply

Source: FAO, Cereal Supply and Demand Brief Data, Values are in Millions of Tonnes

According to Graph 3.6, cereal including wheat, coarse grain and rice supply levels has been in a tendency of fluctuating in the same way even though the volumes are differing just like their production levels. From 2001 to 2011 they all have increased generally although there were small decreases in 2003, and 2006 for coarse grain and in 2007 for wheat. Rice supply has increased just a little but hasn't reflected a reasonable change.



Graph 3.7: Cereal, Wheat, Coarse Grain and Rice Trade

Source: FAO, Cereal Supply and Demand Brief Data, Values are in Millions of Tonnes

According to Graph 3.7, the trade volumes of the cereal including wheat, coarse grain and rice have been in a tendency of rising from 2001 to 2011. Most of the contribution to this trade value is coming from the wheat and coarse grain although in 2007 and 2010, wheat trade decreased a little. In 2007, coarse grain trade reached its peak and started to fall in 2008 and then increased again after 2008. Rice trade hasn't reflected a reasonable change.

In addition, precautionary demand for the food stocks causes the food grain prices to increase. Some public food grain agencies and private traders have been stuffing their diminished stocks when the rice and wheat prices began to be in a trend of rising in order to get higher profits when selling them. These traders have been considered as creators of the high prices and opportunities for profits in the domestic markets in many countries including Bangladesh and the

Philippines. Also, procurement of these countries in international markets has made the global food prices increase.

3.2.1.3 Speculation

The decreasing trend in the stocks during the global crisis in 2008 has affected the speculative demand and can be considered as one of the reasons for the speculative demand which has occurred with the global financial disorder recently. Declining stocks has reduced the expected returns on bonds, equities and some other financial assets compared to the commodities. So commodities have started to be preferred instead of bonds. Also, these flows to commodities have raised the weakness in housing and property markets in some countries. After 2008, world grain stocks and utilization have been increased relatively as it can be seen in the Graph 3.3. Also we should talk about the speculation in the financial markets in this section as one of the indicator of the food price movements.

The speculation side of the food prices is crucial. For understanding the speculation aspect, we should look at the futures markets to agriculture. The futures market to agriculture is not old as the other markets than the other futures markets. The system has been including forward contracts for nearly a century. The producers and consumers of the agricultural goods make forward contracts with a specific future price in order to prevent the producers and consumers having the risk of lose in case of price changes. As time passes, forward contract which is over-the-counter financial market has become a futures contract market including forward contracts which can be traded as financial products. The system of futures market is good for producers and consumers for giving them a chance to make expectations about price movements. So, future market prices have become an indicator of spot prices.

Usually, the system of futures market seems to be efficient for the producers and

consumers. But, unlike the forward contracts, different kind of non-commercial participants who are not related to the agricultural production or distribution can participate in the futures contracts. In this case, some risky conditions including these participants can cause speculation about food price movements may happen. The value of the futures contracts can change according to the spot market and speculators can make profit on these variations by treating the futures contract as separate financial asset. Also, the main discussion can be followed in such a way that if the amount of long term future positions is increased, then it can be expected that the prices will increase in the following periods. However, it can't be considered as an exact causal relationship between the future positions and price movements. When we look at the spot prices and futures prices, we observe a co movement but this co movement mostly comes from the condition of financial speculation through securitization which is more profitable when there is volatility in the markets. When the markets are volatile, expectations of future prices vary a lot. However, when the market conditions are calm enough, the future contracts can be observed as including the discounted future value of the today's prices. So, it can be pointed out that the speculation can be considered as the sign of the volatility, not an exact cause. Headey and Fan (2010, p. 43). Still, the speculation in the financial markets shouldn't be excluded from the food price analysis.

3.2.1.4 Depreciation of US Dollar

The US dollar has been in trend of depreciation. It is mostly because of the large trade deficit and low real interest rates in US. The depreciation of the US dollar against all major currencies has been a reason for the increase in the prices of some soft commodities including wheat, whose prices are denominated in US dollars. For example, the depreciation of the US dollar against the core Asian rice exporters has made the Asian currencies be more valuable. So their exports have been in a trend of declining because of the export prices denominated with US dollars.

Take the value of dollar compared to Euro: According to FED's Exchange Rate Data, between 2002 and 2007 dollar fell 40% as the U.S. debt grew 60%. In 2002, a euro was worth \$.87 vs \$1.44 by December 2007. In 2008, the dollar strengthened 22% as businesses hoarded dollars during the credit crisis. By year end, the euro was worth \$1.39. In, 2009, the dollar fell 20% thanks to debt fears. By December, the euro was worth \$1.43. In 2010, The EU debt crisis strengthened the dollar. By year end, the euro was only worth \$1.32. Finally, in 2011, the dollar's value fell 11% against the Euro, which was worth \$1.47 by April 8.



Graph 3.8: Trade Weighted Dollar Index

Source: Oanda-Historical Exchange Rates

Recently, dollar has been in a tendency to depreciate as it can be seen in the trade weighted US Dollar Index graph above. In theory, US dollar index increases when dollar appreciates and decrease when dollar depreciates. When we look at the trends in the US Dollar Index Graph (Graph 3.8), before the year of 2003, the dollar index has started to fall until the food crisis in 2008. During the food crisis in 2008, dollar index decreased a lot and after 2008, the index have started to rise a little and then fall again up today.

The depreciation of US dollar is important for the condition of transmission of international prices into domestic prices. It is generally the case that when dollar depreciates commodity prices are high and when dollar appreciates commodity prices are low. As it was mentioned above, when dollar depreciates the value of agricultural exports of US increases because the dollar is less valuable and other currencies are more valuable. So the exports of US increase when the exports of other countries decrease. United States has a large portion of international agricultural markets especially for maize, soybeans and wheat. When dollar depreciates, there would be higher food prices in US and lower prices in other countries. More agricultural commodities are demanded due to the less valuable dollar by other countries.

Moreover, we should think to point out that changes in commodity prices are always greater than the changes in exchange rates in case of dollar depreciation due to the decreasing effects of capital flows, according to Headey and Fan (2010, p. 38). Also, since 2002, food price changes have been late in comparison to the other commodity price changes. Because demand have been corresponded by the stocks. This fact has detained the food price changes for a period until the food crises in 2008 and after that.

3.2.1.5 Low Interest Rates

Another reason for the food and commodity price changes is the low level of real

interest rates especially in the US. When interest rates are low, people start to decrease their investments from the interest based investments. Instead of these, people start to invest in foreign currencies, emerging market stocks, other securities, commodities which include food commodities. This increasing demand causes the prices of the food commodities and other assets go up. The prices of these assets go up until a point at which people expect that they are above their future long term equilibrium level. In other words, monetary policy with low interest rates affects real commodity prices to increase more than the other prices because the other prices are rising at a lower rate. In summary, as Frankel and Rose (2009, p. 9) states, low real interest rates affects commodity and food and other commodity prices.

3.2.1.6 Trade Restrictions

Export bans and import surges on some agricultural commodities such as wheat, soybeans, rice and maize are highly related to the recent food price changes. For example, export restrictions on rice in some very important exporting countries can be considered as one of the reasons for increasing rice prices. Take the Indian case in consideration. In 2007, India decided to put bans on rice exports. It was most probably because of the relatively low level of its stocks to its production and consumption conditions. Then it has become the starting point of the price increases of rice. Although there was enough production levels, stocks and not any considerable demand increase, price of rice increased very significantly in 2007. After a while, some other Asian markets worried about the commodity price increases and then it caused more export restrictions from Cambodia, Egypt and Vietnam. Also, in some countries such as Philippines imported a significant amount of rice precautionary. This surge continued until May 2008 when Japan released 200000 tons of rice to Philippines. After that prices started to fell. Also, Cambodia quit its export bans and prices decrease again. So, it can be surely pointed out that the rise in food and commodity prices is easily affected by the reactions of the traders to export restrictions and

import surges and acts of some important players in the international markets. According to Headey and Fan (2008, p. 7), it was said by Johnson (1975) that the problematic part of these restrictions is sacrificing the international price stability for the sake of domestic price stability.

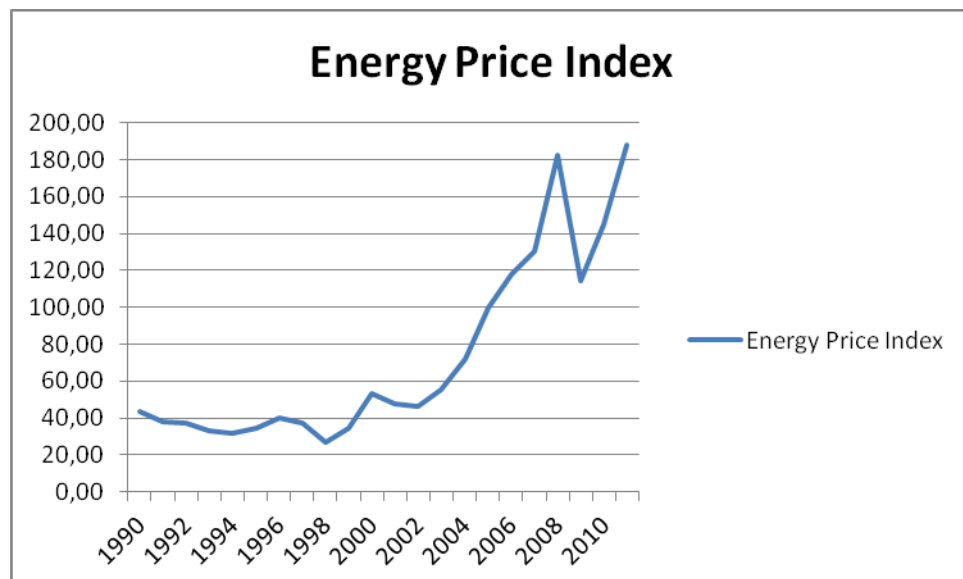
Some policies such as export bans, price controls and so on in some rice exporting countries including China, India, Viet Nam, Pakistan have caused the price fluctuations in the international rice markets. These export bans and price controls have increased the uncertainty about the future of rice markets especially after the year 2007 and decreased the rice supplies in the international rice markets. In addition, Kazakhstan, Ukraine and Uzbekistan imposed some bans on wheat markets; however, Ukraine and Uzbekistan have cancelled these bans later. So, this caused price fluctuations in the wheat markets too. Also, inefficient logistics systems, infrastructure for food grain marketing and distribution systems in some countries including Afghanistan, Bangladesh, Nepal, Philippines, Tajikistan, have tightened this market. These policies including export bans and price controls with minimum export prices which aimed to protect the domestic consumers have decreased the incentives to the producers and the supply response levels with increasing the uncertainty in the food markets. Producing less than expected during food crisis might keep the supply levels tight and maintain the crisis. So producers should be supported to produce more. Governments should develop some policies which aim to achieve more production levels.

3.2.2 Structural Factors:

The structural factors are the factors that affect food prices in the long run. Rising oil prices, increasing bio fuel usage, ineffective land usage, low levels of productivity and stocks, climate changes and rising incomes of emerging markets are the structural factors.

3.2.2.1 Oil Prices

Food price analysis is highly related to the energy prices especially to the oil price movements. Oil price fluctuations are crucial for the food price movements. When we look at the graph below, we can observe that the energy prices including oil prices have been in a tendency of increasing since the beginning of 2000s. During the global financial crisis in 2008, energy prices have come to a peak and been in a tendency of declining during the recovery from the crisis. However, they have started to rise again up to our day. Recall that the shape of the graph is very look alike with the shape of the Food Price Index Graph. (Graph 3.1)



Graph 3.9: Energy Price Index for Coal, Crude Oil and Natural Gas

Source: World Bank Commodity Price Data 2005=100, Current US Dollar Terms

For analyzing the latest trends in detail, we should point out that the energy prices have been in trend of rising until the year of 2008, by looking at the Graph 3.9. Geo-political events and natural disasters which were indirectly related to the global oil market conditions have had strong short term effects on oil prices. The North Korean missile tests, conflict between Israel and Lebanon in 2006, Hurricane Katrina and so on can be considered as the reasons that affect the oil prices. However, when global recession started, these factors are seemed to be insignificant factors for the oil prices. The demand for energy has shrink so the oil prices have fallen with the global recession in late 2008. Oil prices have fallen from \$147 in July 2008 to \$32 in December 2008. However, after 2008, by October 2009, when the effects of global recession started to diminish, the energy prices have started to rise again and fluctuated in a trading range between \$60 and \$80. Also, the energy prices have been in a tendency of rising until now.

Energy especially oil is a crucial factor and have effects of food prices both in supply side and demand side. But, there are some aspects of the effects of the oil prices on the food prices which are the most important and highly discussed recently. At first, we will first start with the supply cost side and then we're going to introduce the demand side with import effects and bio fuel aspect.

World energy prices have declined after 2008 because of the decline in demand caused by the global financial crisis, but they have been in an upward trend since 2009 so as agricultural product prices and metals and minerals prices.

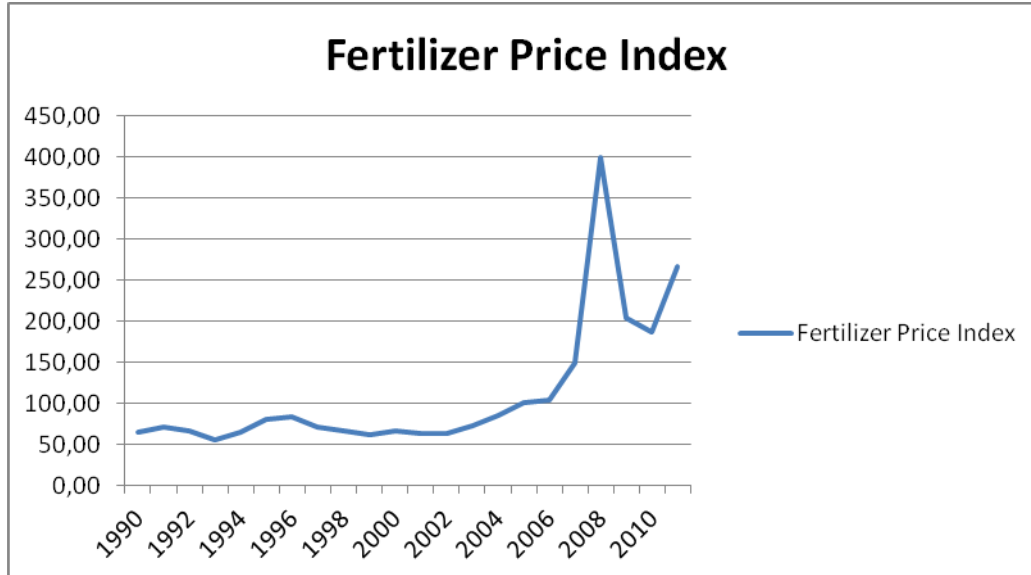
Rising energy prices and energy intensity of the agricultural sector have caused the cost of fertilizer, fuel and power which are the significant inputs to increase. As we can observe in the graph above, world energy prices have increased rapidly in 2000s with per barrel oil prices rising by an average of about \$10 per year between 2002 and 2007 in nominal terms and slightly less in real terms. The oil prices have fallen in the year of 2008 but this trend was a short term event. The prices started to increase again in 2009. In addition, agricultural sector has

become more energy intensive in the past decade. Irrigation and fertilizers are energy intensive factors and they are very important inputs for the production of the food grains. When the energy prices rise, cost of producing food grains also rises by means of high input and labor costs. Because the cost of production rises, the price of food grains also increases. So, increasing trend in energy prices has caused food grain prices to increase. Although there are some subsidies in Asian countries, energy prices in their domestic areas have risen by around 20-50% while irrigation, transportation and fertilizer costs have risen by around 30-50%. The changes in fuel and energy prices are considered as the structural factors because they point out the long term imbalances between increasing oil demand and stagnating production and supply, just like Flammini (2008, p. 9) suggests. Non-OPEC production level of energy has peaked and OPEC hasn't increase the output level because of the political reasons.

Increased energy and oil price is highly related with the food and non food commodity prices. As it can be easily predicted, energy and oil is one of the most important inputs of the production process. So, when the energy prices including oil prices become higher, it means the cost of the producer is also higher and commodity prices including food and non food commodities will be in a tendency of rising too. But, agricultural production (despite it uses less energy in comparison with the other sectors' production process) is more dependent on the fuel type inputs than the other sectors. So, we should consider the oil type energy usage when analyzing the food price movements rather than the other energy types.

In addition, it should be pointed out that when the cost of oil increase, fertilizer prices also increase too. Because, fertilizer production is highly related to the energy usage, so when the energy costs are high, fertilizer prices also become high too. Energy is an important input for the fertilizer production.

We can observe the fertilizer prices below. It is obvious that the Fertilizer Price Index Graph (Graph 3.10) has nearly the same shape with the Energy Price Index Graph. It means that the energy prices are highly correlated with the fertilizer prices and they move together.



Graph 3.10: Fertilizer Price Index

Source: World Bank Commodity Price Data 2005=100, Current US Dollar Terms

Rising fuel prices also affects the trade conditions. The increasing trend in the oil prices has led the export prices to go up. Cost of transportation is highly related to the fuel costs in a positive way. When the fuel costs rise, transportation costs also rise too.

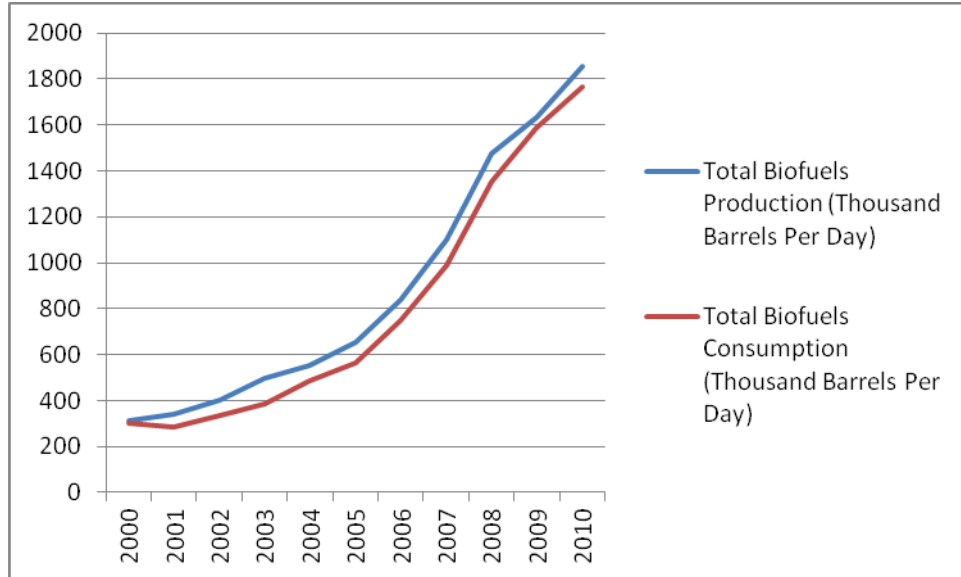
After examining these supply cost side aspects, we should consider investigating the bio fuel effect and imports which can be considered as contributions on demand growth.

3.2.2.2 Bio Fuels

As oil prices increase, an alternative to oil has been started to develop. Bio fuels are considered as this alternative. There has been a diversion of cereal use from food to produce

bio fuel. The cereal use for food and feed has increased by 4% and 7%, whereas cereal demand for industrial usage such as bio fuels has increased more than 25% since 2000. About 100 million tons of grains are being converted into bio fuel usage annually. In addition, ethanol subsidies in the US caused an increase in the usage of corn for bio fuel production from 6% of total crop production to 23% from the year 2005 to 2008. So, some part of the total food grain supply has been diverted from the usage of human consumption and started to be used for bio fuel production. Also, the part of the land which was used for production of food grain for human consumption has been started to be used for bio fuels and feedstock production. These cases have lowered the supply of corn, wheat and other grains and made the food prices increase. Also, the consumption, production and net exports of bio fuel have started to increase significantly after the year of 2007.

Rising energy especially oil prices have led the bio fuel usage to increase and more grains have started to be used for the bio fuel usage. The main relation is here the high oil prices have increased the tendency for bio fuel as an alternative to the oil. Thus, the demand, production and consumption of bio fuels have been increasing since the early 2000s and especially after 2007 as it can be seen in the Graph 3.11.



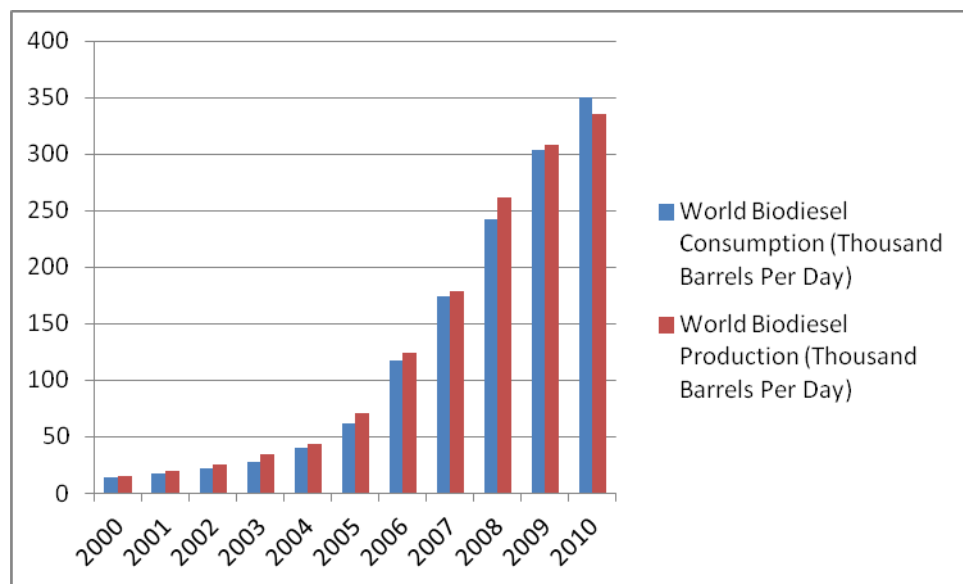
Graph 3.11: Total Bio fuels Production Around the World, Total Bio fuels Consumption Around the World (Thousand Barrels per Day)

Source: US Energy Information Administration, International Energy Statistics

Bio fuels are mostly used in the form of bio diesels and ethanol. These are made from the biomass materials. Ethanol is an alcohol fuel obtained from the sugars in grains especially maize. Also it can be made from the sugar of sorghum, barley, potato, rice, sugar cane, sugar beets, yard clippings, bark, switch grass. Bio diesel is a renewable fuel made from vegetable oils, fats or greases.

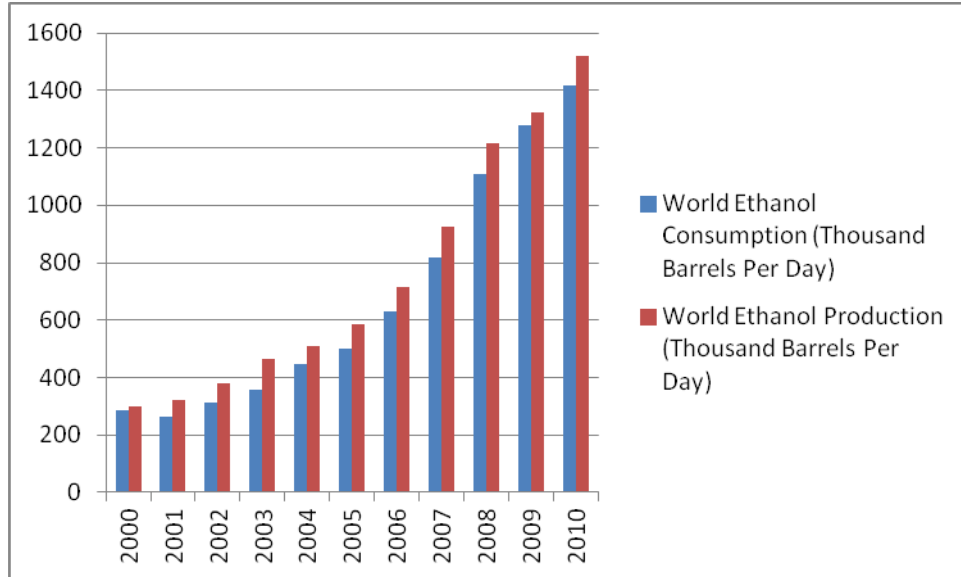
In order to understand the latest trends in bio fuels, we should consider analyze the production and consumption levels of the bio diesel and ethanol consumption and production around the world. As it can be easily seen in the following two graphs below, the production and

consumption amounts of the biodiesel and ethanol is very close to each other. Also, the production and consumption trends in the biodiesel and ethanol have been rising especially after 2007.



Graph 3.12: World Biodiesel Consumption, World Biodiesel Production (Thousand Barrels Per Day)

Source: US Energy Information Administration, International Energy Statistics

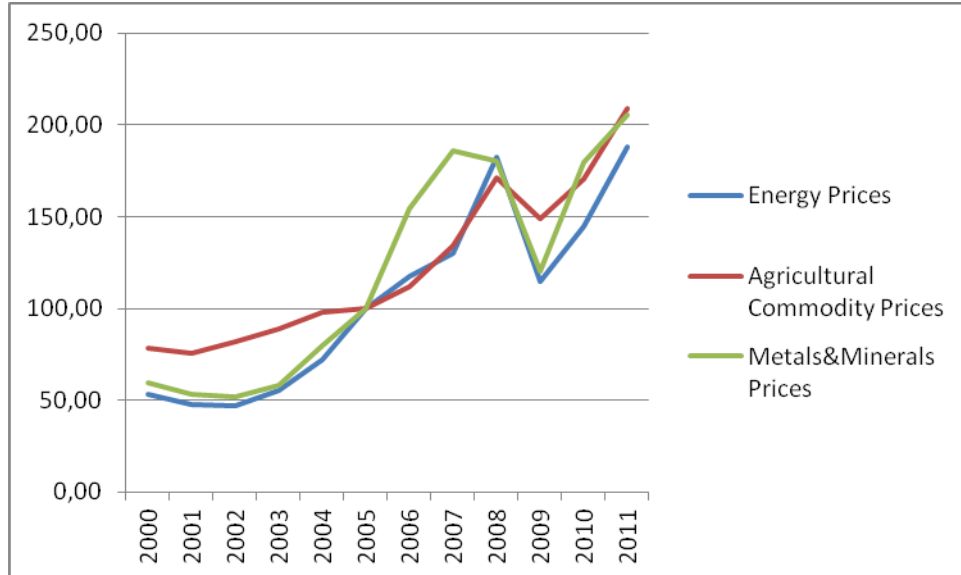


Graph 3.13: World Ethanol Consumption, World Ethanol Production (Thousand Barrels Per Day)

Source: US Energy Information Administration, International Energy Statistics

Because the materials used in the production of the bio fuels such as biodiesel and ethanol, the demand and price of especially maize and vegetable oils have risen recently. Also, there have been diversions of the land usage from wheat grains to maize and vegetable oils. In other words, the production of food, especially maize and vegetable oils for biodiesel and ethanol have been lowering the amount of food that is used for consumption and livestock. These effects are the reasons that the bio fuel usage affects the rising food prices.

In order to develop an understanding for the energy prices and other commodities other than bio fuel usage, we should analyze the graph below (Graph 3.14), which reflects the relation between energy prices, agricultural commodity prices and metal/mineral prices. It is obvious that they are all in a trend to move together through recent years.



Graph 3.14: Energy, Agricultural Commodity and Metals&Minerals Prices Index

Source: World Bank Commodity Price Data 2005=100, Current US Dollar Terms

3.2.2.3 Ineffective Land Usage

Another reason for the high food prices is the diversion of the land usage to urban and industrial usages. Also, competition for the freshwater which is scarce between agricultural sector and industries and residential usage have negatively affected the food supply growth which is structural as societies experience urbanization and industrialization. Some research have showed that the freshwater available for the agricultural usage has decreased in the last couple of decades, especially in Asia. Water scarcity is expected to decrease by 5-10% by 2050 relative to 2000.

3.2.2.4 Low Productivity and Stocks

Low productivity and declining stocks are the most important reasons of the demand-supply imbalances. Productivity levels have been low and food yield growths have been slowed since 1990s. This case also has affected the supply levels of food grains which in turn causes the price increases. An important cause of the low food grain productivity is the low rate of the agricultural capital accumulation. The reason for the decrease in the productivity growth is the pace of development of high yielding and pest-resistant varieties. The lower productivity growth is highly related with the lower agricultural research investments including insufficient Research & Development activities. Research institutions around the world, which have weak capacities, have been unable to find enough resources to develop basic research for productivity development. To reverse the situation, there should be an extended support for the agricultural research studies, technology and know-how developments, in most countries, in order to come up with the current developments such as being able to produce enough food supplies for growing population without obtaining foreign aid.

The incentives for the agricultural production can't be considered as efficient enough because of the policy inadequacies and inefficient institutions. Some policies including subsidies for inputs, supporting prices of food grains, food grain imports of public agencies, inefficient distribution and marketing systems have been determined as inefficient in medium and long term because they're limiting the supply increases and private investments in agricultural sector. In addition, subsidies that have been given to the countries have caused the degradation of land, inefficient use of freshwater resources and fertilizer.

3.2.2.5 Climate Change

Weather conditions in global warming issue can be considered as a structural factor

because of the long terms effects it causes on the agricultural sector. Droughts, storms, floods, some changes in rainfall conditions, increase in sea levels mean risks for the grain production, especially in Asia. These climate changes affect agricultural production bad and cause food supply levels to be decreased or disordered in short and long terms. Global warming has started to have permanent changes on climate conditions. Also, these effects on climate are expected to be deeper in the following years. Because of this, change in climate conditions caused by the global warming should be considered in the structural factors of the weather conditions which highly affect the harvest levels and agricultural production conditions all around the world and thus the food price changes.

3.2.2.6 Rising Incomes of Emerging Markets

Another structural reason for the food price changes is the rising incomes of the Asian societies. Especially China and India have been growing in population and incomes. It can be pointed out that the two societies' population has been about 2 billion together. Increase in population and incomes have caused the demand for food grains for consumption, industrial use, animal feeds and other resources rise. The important point that caused the price changes in this case is that the increase in the demand for the food grains for consumption has increased more than the increase in income levels. Increase in the food demand in Asia is mostly caused by the meat-based consumption increase. As incomes rise in Asia, their diet has become changing and the demand for meat, eggs, milk and so on has risen significantly. This increase in demand has caused the meat prices doubled and butter and milk prices tripled from 2000.

In a manner of commodity prices, especially China has been demanding more oil, metals and other commodities such as raw materials for production since 1970s. And supply responses to these demands have not been enough. So these pressures have caused the price commodity price increases. Also soybean oil imports have risen in China recently. This demand has been

answered by Argentina, Brazil and US. But, for example, in US many of the farmers have been diverting their agricultural production from maize, wheat and other grains to soybeans. It can be pointed out that Brazil have the same condition. Moreover, China and India have had an effect on food prices because of the declining stocks. For example, in China, grain consumption especially maize, has been rising recently because of the increased demand for meat. However, the production of maize is not at the same level of the consumption. China is one of the main exporters of the maize, it can hardly import it. So, the existing stocks have been decreasing to answer the increasing demand. Stock decline have a reverse effect on prices. However, China has still high levels of wheat and rice stocks even though these stocks have declined in small amounts recently. So, declining stocks of China is important for the food prices but not have a crucial importance. In India, the main cereals stocks have been low lately. But, India is not one of the main cereal importers. The export of rice and wheat has been high but poor weather conditions in 2007 caused the low level of harvests and some part of the wheat was imported that year.

It can be said that economic growths and rising demand in China and India is important and should be considered for the recently rising food prices.

The structural factors are seemed to be more effective than the cyclical factors. Also, high food prices trend is expected to continue in the future because of these reasons.

3.3 CONSEQUENCES OF THE FOOD PRICE CHANGES

The impacts of food price cycles can be analyzed into two parts: There are macroeconomic impacts and poverty impacts which is the main discussion of this study. Macroeconomic impacts will be analyzed first and poverty impacts will be examined after the macroeconomic impacts greater in detail.

3.3.1 Macroeconomic Impacts:

There are different aspects of macroeconomic impacts of the high food prices such as inflationist impacts, exchange rate changes, higher import bills and transmission of increasing international food prices into the domestic food prices.

Commodity price changes, mostly in a manner of rising have been affecting the countries' macroeconomic stabilities and economic growths through the increasing food and fuel prices which are also the causes of the poverty impacts. In other words, poverty trends should be analyzed with the changes in prices including fuel costs and fertilizers. Moreover, oil price increases have made the countries more vulnerable to the global financial crisis because oil prices have some effects on exchange rates, foreign reserves, transport costs and domestic inflation. Because of this, oil prices and effects of the oil prices have been considered as the most important macroeconomic impacts of the food crisis. Although food and fuel crises and the impacts of these crises have declined since mid-2008 because of the global financial crisis, food prices have remained high and expected to stay high for the following years.

In order to overcome high food prices, most of the governments have decided to give direct and indirect subsidies which increased the government expenditures and worsened fiscal deficits. So, the problem is deeper in countries which have high fiscal deficits such as India, Bangladesh, Pakistan, Sri Lanka and so on. As a result, many countries especially in Asia have been in a tendency of tightening the fiscal space because of higher food subsidies besides the energy subsidies.

3.3.1.1 Higher Inflation

Increasing trend in food prices means higher inflation. Because consumer price index basket mostly consists of the food prices, inflation rates have been rising in response to the

increasing food prices. In order to decrease inflationary effects, wages of the people who live in the countries with the high inflation rates should increase.

Considering this inflationary effect, high food prices may easily weaken the level of economic activities because high inflation causes real rate of consumption, saving and investment to decrease. As a result, it causes a decrease in the aggregate demand levels. However, tightening monetary policy by rising interest rates because of the high inflation rates as a standard policy response to control inflation can cause a decline in aggregate demand and economic slowdown.

3.3.1.2 Exchange Rate Changes

Another impact is exchange rate changes. As it was mentioned above, US dollar has been in a trend of depreciation against major currencies in recent years. Although after 2008, it appreciated a little but then it started to depreciate again till now. US dollar is the currency that is the food and oil prices are denominated with. So, when the US dollar depreciates, most food and oil prices have been increased for most countries because of the dollar-denominated food and oil prices. It led to decreases of the exports for these countries. Also, the imports of the countries should be high because of the less valuable dollar. However, a country doesn't have to import commodities from US, it can also import from any other zone country such as a Euro zone country. But, it is hard to change the suppliers. Because, the change in transportation costs is an important aspect of the cost of trade. Also, change in trade patterns affects the change in foreign exchange reserves of the country. When there are limitations in trade with some countries, it means there will be limitations in foreign exchange reserves too. In addition, the countries of which currencies are tied up with US dollar, usually have the same depreciation that dollar has. So, the countries that are dependent on US dollars and don't get advantages from appreciation against dollar can be considerable to be in a bad macroeconomic situation in this case. According to Headey and Fan (2010, p. 60), for example, in Africa, Nigeria is the only country that depends

on the food imports from USA, but the currency of Nigeria is appreciated and it has gained advantages from the high oil incomes.

3.3.1.3 Higher Import Bills

In addition, there are rising import bills for the countries which are the food importers with the increasing food prices. It is important to understand the country's situation on import aspects due to the increasing food, oil and other commodity prices. We should point out that many developing and less-developed poor countries have been heavily dependent on food imports, so when the food prices have increased, these countries have been facing high import bills. Also, the dependence of food imports has been rising recently. Because of these increasing import bills, economic growth and development have been slowing down. In addition, the study of Aksoy and Ng (2008, p. 15), it was pointed out that in Africa, even though most of the African countries are exporting agricultural goods, they are still net food importers. However, in the same study it was pointed out that the impact of oil imports has been higher than the food imports. So, the increase in oil prices has been more important for the macroeconomic stabilities of the countries. If a country is exporter, then it would be better off during a commodity price crisis.

3.3.1.4 Transmission of High Food Prices

Transmission of rising food prices in the international area into the domestic markets is an important aspect of the changing food prices. The transmission concept has some aspects. Firstly, transmission of international prices which are dollar-denominated into the local and domestic prices is an important aspect. Secondly, the domestic policies such as tariffs, export bans, subsidies, price controls and so on are composing another important aspect. But, the effects of these factors are mostly assumed to be residual. In addition, this residual includes the domestic

effects that have no influence on the international food price changes such as supply shocks due to bad weather conditions, high oil costs or monetary policies that cause inflationary effects. The residual can also include substitution aspect between the domestic commodities and imported commodities, changes in demand and supply due to the price changes and so on.

The international prices can be transmitted into the domestic prices due to both commodity prices aspect and consumer price index aspect. Commodity specific approach includes exchange rate changes is suitable for transmission. Although there are some weaknesses of food consumer price index approach, it is also useful for transmission. CPI can be considered as a key indicator of the performance of an economy and is useful for monitoring the effects of the countries' monetary and fiscal policies. CPI includes the welfare costs because it can be deflated with the nonfood CPI for food terms of trade or it can give the results of real food price changes. However, it may not reflect the consumption amounts of poor people. Also, domestic prices or oil prices may lead the nonfood inflation to goes up, the food terms of trade may not change very much even though the domestic consumers are still exposed to the high prices. Inflation has an opposite effect on poverty. In Africa Ethiopia, Kenya and Mozambique have been facing high prices and they have experienced intense price changes in 2008. In addition CPI records of these countries have been in a tendency of rising since 2000. According to UN Database, in 2000, 2005 and 2009, the CPI for Ethiopia is 100, 138 and 238 respectively. The CPI data for Kenya is only available for 2009 and it is 127. In 2000, 2005 and 2009, the CPI for Mozambique is 100, 138 and 289 respectively. The base year is 2000 and taken as 100. In this case domestic factors should also be considered. For example, the conflict in Kenya and monetary changes in Ethiopia are important factors for the price changes.

In general, there are a few reasons for Africa to have high food inflationist effects. Firstly, supply shocks caused by bad weather conditions, political instabilities, increasing regional extension into neighbor markets, inefficient and loose monetary and fiscal policies are the important reasons. Other reasons are the increasing cereal import dependence in the whole

Africa region, inefficient policies for stabilizing food price changes, increasing transportation costs due to the high oil and fuel prices, increasing substitution between international cereals and domestic cereals.

On the other hand, increasing food prices have raised the incentives to produce locally which could stimulate the agricultural production. Agricultural production is mostly labor intensive especially in developing countries. For example, take West Africa region into consideration: According to the study of Asian Development Bank (2008), most of the food consumed is based on imported grains in West Africa. So price increases can reverse this trend and domestic agricultural production can rise. However, we need to take the net sales of the agricultural goods into consideration for the economic conditions, not the production levels.

Now, poverty impacts will be examined in the following section.

3.3.2 Poverty Impacts:

From the year of 2003, prices of many commodities have been in an upward trend, in many cases more than doubling in a few years, and in some cases in a few months. However, changes and increases in the food prices deserve more attention because food prices have more influence on the world's poor people. Many poor people in the world depend on food production for their livelihoods and almost all poor people spend large amounts of their budgets on food. So, sharp rising in the food prices can easily mean increased hunger and malnutrition for these poor people.

The factors that were mentioned above have had several impacts on especially poor populations of the world. There have been a number of food riots in some regions of the world and policies that increased prices, restricted physical access to food, increased the dependence of many poor countries on food imports and created some expectations that food and

oil prices would stay high for many years. Also, there have been some evidences that were created from the household surveys which indicate that the food prices and changes in the food prices have negative impacts on people's welfare especially in urban and rural regions of the developing countries. So, it can be easily said that the rising food prices have a poverty impact around the world.

For example, in Asia high food prices have made the efforts for reducing poverty decrease. People in Asia spend almost 60% of their income for food. Food and energy expenditures compose their 75% of their income. Around 1.2 million people in Asia have been in bad and poor conditions. The inflation in food prices has weakened the purchasing power of these people so malnutrition has started to exist and people don't have enough food to survive. Most people have starts to consume less amounts of relatively expensive and nutritious meats, dairy, fruit, vegetables, non-staple foods which can easily cause large declines in mineral and vitamin intakes. These impacts have continued as the food prices increases. Moreover, most people live in urban and rural areas in Asia are poor and can be determined as the food buyers. So, they have been affected worse by the increasing food prices. On the other hand, the incomes of the farm owners can be increased because of the high food prices but actually, benefits they get don't depend on how much they produce. Their benefits depend on the net sales of the goods they produce.

The more people spend on food, causes higher poverty and less expenditure on health, medical care, housing and education according to Ivanic and Martin (2008, p. 18). Also, when they spend most of their income on food, they haven't been able to use enough agricultural inputs such as fuels, power, fertilizer in order to expand food production in response to high food prices.

In addition, it is important to distinguish the net food sellers and net food buyers for a better analyze of the effects of high food prices on poverty, welfare and food security. Aksoy and Dikmelik (2008). A net food seller is a country that total value of the food that they produce

exceeds the total value of the food that they consume. A net food buyer is the opposite. Basically, a net food seller gains benefits from high food prices while a net food buyer usually suffers from the high food prices.

Also, urban and rural distinction is quite important. In many urban areas, all people are nearly net food buyers. Also, in rural areas, the situation is the same. Small farmers are usually food buyers because they are not producing enough food for their families' consumption. So, they also gain benefits from lower food prices.

If we turn back to the urban regions, it would be reasonable to say that the high food prices highly affect the poor people because they have most of their expenditures on food. In order to overcome with these high food prices, people would start to look for new economic activities, sell their assets or borrow due to the decreases in their consumption. Also, education and health expenditures would be in a tendency to decline. Again, they would start to buy less expensive and less nutritious food such as meat, milk fruits and vegetables. So the calorie, energy, vitamins, minerals they get before the high food prices would also decline.

In rural regions, higher food prices would affect the net food buyers less. They produce some certain amount of what they consume. But, farmers who are net sellers of food gain benefits from high food prices and their income would be in a tendency to rise. So, their poverty could be decline. Again, it is important to know that the land conditions that the farmers have. Because, more land makes a farmer create more income than a farmer who has less land. So, farmers with small lands may not get benefits from high food prices as the farmers with bigger lands. Also, we should point out that the high food prices are mostly creating positive impacts on reducing poverty with the regions with equally distributed lands. Small farmers have respectively smaller surpluses than the bigger ones.

In addition, high food prices affect poverty trends through labor markets and wages. High food prices lead higher demands for unskilled farm workers in the rural areas. This is a

reason for the rural wages will be in a tendency to rise in the long run. So, rural households can get benefits from higher incomes. But, this topic is also related to the agricultural dependence of the economies and time for adaptation of wages.

In addition to especially high and low food price effects, it is important to understand the volatility and unpredictability of food prices. These concepts also have important effects. In theory, if the price volatility is more predictable, the effects caused by the volatile prices will be less than the case of price volatility is less predictable. However, when looking at the real economic environment, predicted price changes (for example, price changes caused by seasonality) can also cause bad results especially poor people who don't have much chance to borrow during high prices so can't smooth their consumption amounts. So, it wouldn't be wrong to say that even predictable price changes can cause bad conditions for poor people.

Price volatility even in the unpredictable price case can also have good impacts on some group of people. For example, people who are rich can buy more food and store food when food prices are low and have to buy less when prices increase. So, they will be paying less for food because they will pay more when the food prices are low and they will pay less when the food prices are high. Also, people who can buy assets from poor people at very low prices, when they in need or during disasters, can get benefits from price volatilities. However, in the general case of volatile and unstable food prices, poor people and people with low food security are the most affected ones.

In the poverty aspect of the unpredictable price movements, there can be several situations. For example, the periods of high prices can cause bad poverty effects which may not be healed during the low prices periods for some net food buyers. Again, effects of periods of low prices may not be healed during high prices for some farmers. For example, if there is a high food prices case during a child's first couple of years after the birth, the nutrition, energy, vitamins and minerals he/she obtains would be less effective than it should be and this situation may not be reversed after the food prices decline to a reasonable level. Because the child won't have had

enough food, he/she may not be a totally healthy person during his/her life. Also, the periods of low prices cause lower incomes for the farmer families who are net food sellers and the results would be similar with the case of high food prices for the net food buyer families.

As it was mentioned before, the lower income the people get (even in the temporary cases) due to the price changes will lead people get less social services such as education, health and so on. The less health and education they get, the less qualified human capital it would be created. Also, this will lead families to decrease their capital levels such as selling the lands or live stocks they have.

A temporary change in prices such as price shocks can have permanent poverty effects as it was mentioned above. Climate changes, economic environments or sharp price changes can cause poverty levels to change especially decrease by decreasing the purchasing power of the poor people.

Unpredictable price changes can also affect the investments of farmers in developing countries. Because in developing countries the credit systems is not effective enough and income that people have is changing due to the weather conditions or price shocks, farmers may not be making effective investments due to the situation that they may not obtain credits when they really need to. It would also be the case in stable prices, but volatile prices make the effect of this greater. Again, options for crop can be affected by price volatility. Farmers can switch to the crops that can bring more profit to them. In addition, the choice of fertilizer use and making investments on fertilizer use is negatively affected by the price volatility. For example if the farmers believe that they are going to have an economic shock soon, they wouldn't want to invest in fertilizer usage just like it happens in Ethiopia. It is because of that the poor farmers are generally hesitating to use new technologies due to a fear of a price shock and probability to become poorer. So, they usually prefer less risky and less profitable investments which lead a less chance of development opportunities and less productivity in the long term. Again, in an unpredictable price environment, investments are in a tendency to decline because of the high

risk of loss.

In addition, we should point out that the staple foods such as wheat, maize, rice, potatoes, millet and so on are influenced much more from the unstable price conditions than the other agricultural commodities. It is because of the staple agricultural commodities mean a lot more to the poor farmers as producers and poor consumers than other commodities. In consumption aspect, staple foods are composing the considerable amount of poor people expenditures. In production aspect, staple foods are composing the mostly produced agricultural commodities by poor farmers in developing countries and especially in less developed countries. It wouldn't be wrong to say that the unpredictable price changes are more obvious in poorer countries and for poorer households. This is because of for some reasons. Firstly, food has more shares on macroeconomic issues, consumer expenditures and farm production amounts in poor countries than in rich countries. So, food has a bigger impact on political area in poor countries than in rich countries. Another reason is that, as it can be easily predicted, poor people has less amounts of assets than rich people and this situation leads the poor people have less ability to protect from volatile prices and develop solutions against price volatility.

In a theoretical point of view, in the poor countries prices of staple foods are important. But, as economies developed, the prices of staple foods become less crucial for the investment tendencies and growth paths. In more developed countries than the poor ones, farmers start to produce more expensive crops, more and more farmer families stop being farmers and leave their lands. Again, people start to change their diets and demand less and less for the staple foods. Also, volatile prices can easily lead to ineffective resource allocations because consumers and producers can take wrong signals from volatile prices. This also can lead reduced economic growth through ineffective investment channels. These all can be considered as changes in the main aspects of macro economy.

Volatile price can easily affect the political stabilities through decreased economic growth and less effective investment conditions in the long run especially in the poor countries.

However, in some cases, it can be beneficial to stay at the unpredictable and unstable prices. Before making a policy decision for the food prices, we should analyze the costs and advantages of the unstable and unpredictable prices for the producers and consumers and costs of declining the unstable and unpredictable prices, then applying some policy options according to the existing conditions.

Food price increases especially after 2008, have caused more and more people be under the poverty line and affected by undernourishment all around the world. Most of the countries that were affected by the high food prices are in Africa. The number of undernourished people in Africa has increased by 8% between 2007 and 2008, while this number was 0.01% in Asia. As it can be predicted, every country group has their own strategies to decrease the effects of high food prices. Ethiopia, Kenya and Mozambique had large local price increases during this period and they also had undernourishment increases. They also had insufficient stocks of food while they were exposing the high international food prices. They also didn't have enough budget sources to protect the food security of the poor people. Many countries like Ethiopia, Kenya and Mozambique, such as Malawi, Afghanistan, Bangladesh, Senegal, Zambia and Uganda have had lack of foreign exchange, so they have imported less than they need to. So they have needed food aid or external assistance. For example, Ethiopia have sold 190,000 tonnes of wheat from its reserves to urban poor and needed to import 150,000 tonnes of wheat according to the urban demand in 2008. At the same time, they have had food aid by an amount of 200,000 tonnes of food.

In the following chapter, Ethiopia, Kenya and Mozambique will be examined in some different aspects.

CHAPTER 4

CHOSEN COUNTRY ANALYSIS

Besides other countries, we're actually interested in three African countries, Ethiopia, Kenya and Mozambique for this study. So, we're going to introduce their poverty statistics, other statistics related to poverty trends and their some politic, economic and social conditions.

At first, we'll analyze the multi dimensional poverty findings in 2011 and then look at our chosen countries poverty data in detail. MPI 2011 findings consist of 109 countries' most recent data cover the years 2000-2010, based on household level and information about 5.3 billion people. 79% of these people are from global and 93% of these people are from developing countries.

It has been found that nearly 1.65 billion people are living in the multi dimensional poverty. It is about 31% of the whole population around the world. Also, 1189 million of poor people are living in middle income countries and 459 million of poor people is living in low income countries according to the MPI 2011 findings. Again, South Asia is the region in which half of the world's poor people is living (half of 827 million people), and under a third in Sub Saharan Africa (29% of 473 million people). Sub Saharan Africa is the region which has the highest MPI level in the world with 0.360 index value. South Asia's average MPI value is 0.280. But there are twenty six sub national regions in the South Asia (519 million people) that are considered to be poorest in the world according to the MPI and they are poorer than people of 38 Sub Saharan Africa countries (473 million people).

In addition, there are 435 million of severely poor people in South Asia where this number is 310 million for the Sub Saharan Africa. Nearly two-thirds of poor people in Sub

Saharan Africa (310 million severely poor people in 473 million poor people) is living in severe poverty where the half of the poor people (435 million severely poor people in 827 million poor people) is living in severe poverty in South Asia.

Also, in Arab States (average MPI value is 0.077), there are 33 million poor people with 16 million severely poor people; in East Asia and the Pacific Region (average MPI value is 0.065), there are 269 million poor people with 98 million severely poor people; in Central and Eastern Europe and the Commonwealth of Independent States (average MPI value is 0.011), there are 11 million poor people with 2 million severely poor people; in Latin America and the Caribbean (average MPI value is 0.032), there are 36 million poor people with 11 million severely poor people.

In Kenya's regions poor people ranges from 4% to 86%. For poverty reductions, most of the improvements have been seen in the living standards. In Ethiopia, reduction is mostly seen in the intensity of poverty. More and more people come out of poverty. Only 40% of people in Ethiopia is income poor (living less than \$1.25 per day). But 89% of Ethiopian people are MPI poor. Again, Ethiopia and Mozambique as low income countries are among the poorest countries according to MPI with the highest MPI value levels.

So, it is important to analyze and understand the weak dimensions for countries and households and develop some solutions according to the existing weaknesses. With efficient analysis, the true detection processes of weaknesses of the poor households can be improved and poverty reduction policies can be successful.

Table 4.1

Multidimensional Poverty Index Statistics for Ethiopia, Kenya and Mozambique

Country	Year	Multidimensional Poverty Index (MPI=HxA)	Incidence of Poverty (H)	Average Intensity Across the Poor (A)	Percentage of Population Vulnerable to Poverty	Percentage of Population in Severe Poverty
Ethiopia	2005	0.562	88.6%	63.5%	6.1%	72.3%
Kenya	2009	0.229	47.8%	48.0%	27.4%	19.8%
Mozambique	2009	0.512	79.3%	64.6%	9.5%	60.7%

Source: World Bank, World Development Indicators and ophi.org.uk/policy/multidimensional-poverty-index/

In Table 4.1, we see the most recent Multidimensional Poverty Index Statistics for Ethiopia, Kenya and Mozambique. In Table 9.3.1 above, we're seeing the MPI values and percentage of people that are vulnerable to poverty and in severe poverty for our chosen countries. For Ethiopia, the recent MPI value is 0.562 with 88.6% incidence of poverty (H) and 63.5% average intensity (A). The vulnerable population to poverty is 6.1%, population in severe poverty is 72.3% for the year 2005. In 2000, the MPI value for Ethiopia was 0.678. There have been a little reduction but Ethiopia still has a high level of poverty.

For Kenya, the existing data is more recent and belongs to the year of 2009. In 2009, MPI value for Kenya is 0.229 with 47.8% incidence of poverty (H) and 48.0% average intensity (A). The vulnerable population to poverty is 27.4%, population in severe poverty is 19.8% for the year of 2009. The previous MPI data for Kenya belongs to the year of 2003 and it is 0.296. Again, there have been a little reduction in poverty in comparison to 2009 data but the country can still be considered as poor even though it is Ethiopia has higher MPI values.

For Mozambique, the existing recent data belongs to the year of 2009 just like Kenya. MPI value is 0.512 with 79.3% incidence of poverty (H) and 64.6% average intensity (A).

The vulnerable population to poverty is 9.5%, population in severe poverty is %60.7 for the year of 2009. Unfortunately, there is not any previous MPI data for Mozambique.

Table 4.2

Percentage of Population Live Under \$1.25 a day, Percentage of Population Live Under \$2 a day, National Poverty Line Statistics for Ethiopia, Kenya and Mozambique for 2011

Country	Year	Percentage of Population Living Under \$1.25 a day	Percentage of Population Living Under \$2 a day	National Poverty Line
Ethiopia	2005	39.0%	77.6%	38.9%
Kenya	2005	19.7%	39.9%	45.9%
Mozambique	2008	59.6%	81.8%	54.7%

Source: World Bank, World Development Indicators and ophi.org.uk/policy/multidimensional-poverty-index/

In Table 4.2, we can see the most recent statistics for our chosen countries which include the percentage of population living under \$1.25 a day, percentage of population living under \$2 a day and national poverty line. Percentage of population living under \$1.25 and \$2 indicate the percentage of poor people according to the \$1.25 and \$2 a day income poverty line respectively. National Poverty line indicates the percentage of people that are poor according to the national income poverty line. According to these explanations, in Ethiopia the 39.0% of population live

under \$1.25 a day and 77.6% of population lives under \$2 a day where the national poverty line is 38.9% for the year of 2005. For Kenya, the 19.7% of population live under \$1.25 a day and 39.9% of population lives under \$2 a day where the national poverty line is 45.9% for the year of 2005. For Mozambique, the 59.6% of population live under \$1.25 a day and 81.8% of population lives under \$2 a day where the national poverty line is 54.7% for the year of 2008. According to these statistics, we can easily say that all three countries can be considered to have high levels of poverty.

Table 4.3

Human Development Index Statistics for Ethiopia, Kenya and Mozambique for 2011

2011	Human Development Index (value)	Life Expectancy at Birth	Mean years of schooling (years)	Expected years of schooling (years)	Gross National Income (GNI) per capita (constant 2005 PPP\$)	Nonincome HDI (value)
Ethiopia	0.363	59.3	1.5	8.5	971	0.383
Kenya	0.509	57.1	7.0	11.0	1492	0.584
Mozambique	0.322	50.2	1.2	9.2	898	0.325

Source: 2011 Human Development Report

In order to understand some dimensions of poverty and some poverty conditions in our three chosen countries, we should look at Table 4.3. It reflects Human Development Index of 2011 which is an indicator that includes three dimensions of human development which are a long and healthy life, knowledge and decent standard of living.

HDI values for our chosen countries, which are taken from the Human Development Report 2011, are 0.363 for Ethiopia, 0.509 for Kenya and 0.322 for Mozambique. Kenya has a

higher HDI value in comparison to Ethiopia and Mozambique, but still all three countries are in the low human development group of countries around the world. This variable is around 0.950-0.800 for high human development countries. The second column in the Table 3 gives us the Life Expectancy at Birth values. For Ethiopia, life expectancy at birth is 59.3; for Kenya; it is 57.1 and for Mozambique, it is 50.2. Ethiopia has the highest level of life expectancy at birth ratio where Mozambique has the lowest level in 2011 data. But, this ratio is around 80 in the countries that have high human development. Another variable for our chosen countries is Mean Years of Schooling. This variable is 1.5 for Ethiopia, 7 for Kenya and 1.2 for Mozambique. Kenya has the highest level whereas Mozambique has the lowest. But, this ratio is around 11 in the countries that have high human development. A similar variable is the Expected Years of Schooling. This variable is 8.5 for Ethiopia, 11 for Kenya and 9.2 for Mozambique where the countries of high human development have this variable around 16. GNI per capita is 971 for Ethiopia, \$1492 for Kenya and \$898 for Mozambique. The high human development countries have this variable around \$35000-\$40000 on average. The last column reflects the Non income HDI which is 0.383 for Ethiopia, 0.584 for Kenya and 0.325 for Mozambique. This variable is around 0.980-0.850 for high human development countries.

Table 4.4

Changes in HDI from 2000 to 2011 for Ethiopia, Kenya and Mozambique

HDI Index	2000	2005	2009	2010	2011
Ethiopia	0.247	0.313	0.353	0.358	0.363
Kenya	0.443	0.467	0.499	0.505	0.509
Mozambique	0.245	0.285	0.312	0.317	0.322

Source: 2011 Human Development Report

In Table 4.4, we can also look at the changes in HDI index from 2000 to 2011 for our chosen countries. HDI variables seem to be increasing from 2000 to 2011 for three countries. However, these three countries are still in the low human development group of countries in the world according to the Human Development Report 2011.

Table 4.5

Population, Food Consumption and Number of Undernourished People for Ethiopia, Kenya and Mozambique for 1990-1992, 2000-2002, 2006-2008

Country	Years	Population (million)	Food Consumption (kcal/person/day)	Number of Undernourished (million) - WFS indicator
Ethiopia	1990-1992			
	2000-2002	67.3	1840	32.6
	2006-2008	78.7	1950	32.6
Kenya	1990-1992	24.2	1970	8.1
	2000-2002	32.3	2020	10.6
	2006-2008	37.8	2030	12.4
Mozambique	1990-1992	13.9	1750	8.2
	2000-2002	18.8	1950	8.5
	2006-2008	21.9	2070	8.3

Source: fao.org

*World Food Summit

After looking at the poverty trends of our chosen three countries, now we can get some opinion about the undernourishment levels of these countries. Of course poverty concept

has various dimensions and we should understand the general poverty overview of our countries. But for our analysis and study, the food consumption and undernourishment levels of the countries have more importance. In Table 4.5, we can look at the FAO statistics for the Population, Food Consumption and Number of Undernourished People for our countries from 1990 to 2008 which is the most recent year. Unfortunately, 1990-1992 data isn't available for Ethiopia. But, the years between 2000 and 2002 the population was 67.3 million people and 32.6 million of these people (almost the half of the entire population) were in undernourishment. The food consumption was 1840 kcal per person in a day. Between the years 2006-2008 the population became 78.7 million people and number of undernourished people was still 32.6 million with 1950 kcal of food consumption per person in a day. The ratio of undernourished people in the entire population has been decreased a little according to the 2000-2002 data. However, still Ethiopia is a country with a lot of poor people that live in undernourishment. (41% of the total population is undernourished in 2006-2008). For Kenya, the population was 24.2 million of people with 8.1 million undernourished in it. The food consumption was 1970 kcal per person in a day. Between 2000 and 2002 the population became 32.3 million with 10.6 people in it and 2020 kcal of food consumption per person in a day. Between 2006 and 2008, the data shows that the population of Kenya was 37.8 millions of people with 12.4 million undernourished with 2030 kcal of food consumption per person in a day. The ratio of undernourished people in the entire population has been in a tendency of staying almost at the same level throughout the years but still the undernourishment level of Kenya can be considered high. (33% of total population is undernourished in 2006-2008). For Mozambique, the population was 13.9 million of people with 8.2 undernourished in it with 1750 kcal food consumption per person in a day. Between 2000 and 2002, the population became 18.8 million with 8.5 million undernourished people in it with 1950 kcal of food consumption per person in a day. Between 2006 and 2008, the population has become 21.9 million with 8.3 million undernourished and 2070 kcal of food consumption per person in day. The ratio of undernourished people in the entire population has been decreasing a little throughout the years from 1990 to 2008 although Mozambique still has a

high rate of undernourishment. 38% of total population is undernourished in 2006-2008 according to FAO.

In addition, according to the Global Hunger Index 2011 Report, Kenya has moved from ‘alarming’ to ‘serious’ condition since 1990 which indicates an improvement but still a serious level of hunger. Ethiopia and Mozambique have moved from ‘extremely alarming’ to ‘alarming’ condition since 1990 which also indicates an improvement just like Kenya but still a considerable level of hunger. The movements of GHI from 1990 to 2011 can be observed in the Table 4.6 below. All three countries have decreased hunger levels but still have a considerable level of hunger values.

Table 4.6

Global Hunger Index from 1990 to 2011 for Ethiopia, Kenya and Mozambique

GHI Index	1990	1996	2001	2011
Ethiopia	43.2	39.1	34.7	28.7
Kenya	20.6	20.3	19.9	18.6
Mozambique	35.7	31.4	28.4	22.7

Source: Global Hunger Index Report 2011

Before analyzing the policies applied since then and the implications of these policies for the recent food crisis, looking at the socio economic conditions of our chosen countries, according to the information in FAO is important.

Ethiopia is located in the north-eastern horn of Africa and the second most populated country in Sub Saharan Africa. The population is very young. The economy is heavily dependent on agricultural sector and nearly the half of the GDP belongs to the agriculture. Near

three quarters of the population are in the agricultural sector, mostly in subsistence and rain-fed farming and livestock production. The economy has been in a tendency of growing since 2000 but, Ethiopia can be considered one of the poorest countries in the world as we have seen the tables above. 25% of people live under 1\$ per day. The diet of Ethiopia generally consists of cereals (such as maize, sorghum, teff), tubers and root crops (such as ensete, potatoes, sweet potatoes), pulses and oil seeds. There is large livestock population in Ethiopia but the level of food supply from animal products is very low. Again, consumption of these products is low in the rural areas. In the nomadic areas this consumption shouldn't be considered as low because the milk consists of an important part of their diet in these areas. Food insecurity is very high in Ethiopia. The undernourishment level of the population is very high because the energy supply is not enough to fulfill the requirements of the population. Food supplies has not enough diversity besides they are not enough quantitatively. Low life standards bring poverty, food insecurity, under nutrition, morbidity and micro nutrient deficiencies. The urgent action that should be taken for Ethiopia is the development of health and nutritional conditions of the Ethiopian people. After that, poverty can be reduced and some economic development steps can be achieved.

Kenya also has a very young population which is mostly rural. Areas that are in good condition for the agriculture is very low, around 18% of the total region but agriculture supports about 80% of the population. Agriculture which can be generally defined rain-fed, can be considered as the main sector of Kenya. The climate conditions including floods, droughts, have been recently bad. In addition to these, there has been a high level of environmental degradation coming from the abnormal exploitation of the natural resources. In Kenya, there is a high level of food insecurity mostly because of the poverty, insufficient level of food production and bad economic conditions. Also, health, education and infrastructure have been in a tendency of declining recently due to the low public spending. In addition to these, there is a high level of HIV/AIDS cases which cause a decrease in life standards and life expectancy, increase in mortality. Just like Ethiopia, the diet of Kenya shouldn't be considered as sufficient for the

energy needs of the population which results in high level of undernourishment as we have seen before in this study. Their diet includes cereal, sugar, vegetable oils which are the main food that support their energy needs. Also, fruit, vegetables and milk supply have been in a tendency of rising recently. Under nutrition is mostly explained with the micro nutrient deficiencies.

Mozambique has been affected very badly because of the civil war takes from 1977 to 1992 and it ruined infrastructure, livelihood, agricultural production and economic improvement. It has recovered economically since then but there are still problems in human development and high levels of poverty which directly affect further social and economic development. The agricultural condition is very good in Mozambique yet the agricultural potential is not used very effectively. The agricultural production has been developed recently due to the proactive policies, returns of migrants and high levels of aid. But, a third of the cereal supply depends on import conditions. Most people live in the rural areas. In rural areas of Mozambique, food security is weak because of the low physical access to food. Markets, roads and other infrastructure were ruined in the civil war. Urban areas of the country have also the access of food as the major concern especially during the high food prices. Again, in Mozambique, bad climate conditions such as droughts and floods have an influence on the agricultural production. Diets of Mozambique consist of cassava and maize in general. In urban areas, people consume maize in general and wheat which is imported. The supply for the micronutrient rich food can be considered as very low. Cereals and starchy roots consist of the 80% of the energy supply. There are not enough levels of production of proteins and micro nutrients and the diets are not sufficient enough to fulfill people's energy needs. Mozambique has a high level of undernourishment as we have seen earlier. Besides low infrastructure such as health, education, sanitation and water, the levels of malnutrition and food security are also low. There is a need for the policies for a better food security and other agricultural and infrastructural conditions for improvement in economic development and declining poverty.

After looking at poverty conditions for our chosen countries, we should look at the food

production, trade and exchange rate conditions of them in order to obtain better understanding about their conditions.

Table 4.7

Food Production Index (1999-2001=100) for Ethiopia, Kenya and Mozambique

Years	2000	2005	2009
Ethiopia	97	134	150
Kenya	93	116	126
Mozambique	96	108	102

Source: data.un.org

We can see the food production indexes of our chosen countries from 2000 to 2009 in the Table 4.7 above. Food production index numbers have been in a tendency of rising since 2000 for Ethiopia and Kenya. For Mozambique, food production index numbers were in a tendency of rising between 2000 and 2005, but between 2005 and 2009, the food production index has decreased a little.

In Table 4.5, we can also see the food production per person in a day in terms of kcal is in a tendency of rising (even though there is a little amount of increase) through the years, especially between 1990 and 2008, just like the food production data through the years between 2000 and 2009. When we look at the food price index with the consideration of increase in food production and consumption for our chosen countries, we can think that the food production and consumption have been increasing recently besides the increase in food prices. The main argument here is that the rising food prices have been accompanying the increase in food production and food consumption in our chosen countries, however there is still high rates of

poverty and large number of people lives in undernourishment level. Also, when we look at the Gini statistics for our chosen countries which implies the income distribution and inequalities, according to the United Nations University-World Institute for Development Economics Research, Ethiopia, Kenya and Mozambique have a decreasing trend in their Gini levels which implies a decline in income inequality, especially through the last twenty years. But the statistics still remains at high levels and reflects high levels of income inequality. Unfortunately, the data which reflects the last ten years is not available. But, we can still understand the statistics have been in a tendency of decreasing but they are still at very high levels. The main question is that how the effects of the increase in food prices can be turned into an advantage for our chosen countries and other poor countries to reduce the level of poverty and income inequality.

According the report of African Development Bank 2011, our chosen countries are experiencing high levels of localized food insecurity. This situation may be worsened because of the unfavorable prospects for crop production. For example, Kenya experienced delayed and insufficient rains in 2011. Also, early harvests, high levels of poverty, crop failure, low food stocks, high food prices, low infrastructure, low access to land and food and bad climate conditions can be considered as other reasons for low food security.

In addition to the information above, we should mention some food price changes in our chosen countries. They have influenced by the recent food price increases but specifically, southern Ethiopia and north eastern Kenya have experienced a severe drought, so overall cereal production totally affected and reduced in 2011. (Around 34.4 million tonnes which was 9.5% higher in the previous year) For example, maize is one of the most affected cereals from the food crisis in Kenya, it was \$0.22 per kg in September 2010, increased to \$0.51 per kg in July 2011 and then declined to \$0.34 per kg in October 2011. Also, in Mozambique, the retail prices for maize have been in an upward trend between 2007 and 2011 besides a little fall in 2010. Basically, the food price trends in our chosen countries are similar with the global food price trends, but special conditions such as droughts and so on should be counted for a detailed

analysis.

In order to understand the recent trade balance situation of our chosen countries, we should to look at the recent import and export data available in the United Nations database.

Total value of the exports of Ethiopia has increased between 2006 and 2010 by nearly 25.4% each year and amounted to 2.6 billion US dollars. Food, live animals, beverages and tobacco, inedible crude materials except fuel, animal and vegetable oils, fats and waxes have consisted of most of the exported goods of Ethiopia in the year 2010. The food, live animals, beverages and tobacco rate in the entire export profile is 58.3% in 2010. Animal and vegetable oils, fats and waxes rate in the entire export profile is 23.7% in 2010. Between 2008 and 2010, top exported commodities of Ethiopia were coffee, oil seeds, fruits, vegetables, cut flowers and flower buds, gold, live bovine animals, meat of sheep or goats, live animals and tanned or crust skins of sheep or lambs. Imports of Ethiopia between the year 2006 and 2010 have the similar trend with exports and have increased nearly 16.8% per year and reached 9.7 billion US dollars. Machinery, transport equipment, mineral fuels, lubricants have consisted of most of the imports of the Ethiopia in 2010. Food, beverages and tobacco and live animals consists of 7.9% of entire imports in 2010. Petroleum oils, electrical apparatus, wheat and meslin, motor vehicles, palm oil, mineral and chemical fertilizers, medicaments, bulldozers, angledozers, graders, levellers, scrapers, motor cars, structures including prefabricated buildings of heading were the top imported goods of Ethiopia between 2008 and 2010. There have been a trade deficit with 7.1 billion US dollars in 2010 and it was 6.4 billion US dollars in 2009.

For Kenya, the most recent data belongs to 2009. Export of Kenya has decreased in 2009 by 10.7% to 4.5 billion of US dollars after increased for several years. Import of Kenya had a peak in 2008 with 11.1 billion of US dollars, and it decreased in 2009 by 8.3% to 10.2 billion of US dollars. It means a trade deficit with 5.7 billions of US dollars in 2009 and it was 6.1 billion of US dollars in 2008. 41.9% of exports of Kenya were food, beverages and tobacco, live animals in 2009. The rest 16% of exports was inedible crude materials, animal and vegetable oils, fats and

waxes, manufactured goods. Between 2007 and 2009, the top exported goods were tea, cut flowers and flower buds, vegetables, coffee, petroleum oils, carbonates and pre carbonates, cement, cigars, cheroots, cigarillos, cigarettes, iron and steel, women suits. Imports of Kenya in 2009 have consisted of machinery and transport with 30.4%, mineral fuels and lubricants with 21.4%, manufactured goods with 13.8%. Food, beverages and tobacco, live animals have had an rate of 11.6% in the entire import profile of the country in 2009. Between 2007 and 2009, most of the imported goods were petroleum oils, palm oil, motor cars and other motor vehicles for transport, aircrafts, iron and non steel products, medicaments, maize, wheat and meslin.

The exports of Mozambique was the highest in 2008 with 2.6 billion of US dollars, it declined in 2009 but increased in 2010 about 4.5% and amounted 2.2 billion of US dollars. Imports have decreased by 5.3% and reached to 3.6 billion of US dollars in 2010. Trade deficit was 1.3 billion of US dollars in 2010 which was 1.6 billion of US dollars in 2009. In 2010, 52.4% of exported goods have consisted of manufactured goods. The rest of the exported goods in 2010 have been mineral fuels, lubricants with 19.9% and food, live animals, beverages and tobacco with 13.9%. Between 2008 and 2010, the top exported commodities for Mozambique have been aluminium, electrical energy, unmanufactured tobacco, petroleum gases, crustaceans, oils seeds and fruits, petroleum oils, wood sawn, titanium ores and concentrates. Imports of Mozambique consisted of food, beverages and tobacco, live animals with 9.4% in 2010. Machinery and transport have been 26%, mineral fuels, lubricants have been 19.9%, manufactured goods have been 12.6% in the entire import profile in 2010. The top imported goods between 2008 and 2010 have been petroleum oils, motor vehicles for the transport, electrical energy, rice, motor cars, wheat and meslin, cement, palm oil, tractors.

The export and import information of our chosen countries just for food in the recent years is available below. In the Table 4.8 below, the import and export trade value information in terms of US dollar of our chosen countries for Food and Live Animals between the year 2006 and 2010 can be seen.

Table 4.8

Food and Live Animals Trade Values between 2006 and 2010 for Ethiopia, Kenya and Mozambique

Export Trade Value	Ethiopia	Kenya	Mozambique
2006	\$1.606.916.187	\$4.815.573.201	\$2.613.990.007
2007	\$1.897.409.162	\$5.597.901.413	\$2.593.690.409
2008	\$2.498.845.294	\$6.828.662.003	\$2.802.000.646
2009	\$2.407.785.511	\$6.144.496.281	\$2.407.653.328
2010	\$3.685.401.925	\$7.264.996.747	\$2.408.393.115
Import Trade Value	Ethiopia	Kenya	Mozambique
2006	\$5.554.013.672	\$7.615.189.404	\$3.191.415.611
2007	\$6.090.224.301	\$9.541.713.966	\$3.523.480.113
2008	\$9.617.962.751	\$11.816.679.846	\$4.436.271.759
2009	\$8.557.115.177	\$11.319.042.477	\$4.247.252.782
2010	\$9.257.443.485	\$12.939.080.418	\$3.874.554.611

Source: UN Comtrade Database

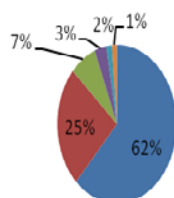
In the Table 4.8 above, we can easily see that food and live animals exports of Ethiopia, Kenya and Mozambique have been in a tendency of rising between 2006 and 2010. But, because of the food crisis, after 2008, the export trade values decreased a little and then started to increase again in 2010 for all three countries. The same situation is also correct for import values. Between 2006 and 2010, imports of food and live animals have been in a tendency of rising. However, because of the food crisis, after 2008 import values decreased a little and then started to rise again in 2010 for Ethiopia and Kenya. For Mozambique, the fall in the food and live animals import haven't stopped and continued in 2010. In addition, it is clear that our chosen countries are all net food buyers. Policies that are developed for these countries must include the net food buyer country needs besides specific conditions. So, considering this status is crucial.

Also, we have mentioned before that the net food buyer countries have been affected from the recent food price crisis more.

For Ethiopia, Kenya and Mozambique, we can see the top exported and top imported food and live animal commodities between 2006 and 2010 below, in the Figure 4.1.

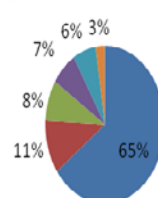
Top Exported Commodities for Ethiopia

■ Coffe, Tea, Cocoa, Spices ■ Vegetables and Fruit
 ■ Live Animals ■ Meat, Meat Preparations
 ■ Sugar, Sugar Preparations, Honey ■ Other Commodities



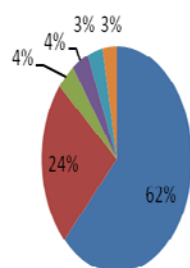
Top Imported Commodities for Ethiopia

■ Cereals, Cereal Preparations ■ Sugar, Sugar Preparations, Honey
 ■ Vegetables and Fruit ■ Misc. Edible Products
 ■ Coffe, Tea, Cocoa, Spices ■ Other Commodities



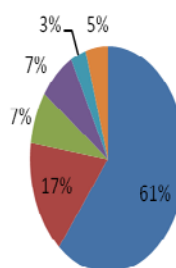
Top Exported Commodities for Kenya

■ Coffe, Tea, Cocoa, Spices ■ Vegetables and Fruit
 ■ Fish, Crustaceans, Mollusc ■ Sugar, Sugar Preparations, Honey
 ■ Misc. Edible Products ■ Other Commodities



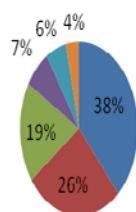
Top Imported Commodities for Kenya

■ Cereals, Cereal Preparations ■ Sugar, Sugar Preparations, Honey
 ■ Vegetables and Fruit ■ Misc. Edible Products
 ■ Coffe, Tea, Cocoa, Spices ■ Other Commodities



Top Exported Commodities for Mozambique

■ Fish, Crustaceans, Mollusc ■ Vegetables and Fruit
 ■ Sugar, Sugar Preparations, Honey ■ Animal Feed Stuff
 ■ Cereals, Cereal Preparations ■ Other Commodities



Top Imported Commodities for Mozambique

■ Cereals, Cereal Preparations ■ Vegetables and Fruit
 ■ Fish, Crustaceans, Mollusc ■ Dairy Products, Bird Eggs
 ■ Misc. Edible Products ■ Other Commodities

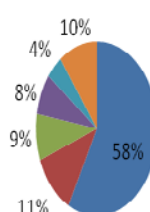


Figure 4.1: Top Exported and Imported Food and Live Animal Commodities Figures for Ethiopia, Kenya and Mozambique between 2006 and 2010

Source: UN Comtrade Database

For Ethiopia, 62% of exported goods were coffee, tea, cocoa and spices; 25% were vegetables and fruit; 7% were live animals; 3% were meat and meat preparations; 2% were sugar, sugar preparations, honey and 1% were other commodities. 65% of imported goods were cereals, cereal preparations; 11% were sugar, sugar preparations, honey; 8% were vegetables and fruit; 7% were misc. edible products; 6% were coffee, tea, cocoa and spices and 3% were other commodities.

For Kenya, 62% of exported goods were coffee, tea, cocoa and spices; 24% were vegetables and fruit; 4% were fish, crustaceans, mollusc; 4% were sugar, sugar preparations, honey; 3% were misc. edible products and 3% were other commodities. 61% of imported goods were cereals, cereal preparations; 17% were sugar, sugar preparations, honey; 7% were vegetables and fruit; 7% were misc. edible products; 3% were coffee, tea, cocoa and spices and 5% were other commodities.

For Mozambique, 38% of exported goods were fish, crustaceans, mollusc; 26% were vegetables and fruit; 19% were sugar, sugar preparations, honey; 7% were animal feed stuff; 6% were cereals, cereal preparations and 4% were other commodities. 58% of imported goods were cereals, cereal preparations; 11% were vegetables and fruit; 9% fish, crustaceans, mollusc; 8% were dairy products, bird eggs; 4% were misc. edible products and 10% were other commodities.

It would also be better to look at the exchange rates of our chosen countries in order to understand their changes against US dollars from 2000 to 2009, because exchange rates affect the trade conditions as we have already seen previously in this study.

Table 4.9

**Exchange Rates of Ethiopian Birr, Kenyan Shilling and Mozambique New Metical
Against US Dollars from 2000 to 2009**

Exchange Rate (national currency per US\$)	2000	2005	2009
Ethiopia (Ethiopian Birr)	8.31	8.68	12.64
Kenya (Kenyan Shilling)	78.04	72.37	75.82
Mozambique (Mozambique new Metical)	17.14	24.18	29.19

Source: United Nations Database

As we can see in the Table 4.9 above, Ethiopian birr and Mozambique new metical have gained value against US dollar while Kenyan shilling has lost a little value between 2000 and 2005, started to gain value after 2005 but still at a level below its value in 2000 against US dollar. We should remind that the decline in value of US dollars against trading partners is one of the causes of the recent food crisis. According to OANDA, after 2009, US dollar has appreciated against Ethiopian Birr. At the end of 2011, US dollar appreciated but then depreciated again against Kenyan Shilling. US dollar appreciated against Mozambique New Metical in the middle of 2010 but then depreciated again.

After we examined the most important statistics of our chosen countries about poverty, socioeconomic conditions, food and agricultural markets, we can move on with the effectiveness of the policies against poverty and food crisis and some other advises. Of course, other poor countries except Ethiopia, Kenya and Mozambique have different statistical results but basically, they have also high food insecurity, low levels of infrastructure, so many agricultural market deficiencies and high levels of population below the poverty line and undernourishment just like our chosen countries. Ethiopia, Kenya and Mozambique are also defined as crop producing countries and they have a potential to produce their own food and increase their export

levels of agriculture and food, and decrease their agricultural and food product imports just like most of the poor countries in the world. However, some policies applied in the past and have been applying now causes low standards of agricultural production and low food security. In order to remove the effects of food crisis, create better standards for producing, consuming and trading agricultural goods and food, and thus reducing poverty in our chosen countries and also most of the poor countries in the world requires analyzing the existing policies applied by institutions and governments, detecting the problematic parts and developing better standards and policy options for these countries.

In the following chapter, the solutions that can be applied for the poor people around the world are examined.

CHAPTER 5

POLICY IMPLICATIONS FOR POOR COUNTRIES

The existing high prices of the food have been highly debated by policy makers, academicians and media. The reasons of the food crisis, the impacts on especially poor people and what needs to be done for solving the problem of high food prices have been the main discussion points. The main reasons and impacts have been analyzed in our study, now it's time to look at the alternative solutions for the high food prices.

This topic has been arguing for years. Liberalization of trade with reduction of tariffs, redirection of public spending from subsidies to education, health, agricultural and infrastructural development and tax reforms have been argued on Washington Consensus in 1989. Importantly, General Agreement on Tariffs and Trade (GATT), have been very crucial for the international trade. In Uruguay Round (1986-1994), reduction of tariffs, trade barriers, agricultural subsidies have been argued. Agricultural subsidies, trade facilitation, tariffs and non tariff barriers, labor standards, agricultural investments and environment are some of the most important topics on the Doha Round in 2001, which hasn't concluded yet. Again, G8 and G20 give importance to food security and agricultural investments issues. Wise and Murphy (2012, p. 23). Also UN has studies for policy developments for agriculture and trade.

Before analyzing the alternative solutions, it should be pointed out that the any solution for high food prices should be applied in collective action. Because, the whole story is about the global food system and it requires global challenges.

At first, we'll look at the general advices and solutions for the high food prices especially in the poor countries. Then we will choose Ethiopia, Kenya and Mozambique which are three poor African country, analyze the general macroeconomic and socio-economic conditions of each and develop some policy options for them against high food prices.

The impacts of the price changes on poverty changes from country to country. The effects of the price increases on the poor depend on whether the countries are net sellers or net buyers of food and whether they depend on the agricultural sector for wages or other sources of income.

Zeza et al. (2009, p. 2), explains that the poorer households and who have limited endowment assets and access to agricultural inputs have been mostly affected by the food price crisis. So, policy actions should be developed by looking at the households access to assets and inputs, livelihood strategies and other conditions that affect the distribution of the effects of the food price increases.

In order to cope with the high food prices, some policy options can be applied. These policies are examined as follows:

Some cash or direct food transfers to the poor countries can be made. Controlling food prices is difficult and may reduce incentives for the farmers to produce more agricultural goods. Subsidizing food prices prevents these problems but it is difficult to achieve. Another options such as reducing tariffs on imported grains and limiting/taxing exports of grains but export restrictions are likely to exacerbate the spike in world prices. IMF has a case for releasing resources under the Compensatory Financing Facility to help to offset cost of transfers and subsidies in about thirty low-income countries that import both food and oil.

In order to overcome the effects of the increased food prices, World Food Program has some studies and efforts to increase donors and achieve targets to reduce poverty. In addition, there are also more efforts to increase co-ordination across the United Nations agencies in order to overcome the effects of the global food crisis.

In order to cope with medium term of increased food prices, also some policy actions can be considered. For example, two to four years of economic growth can be enough to offset the real income losses caused by the increases in the food prices and expand food supply in

order to decline the food prices. Also, in the medium term, public investments in roads, irrigation, agricultural technology, promotion for small farmers to make them reach financial aids, inputs and information can be achieved.

However, there are some concerns about rising output levels with limited land and water resources in some countries. Also, agricultural pollution and destructions of the forests can be considered as the other problems. But, countries with enough land and water can produce bio fuels in order to cope with high oil prices in medium or long term.

From medium to long term, population control policies can be considered as more desirable according to the increased food prices. The difference between world population stabilization at eight or ten billion can become crucially important.

Most importantly, markets can produce efficient amounts of outcomes in normal times, but they can't produce at this level when the variables fluctuate outside their expected range. In these times, some plans may be needed in order to cope with abnormal events, such as declining food stocks in the USA, European Union and China. These leading nations of the world may need to re-invest for the stocks which can be used to deal with the sharp increases in grain prices.

Besides these general policy actions above, there can be more choices against increased food prices.

Increasing trend in food prices causes increasing inflation in many countries. It may be wrong to address these specific inflation causes with the general macroeconomic instruments such as tightening monetary policy. Specific policies are needed to cope with the reasons and results of the increasing food prices. There are effective actions that can help the poor people in most countries in the short term, and increase agricultural production and stabilize food prices in the long term.

In short term, social protection programs should expand especially in the developing

countries for urban and rural people such as food and income transfers and nutrition programs. Millions of poor consumers and rural residents which are the net food buyers are affected by the increased food prices. So, these people need direct assistance. In some countries such as India and South Africa, there are social protection programs in order to meet new and emerging needs. So, countries that don't have such kind of social programs are not able to reach these emerging needs caused by increased food prices. So there can be export bans and import subsidies for these countries. Aid donors should increase, food aid, food development aid with social protection, child nutrition programs.

In addition, developed countries should eliminate domestic bio fuel subsidies and open their markets to bio fuel exporters like Brazil. It is known that the bio fuel subsidies in USA and ethanol and bio diesel subsidies in Europe are wrong policies and they have made worsen the world food markets. Subsidies on bio fuel crops also can be considered as an implicit tax on staple foods which the poor people depend mostly on. So, farmers in developed countries should make decisions what to produce not based on subsidies but on world market prices for different commodities.

Moreover, developed countries should remove the agricultural trade barriers. Although some agricultural subsidies and other trade distorting policies have been removed in developed countries but many of them remain and poor countries are not able to match them. So, developing country farmers should produce more in order to response high prices through new policies developed by the developed countries.

In order to achieve medium and long term agricultural growth, developing countries should develop medium and long term investments in agricultural extension and research, rural infrastructure and market access for small farmers. Rural investments have been neglected in the recent decades so this trend can be reversed by making some policy actions. According to Braun (2008a, p. 2), inadequate infrastructure, roads, electricity, communications, poor soils, lack of

storage, little or no access to agricultural technologies can be made better and developed for the farmers in developing countries. If these conditions can be recovered, farmers in developing countries can have more profits. Science, technology, assistance to agriculture, rural services should be developed.

According to Braun (2008a, p. 2), social protection, food and nutrition initiatives should be aimed at the short and medium term needs of the poor people. Agricultural investments and market access should be increased for preventing the supply shocks. Finally, bio fuels and agricultural trade policies should be revised and trade distorting policies should be prevented in developing countries.

In order to cope with the high food prices, policy makers and economic authorities should focus on various areas to which enough importance should be given. Financial support for rural and agricultural development is an important topic. Attention for small scale farmers, women, low input practices, agro ecology, food crop production for domestic consumption issues are also important. Moreover, issues of developing productivity of native seeds instead of relying on hybrids, balancing public and private financing, balancing market conditions and activities of governments should be considered. In addition, developing policies for reduction of the effect of energy crop development on food prices, developing policies that aim of reducing price volatility with the consideration of financial speculation and developing strategic food reserves are also important. Again, issues of developing effective agricultural investment policies especially about land, developing policies that consider effects of climate changing trends in agricultural production and take action, developing policies that support the market power among transnational firms in the food markets all around the world should be analyzed greater in detail by the authorities. Also, the policy space for managing food and agricultural policies of the developing countries should be protected in order to construct a self managing system for them. Wise and Murphy (2012, p. 27)

Financial support for rural and agricultural development issue has generally been developing. Donor countries, international institutions, governments especially developing countries have increased their spending on rural and agricultural developments. However, the level of support agricultural and rural development may not be enough for totally abolish the effect of global food crisis. The issues of financial support will be analyzed greater in detail as follows:

The country-led programs have been accepted by many recently and it has developed the rural and agricultural development practices of the Rome Principles⁷ which include principles of country ownership, strategic coordination, comprehensive approach, multilateral support and improvement and sustained financial commitment in agricultural development. More small scale farmers, more women farmers, more agro ecological activities, more consideration of food crops not just export crops have been accepted and started to be funded recently. However, these efforts are not enough and need to be improved. Also, the role of the governments and states in the agricultural development has been increased rather than their role in the economic environment recently by the effect of country led programs. Global Agriculture and Food Security Program has been applying the effective rural and agricultural development projects in terms of quality and governance. But, since now, very small share of international aid has been collected for this program. Again, even though most of the country led programs support the low input, diversified and more effective agricultural systems, the most of the rural and agricultural development funding systems is not enough for supporting these systems. There have been still industrial agriculture systems prevailing with a significant level of share of spending. In addition, although the rural and agricultural development programs aims to increase the level of native seeds and local food crops and the native seeds and local food crops have been developed a little, there are still a large amount of support for the commercial seeds and reliance on external inputs. Native seeds which can be considered as one of the most important source of biodiversity and resilience, have greater importance in case of a climate change or any other supply shock because it gives

⁷ For further information about Rome Principles, please visit <http://www.one.org/c/international/hottopic/3930/>

more management and control ability of production to the farmers. Similarly, the efforts to improve the rural and agricultural development systems, funding and the importance given on the domestic food markets which aim at the local and regional level of consumption have still been low and need to be improved. Also, funding for integration of local level of production into global level and efforts of integration of the small scale farmers into global, national and commercial retail markets is not enough and should be developed. Also, the international price volatility created by the small scale farmers' exposure should be focused by these donor programs. Another deficiency of these funding projects is not putting enough emphasis on the climate changes which have significant effects on the agricultural production. To sum up, support and funding for rural and agricultural development systems have been increased recently but the efforts are needed to be improved. Donors have been mostly interested in supporting the new policy spaces for the small scale farmers instead of developing changes for their economic and trade policies. So, funding needed for the new systems stays at the low level.

In agro ecology issue, there are a couple of things that should be mentioned about. This topic is mostly considered with the idea of the agricultural development strategies should be analyzed with the restricted resources. Most of the recent programs and policies developed have been considering this issue to obtain a better agricultural system. The responses to the previous food crisis in 2008 focused the productivity increases in the short run, so the chemical fertilizer prices have gone up besides the prices of the fossil fuel based agricultural chemical and fertilizer prices. In the middle run, the improved kinds of seeds have been considered as the solution. These solutions have increased the dependency of farmers to the external inputs which is very expensive. Also, there have been greenhouse gas emissions because of the used technologies. The long term agricultural policy solutions refer to the green revolution. The policies only focus on the small scale farmers to participate in the international systems have not been considering the sustainability of the agricultural production systems and needed to be developed. So, resource management should be improved through the environmental concerns. Low input agricultural

systems with sustainable environment concerns should be developed efficiently enough because of the restricted resources and the concern of living in healthy societies.

Another problem in the policies that have been developed against the food crisis is the increased level of energy crop production and the diversion of food crops to production of bio fuels. Most of the governments have not reconsidered their policies through the energy crop production. But their policies to produce bio fuels and protect, subsidize, mandate bio fuel use can be eliminated. It is also mentioned before in this study that the increased production of corn ethanol and bio diesel is one of the important reasons for the increase in the food prices, demand for crops, land and water recently. Also, it is known that when oil prices increase the eliminating the support policies have become less and less effective. These support policies can easily help to industry to grow but it is a reason for a demand shock and increased food prices. These supports for bio diesel production and trade subsidies should be eliminated because they cause oil prices to increase and bio fuel production more profitable, besides their negative effects on food production.

Reduction of price volatility is another important issue to be solved in the food price crisis. When considering food price crisis, we see that there is a supply and a demand side of the crisis. Efforts to increase demand can easily show us what kind of production systems are needed, how the current production systems are effective and how the access for food can be guaranteed. Control of reserves is an effective way of declining the price volatility. Because when the stocks are low, the unavoidable result is the price volatility. Reserves can also support the supply levels when the production decline from time to time. Also, reserves provide better trade conditions and a reason for trade. For example, dependency on imports as a poor country makes a country vulnerable to the food crisis. In order to protect the country's citizens, exporting countries can put export restrictions when their supplies are not enough. But, this behavior should be limited just like WTO have had efforts to prevent the export restrictions in 2008 food crisis and recently. It is also important for meeting the human needs and emergencies. In addition,

commodity market speculations can cause price volatility. Efforts of reform for speculation controls by national laws have been slow. Poor countries are mostly dependent on food imports so uncontrolled speculation especially in the short term should be considered. There should be a regulation and reconsideration of the conditions of financial markets to eliminate the price busts and booms from the agricultural markets just like it have been existed in the recent years.

Food security is threatened by the foreign land acquisitions and land grabs. Recently, some developing countries that can be considered as richer than the others desire to have long term access to food by buying or leasing lands abroad. Bio fuel producers desire to produce feed stocks and international producers and investors are speculating on land and water sources. Agriculture in developing countries is lack of capital, and leases and selling their lands make the food producing available in the future. So, land which is available for the food production has taken from the control of local communities. When the land can be used collectively and land tenure is collective, poor people become poorer and no chance to continue their living standards. This trend can be defined as the opposite of development. The efforts for reversing this trend are not effective enough and needed to be developed. There should be decline in the number of policies for such investments and the land, national sources and rural populations of the investment receiving countries should be protected. Preventing foreign land sales makes countries to have better conditions and control.

As mentioned earlier in this study, climate conditions are very important for the agricultural development and food security. This topic have gained importance in recent years and argued in the agricultural debates in most institutions. It is mostly accepted that the agricultural development systems should consider the climate changes and develop systems with this consideration. Agricultural development projects should limit their climate effect. Changes in climate have already effects on the agro-ecosystems and support for farmers to adapt to these changes is needed. But, there is not any solutions developed for this issue. Most important concerns in this topic are high input industrial model and fossil fuel based agricultural

production. These trends should be reversed. Also, private sector investment incentives rather than the public sector investment incentives have been considered as ineffective by the developing countries. Because, in such a way, rich countries have become responsible for financing climate changing effects and adaptation for these changes and developing countries have become ineffective. In addition, carbon markets should be considered in the climate change topic. There have been efforts to reduce carbon emissions such as getting credit for carbon emission reduction, decreasing the deforestation and improving carbon sequestration. UN-REDD Program⁸ (The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) is an example of this effort. The relation between climate change and agricultural development is generally accepted and there have been actions taken against the negative effects. But, the international actions should avoid increasing and improving the carbon markets and the level of private investment in high input based industrial agriculture trends.

The trade and food security is also an important aspect of this topic. The latest trends in this topic is about reducing the trade barriers and increasing international trade with food security. Also, integration of the small scale farmers of the developing countries into the international chains through export channel is an important aspect of the trade and food security topic. Domestic food markets have gained importance recently and foreign investors have more shares in some largest developing countries. These are the main concerns in this issue but the application of the policies can't be considered as totally successful. Wrong policies have harmed the domestic food production of the developing countries, have caused disinvestment in agriculture and have reduced the role of governments in agricultural development systems and food security improvement actions. Wise and Murphy (2012, p .32) Now, in order to reverse these effects, the role of the governments has been in a trend of rising in agricultural development projects and trade structure policies. These trade conditions are important because the management of these trade conditions make the food price changes result in less negative effects.

⁸ For further information about United Nations REDD Program, please visit <http://www.un-redd.org/>

Export restrictions are also important to be applied and should be managed properly while controlling the conditions of the citizen's of a country in a case of the low supplies shouldn't be avoided. The system of reserves owned by public can be a good solution for this issue. Trade regulations have an important role on the developing countries' food security and this topic is needed to be understood clearly in mind and should be applied in the new policies of a better food security environment.

Besides agricultural markets, energy markets and financial markets have had a greater importance globally, the role of the transnational firms in the global food system have increased. This is an important concern because these firms may threat the global food security although they provide better production and communication systems. According to Wise and Murphy (2012, p. 33), the effects of the transnational firms including seed policies, value chains, negative effects of contract farming should be analyzed greater in detail and taken action. Also, public and private partnerships and industrial agriculture patterns affect the market power conditions negatively. The management of the market power is important for the food markets and needed to be developed. Also, further search is needed in this topic to provide international community to regulate the big and global corporations globally.

Especially for Africa, recent food crisis is a reason for authorities to understand one more time that the poverty reduction and food security in Africa is not achieved. Diao, Headey and Johnson (2008, p. 539). In Africa, low agricultural productivity and long term neglect of agriculture sector are one of the main constraints for poverty reduction, food security and long term economic growth. Besides these, high food prices make this situation more crucial. In this step of the study, we should mention about the 'Green Revolution' for Africa which has been applied by other developing countries and given some effective results.

Green Revolution that includes various research, development and technological efforts and transfers, happened between 1940s and 1970s. It had very important and considerable positive effects on agricultural production and food security in the world. It provided a chance for

many people to leave living in hunger and under the poverty line. During Green Revolution, high yielding varieties of cereal grains, better infrastructure conditions, modernization of production and management techniques, better distribution of hybridized seeds, synthetic fertilizers and pesticides to farmers have been achieved around the world. However, it couldn't make it in Africa although there had been many efforts. There were widespread corruption, insecurity and weak even none infrastructure. The governments' actions were also insufficient and inefficient. In addition, some environmental factors such as low availability of irrigation, high diversity in slope and soil types were the other reasons for the failure of the Green Revolution in Africa.

Catalyzing the high growth in staples food production can be a suitable solution. Also, small holder farmers' productivity should be increased by scaled up agricultural investments and transportation costs should be reduced by scaled up infrastructure investments. Without these actions, farmers in Africa will continue to live in smaller farms, low land quality and low food security. Africa has a strong natural and human capital potential but the lack of some important instruments such as low public investment in agricultural research and development, farm inputs and transport infrastructure. By improving these bad conditions, rising food prices can be turned into an advantage for the African farmers. Policy makers and aid donors have been too interested in the political and financial aspects of this issue and the required investments haven't achieved for this reason. This has to change immediately. In Diao, Headey and Johnson (2008, p. 539), it is pointed out that with a rapid growth in staples production, integrated regional markets food prices would decline 20-40% for consumers and 10-20% for producers. It brings higher farm revenue, higher agricultural growth rates around 6.5%, more income growth, higher food security and high levels of poverty reduction for about 70 million African people.

Next step will be concluding the remarks about the entire study.

CONCLUSION

In this study, the reasons and impacts of recent high food prices have been analyzed. High food prices and recent food price crisis is considered as a concept of commodity cycles. At first, the reasons for commodity cycles and then the reasons for high food prices have been analyzed.

Bad weather conditions, low stocks, speculation in agricultural commodity markets, depreciation of US dollar, low real interest rates and trade restrictions are defined as the cyclical factors for the recent higher food prices.

High oil prices, increased bio fuel usage and demand, ineffective land usage, low productivity and low stock levels, climate changes, rising incomes and demand in emerging markets such as China and India are defined as the structural factors for recent higher food prices.

Higher food prices have macroeconomic and poverty impacts on countries. In macroeconomic impacts, there are inflationist impacts, exchange rate movements, higher import bills and transmission of rising international food prices into the domestic markets are analyzed. Higher food prices can also cause bad effects on economic growth and stability.

Higher food prices also have poverty impacts and cause hunger and malnutrition especially in the countries which are already poor. After understanding concepts and aspects of poverty, the statistics for Ethiopia, Kenya and Mozambique have been analyzed. While analyzing these three countries' conditions, we look at the Multidimensional Poverty Index statistics, percentages of populations living under \$1.25 and \$2, Human Development Index statistics, gross national income per capita levels, food consumption and undernourishment levels, Global Hunger Index statistics, Food Production Index statistics, import and export trade values with the top imported and exported food and livelihood animal commodities. Besides these statistics and data, we also looked at the exchange rates of the national currencies against US dollar. We used

these statistics and some other useful information in order to understand the conditions of our chosen countries better and develop better solutions for them and other poor countries.

These three countries are poor at national, regional and household level, have low human development and food security. These countries are also net staple food buyer countries. The statistics for other poor countries may differ, but when considering the overall poverty, agricultural sector and food security conditions, all poor countries need the same effective policy solutions.

There have been some efforts in order to reduce poverty and food price volatility, increase food security and improve agricultural sectors and trade patterns. However, most of the policies have remained weak and needed to be developed with considering the poor country needs. In order to develop effective policies and get rid of the inefficient parts of the existing policies which have been developed in the past, the deficient parts of the past policies, which they are denoted previously in this study, should be detected and then the existing problems especially for the poor countries should be solved with the cooperation of international and domestic policy makers.

The problems in the national level also require international efficient cooperation and new policies should be developed by taking this requirement into consideration.

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