A MACROECONOMIC ASSESSMENT OF U.S. AND E.U. INDUSTRIAL AGRICULTURE POLICIES AND THEIR EFFECTS ON WORLD FOOD SECURITY, 1994-2010

ABD'NİN VE AVRUPA BİRLİĞİ'NİN ENDÜSTRİYEL TARIMSAL POLİTİKALARININ VE ONLARIN DÜNYA BESİN GÜVENLİĞİ ÜZERİNDEKİ ETKİLERİNİN MAKROEKONOMİK DEĞERLENDİRMESİ

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Abstract:

Though an everyday harsh reality for more than a billion people, the concept of food security has recently entered the mainstream as a result of crises experienced worldwide in 2008. Current production and trade dynamics do not seem to be aiding the development of a more food secure world, and in the opinion of many, are leading the way into a future of great risk. One of the primary arguments is that the modern, industrial production dynamics are unsustainable environmentally and rely too heavily on technological innovation to solve their woes. Furthermore, it is crowding out a highly undervalued and tradional unit of sustainable production: the small-hold farmer. This is leading to a significant drag on world development, increasing urbanization of the poor and adding to the burden of unemployment in urban areas and causing an important, multi-functional system of agricultural production to be pushed to the margins of society when it should be pushed to the center. This paper will discuss the role of the small hold farmer in the context of contemporary food issues and the effects market forces, agricultural policies and trade continue to have on food production in an increasingly food-insecure world.

Key topics: price volatility, speculation, trade, infrastructure, biodiversity and AE agricultural policies.

Özet

Her ne kadar dünya üzerinde yaşayan bir milyardan fazla insanın gündelik hayatlarının zor bir parçası olsa da, gıda güvenliği kavramı dünyanın gündemine 2008'de ortaya çıkan ve dünyanın bir çok yerinde görülen krizlerle girdi. Mevcut üretim ve ticaret pratiklerinin dünyamızı gıda güvenliği açısından daha iyi bir noktaya götürdüğünü söyleyemeyiz, daha da kötüsü, bir çok insanın düşüncesi bu pratiklerin bizi daha da riskli bir geleceğe doğru götürdüğüdür. En temel argümanlardan birisi, modern-endüstriyel üretim dinamiklerinin çevre ile olan ilişkisi göz önünde bulundurulduğunda sürdürülebilir olmaması ve buna ilaveten, yol açtığı sorunların çözümünün de bir takım teknolojik yeniliklere bağlı olmasıdır. Daha da kötüsü, bu dinamikler, çok daha az değer verilen, son derece geleneksel olan ve aslında bundan dolayı da sürdürülebilir tarımsal üretim yapan küçük ölçekli çiftçileri yerinden etmekteler. Bu durum, kırsaldaki çiftçinin şehre gelmesine ve şehirdeki işsizliğin artmasına yol açıyor ve sonuç olarak da çok yönlü bir üretim sistemi olan tarımsal üretimin toplumun merkezinden toplumun dışına itilmesiyle karşı karşıya kalıyoruz. Bu makalede, güncel gıda meseleleri bağlamında küçük ölçekli çiftçileri ve bunun yanında, gıda güvenliği açısından daha da riskli hale gelmeye başlayan dünyada, pazar dinamiklerinin, tarım politikalarının ve ticaretin gıda üretimi üzerindeki etkilerini inceleyeceğiz.

Anahtar kelimeler: fiyat dalgalanmaları, spekülasyon, ticaret, altyapı, biyolojik çeşitlilik ve gelişmiş ekonomilerde tarım politikaları.

Acronyms

UN:	United Nations
UNDP:	United Nations Development Programme
UNFP:	United Nations Food Programme
FAO:	United Nations Food and Agriculture Organization
USDA:	U.S. Department of Agriculture
WB:	World Bank
IMF:	International Monetary Fund
EPA:	Environmental Protection Agency (U.S.)
PGRFA:	(Report on)Plant Genetic Resources for Food and Agriculture
IAASTD:	International Assessment of Agricultural Knowledge, Science and Technology for Development
GDP:	Gross Domestic Product
GNP:	Gross National Product
AEs:	Advanced Economies
DEs:	Developing Economies
MDGs:	Millennium Development Goals
WFS:	World Food Summit
CAADP:	Comprehensive Africa Agriculture Development Programme
GIEWS:	Global Information and Early Warning System on Food and Agriculture
CGIAR:	Consultive Group on International Agricultural Research
MCC:	Millennium Challenge Corporation
MCA:	Millennium Challenge Account
IFAD:	International Fund for Agricultural Development
FBOs:	Fixed Based Operators
GMOs:	Genetically Modified Organisms
TNCs:	Trans National Corporations
MNCs:	Multi-National Corporations

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Chapter 1: Poverty and Food Insecurity

1.1 Defining the terms: Hunger and Food Security

In this introductory chapter, a few issues will be discussed relating to terminology. At the outset, it is important to understand that while many of the largest developmental, trade, governmental and civil institutions have consolidated data and statistics in the pursuit of understanding the nature of development and its progress, there is often dispute about these terms among scholars and these institutions and quite frequent revisions made to improve or otherwise alter them. This chapter discusses briefly the current global state of poverty and hunger as it pertains to food insecurity, a few of the most common terms associated with its study and some of the issues pertainingto the scope of how the development debate is viewed in this context.

The United Nations defines undernourishment as "existing when caloric intake is less than the minimum dietary energy requirement" (FAO, 2009). That is the minimum intake required for "light activity and minimum acceptable weight for an attained height" (ibid). The number of calories generally aacepted sometimes varies according to country as well as population, gender and age structure, yet is generally around 2,100 kcal. (UNFP) The words "hunger" and "undernourishment" are often used interchangeably in this context; however, this absolute number does not necessarily take into account the nutritional composition necessary for prolonged health which, if included as a factor, would push the number higher. Also, because the majority of the poorest worldwide are engaged in rather demanding agricultural or otherwise labor-intensive activities, it might be argued that a caloric intake reflecting minimum dietary needs for "light activity" would be insufficient, also pushing the margin for adequate nourishment higher as well as the numbers of malnourished.

Though the proportion of undernourished people has decreased over the period 1990 to 2008, the real number has slowly risen and was rising, even before the twin crises of 2007 and 2008 (FAO, 2010c). As the world population approaches 7 billion people in 2011, it is one sixth of humanity that does not have access to adequate food and a far greater proportion that are food insecure. If current consumption trends are forecasted into the future to 2025 and even until 2050 and similar, large-scale, non-sustainable agricultural practices continue, the outlook becomes far grimmer.

In keeping with the definitions used by the UN Food and Agricultural Organization, FAO, *food security*…

> […] exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. (FAO, 2009)

According to this definition, one can say that all undernourished individuals are food insecure, because they do not have consistent access to adequate nutritional intake. However, according to the above definitions all those who are food insecure are not necessarily undernourished. Individuals who are subsisting at a level of nutritional consumption at or just above marginal in-take, would not be considered malnourished. Yet, sudden shocks or price increases due to a wide range of possible factors including crises and fuel prices, would alter the spending priorities, diets and therefore the nutrition of hundreds of millions worldwide because they do not have the resources to compensate for the change in prices. For this reason, those who are food insecure are a significantly larger portion of the world population than the undernourished because they are all the undernourished, plus those individuals who do not have surplus income, reserves or a public safety net to absorb even many minor shocks to food prices.

This is precisely what happened in 2008 during a world oil and food price spike that left millions world-wide incredibly vulnerable. According to the director of the World Bank, more than 100 million people were pushed into poverty by the 2008 crisis. (World Bank Press Release, 2008) Despite a commitment of funds and action by developed countries in the aftermath of 2008, the same office estimates 44 million were again the victims of a similarly severe price increase in 2010. (Pugh, 2011)

A number of factors may converge on world markets to affect prices, each having its impacts ripple through an increasingly integrated world economy. Therefore, when discussing food security, there must be a consideration as to real income, savings and the safety net that exists in each context. If there is no safety net, the burden for protection against shocks falls squarely to the consumer, who in many cases is ill-equipped to predict it or provide for it.

In geographic terms, the regions most plagued by chronic hunger are Southeast Asia and sub-Saharan Africa which together comprised more than 800 million of the estimated 1.2 billion who suffered from extreme poverty and hunger in 2009. Other significant populations are affected in Latin America, North Africa and the Near East. (FAO, 2009) Yet, food insecurity reaches into the poor households of every country, as exhibited in the U.S. in 2008. Many citizens were forced to, if only temporarily, take advantage of safety nets such as local charities, government programs and even – in the case of some college students – university food banks. (Fitzpatrick, 2008)

We can see that the concerns of hunger and food security often overlap in the ways that we study them, but that they are not necessarily the same thing. Resolving all food security issues would involve eradicating hunger and securing a sustainable global system. However, eradicating hunger in the short term would not necessarily create a food secure world. If enough funds were allocated to supply food to every hungry person for one week, they would be hungry again the day after. Yet food

security allows that individual to provide their own needs on the day after support fails. Therefore, one major point to keep in mind is the usage of these terms in the temporal context with which each is taken. Hunger is a persistent short-term problem, achieving food security is both a short-term and long term issue that requires fundamental structural changes oriented to sustainably protect and improve the conditions and access to food of those vulnerable.

In the past, the world's small farmers had mainly to worry about the scourges of famine and calamity caused by natural phenomena. In today's economically integrated market arenas, it is a myriad of things including financial crises, trade disputes, soil deterioration, water, population pressure, the infringement of patented GMO genetics into one's crops, property rights, fluctuations in consumption habits and fuel-price spikes due to either demand or government policies that threaten the daily diet of nearly one billion people.

Large-scale production of a small number of hybrid staple crop varieties such as corn and wheat in countries such as the United States have served to increase "efficiency" in the short-term and keep prices low worldwide. Technology and advancements in genetic engineering of these varieties led to a "Green Revolution" whose benefits and legacy changed much for the agricultural industry and the nature of food production for billions around the globe. The Green Revolution made greater-yielding and often more resilient crops available to millions of farmers, yet it became evident years ago that many of the efficiency benefits of the technological revolution in agriculture came with some increasingly serious consequences. The herbicides and fertilizer necessary for this mode of production are contaminating surface and ground water on a grand scale and accumulating in bodies of water that collect runoff of agriculturual watersheds - such as the Gulf of Mexico - causing significant damage and "dead zones" in oceans, lakes and major rivers. (Biello, 2008) (Blann et al., Nov 2009)

(Rabalais et al., Aug 2009) Furthermore, though the EPA has for more than a decade stated that by testing 100 sites throughout the Midwestern United States, it has found pesticide levels to be below those that would cause human health issues, the EPA during the Obama Administration has commissioned new research starting in 2009[1] on testing the most widely used pesticides (atrazine, simazene and triazene) in response to growing public concern – concern that has grown despite prior federal appeasement attempts. (EPA, 2006)

1.2 Overview of hunger

There are more chronically undernourished people in the world today than there were twenty years ago[2]. At present, more than one in six people on the planet are malnourished due to extreme poverty, and the long-term trend is upward. Though part of this can be attributed to higher population growth rates in some of the world's poorer regions, the amount of food produced has out-stripped the pace of population growth. Therefore this gap is largely due to a failure of policy-makers to properly address development and food systems.

For all animals, the first issue of survival is access to water and food. For all humans on the planet, food is a daily pursuit; and for more than one billion, it is a daily struggle. In 1948, the UN Declaration on Human Rights stated that, "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food."[3] Yet more than sixty years later, progress in the acquisition of these rights has been slow at best. From an economic development standpoint,

[1] The information on the site was updated in 2009.
[2] The current estimate of malnourished is 925 million, "State of Food Insecurity: 2010" (FAO 2010b). The number reported by the same source for 1990-1992 was 843 million. The proportion of malnourished to non-malnourished has decreased slightly, yet this is largely due to China's growth. (FAO Report 2010)
[3] Universal Declaration of Human Rights (UN, 1948), Article 25.

billions of dollars worth of productive activity are lost each year in many countries, rich and poor alike, due to the malnutrition.[4] From an ecological standpoint, the scale of the harm being done is gradually becoming evident through erosion and ocean pollution. From an ethical standpoint, the lack of unified political mobilization in the face of such dire need is distressing.

The increase in the number of malnourished in the last twenty years is unnecessary and has taken place during a period of massive accumulation of wealth and increased agricultural productivity throughout the world. It has been the reality despite the largest collective development expenditures in history and the constant and ever-growing efforts of international aid organizations, select governments and other agencies. So why is progress so feeble?

This study argues that current globally-integrated agricultural trade and production systems are ill-equipped to meet the needs of either the present or the future. Dominant global actors have often ensured that linkages of agricultural trade, support and aid are exigently integrated in such a way as to have destabilized if not held back progress in the developing world. Furthermore, it argues that many policies of advanced economies act *in counter* to efforts toward long-term food security and development, offsetting them with issues relating to a) sustainability, b) crises and price manipulation and d) subsidies and access to markets (trade). In analyzing how global food markets and farm systems affect the equitable development of populations living closest to the margins of undernourishment and survival, it is possible to better understand why global hunger and food insecurity is on the rise.

As the frequency of food price shocks increases and speculation in the world's commodity markets has been given more free rein, the effects are crowding out one of the most long-held and long-practiced of innovations: small-scale farming.

[4] FAO report, 2011; http://www.fao.org/docrep/007/y5650e/y5650e03.htm

Farmers who possess labor-intensive small operations are often unable to compete on the changing terms of the world commodities markets. They are facing major challenges in the new century that many are poorly prepared to face. One of many results of a new dynamic created by the greater industrialization of agricultural production is a greater number of urban poor, relocated from previously agriculturally productive rural areas, made uncompetitive under the current model. Agriculturally skilled workers have been crowded out of the market and forced to seek unskilled labor work in urban areas. Such is the case with many Mexican corn farmers after the mid-1990's. Current dynamics disproportionately benefit capitalism in both finding cheap labor in the cities and expanding industrial agriculture in rural areas.(Boyce 1999) Yet the concentration of production in fewer hands and the reduced number of labor-intensive small farms is in direct contrast to a sustainable and effective food production dynamic.

In the continuing fallout of the advancements of the Green Revolution and its ongoing controversiality, the fruits of that progress still fail to benefit those most in need. In fact, though the cost and the price of food has decreased in many ways, it has done so by excluding the negative environmental and social impacts from the pricing system. It has fostered the dominance of input-intensive systems that are nearly the sole property of wealthy agro-industrial farmers rather than labor-intensive systems, which would benefit poorer small-holders. Without means of production or income, the small farmer is unable to compete and drops out of the market. In this way among others that will be discussed, the Green Revolution has largely contradicted its original aim in making food more accessible to the world's poor.

Several of the Millennium Development and World Food Summit Goals of 1992 have seen at least some progress, yet the progress of their first charge – hunger and poverty – has been negative for the world outside China. The persistence of hunger and

malnourishment renders other factors of development less efficient and in many cases irrelevant. When one is hungry or malnourished, they are ill-prepared to provide for their families or for themselves, even if work is available. Furthermore, when an individual does manage to overcome the oppression of poverty, he remains susceptible to the turbulence of the international pricing system. Such shocks – regardless the nature: financial, ecological, oil – affect demand and world prices, often forcing those who live at marginal income to reassess priorities and sacrifice health care, education and (if any) discretionary spending to cover food costs. This lack of investment in long-term needs is one aspect that perpetuates poverty. (FAO, 2009) There is little reason to suspect that the recent series of shocks will be the last.

There are many factors that affect the state of current and future global food insecurity therefore hindering development and progress, but this study intends to focus primarily on those that originate in the developed world.

1.3 Overview of food insecurity

Hunger and malnutrition due to lack of nutrients is generally a scourge of the developing world, but food insecurity is a global issue for the present and the future, and one that is multi-dimensional. The nature of the current crisis is one that is different than in the past and has largely emerged over the last 30 years from the production and trade policies of the developed countries.

For the purposes of this research, a review of much of the current literature shows that it is appropriate to break down and examine separately the forces suppressing the livelihood of a cornerstone of future food security, the small hold famer. One of these is acutely a global issue, the other two disproportionately affect developing countries: *sustainability, price volatility and access to markets*. These issues will be further broken down

and discussed in successive chapters as they represent the areas of the most prescient need for changes in policy and approach as it concerns long-term food security and sustainable production. It is a preface to this study that the current dynamics of development aid, primarily through the work of international organizations over the last fifty years, has done much to augment the effects of global economic turbulence brought about by shocks of all kinds. Yet developed and developing countries alike continue to be battered by the economic storms originating especially from inept policy, poor planning and minimal foresight. In the next forty years, it is estimated that the human population will peak[5] at nearly 130% it current number. If current trends of soil degradation, unsustainable water consumption and contamination, the persistence of ever stronger pests and diseases combined with rising oil costs, infrastructure inadequacies and profit-focused production of agricultural products continue to rule the discussion, there remains only nature to make its proper adjustments.

1.4 The Transport Issue of the Industrial System

The intensity of the argument pertaining to the sustainability of the current agro-industrial system and its logistical dependence on cheap transport has been rising considerably over recent years. This is the case particularly since the oil price spike of 2008 and ensuing world food prices. As the world's population gathers to the cities, evidenced by long-term urbanization trends, aggregate food transport miles increase. Urbanization and migration to the cities have separated populations from the production sources of their food on a grander scale than at any time in history. In the process, it has created an ever-growing price-dependence not only on the *supply of food*, but even more so on the *price of fuel* to get it to market.

[5] At around 9 billion in 2050, World Bank 2010

> Given the increased importance of biofuels and the new linkages between agricultural and energy markets, increased cereal yields, if achieved may not necessarily continue to lead to lower prices. Because the world energy market is so much larger than the grain market, grain prices may be determined by oil prices in the energy market as opposed to being determined by grain supply. (FAO, 2009)(p.11)

Yet even this statement fails to clearly reflect that these prices will be determined by *both* fuel prices *and* a growing demand due to a largely urbanized world population projected to peak at 9.2 billion in 2050. (UN, 2011) The current agricultural production regime relies heavily on high-input from the petroleum industry both for transport and for fertilizer. In the last few years especially, greater attention has been paid to the relationship between transport costs and food prices. This has largely been due to the swift increases in both food and the price of oil, disproportionate to the increases over previous decades. (*See figures 1.1 and 1.2*)

International agro-industrial companies, many based largely in the U.S. and operating at home and abroad, have sought to expand or found their production in countries where there may be factors working to their advantage. These often take the form of lower labor costs and minimal compensation for externalities such as pollution or a lack of adequate consideration for worker health. The avoidance or persistent "externalization" to different sectors or governments of these costs has been profitable for many of the agro-industrial companies. Corporations, governments and indiviuals are then able to produce and consume food at costs which do not reflect the correct value or impact of their production. Given the current trends of the impacts of this system, it does not project well 25 or 50 years into the future. The word most typically used to describe this systemic fault is "unsustainable."

As the number of hungry people increases and the food supply more unstable due to prices, climate change and production dynamics; it is possible to see the causes of increasing food insecurity on a global scale. A focus on research at the world's largest international development and lending institutions is intensifying in this area in an effort to better understand the growing crisis. In this way, the concepts of sustainability and food security are inherently linked. To discuss food security without consideration for future generations to have the same would do nothing to settle the issue, but put the future in greater disadvantage.

Figure 1.1 Monthly Real Food Price Indeces, 1990-2011

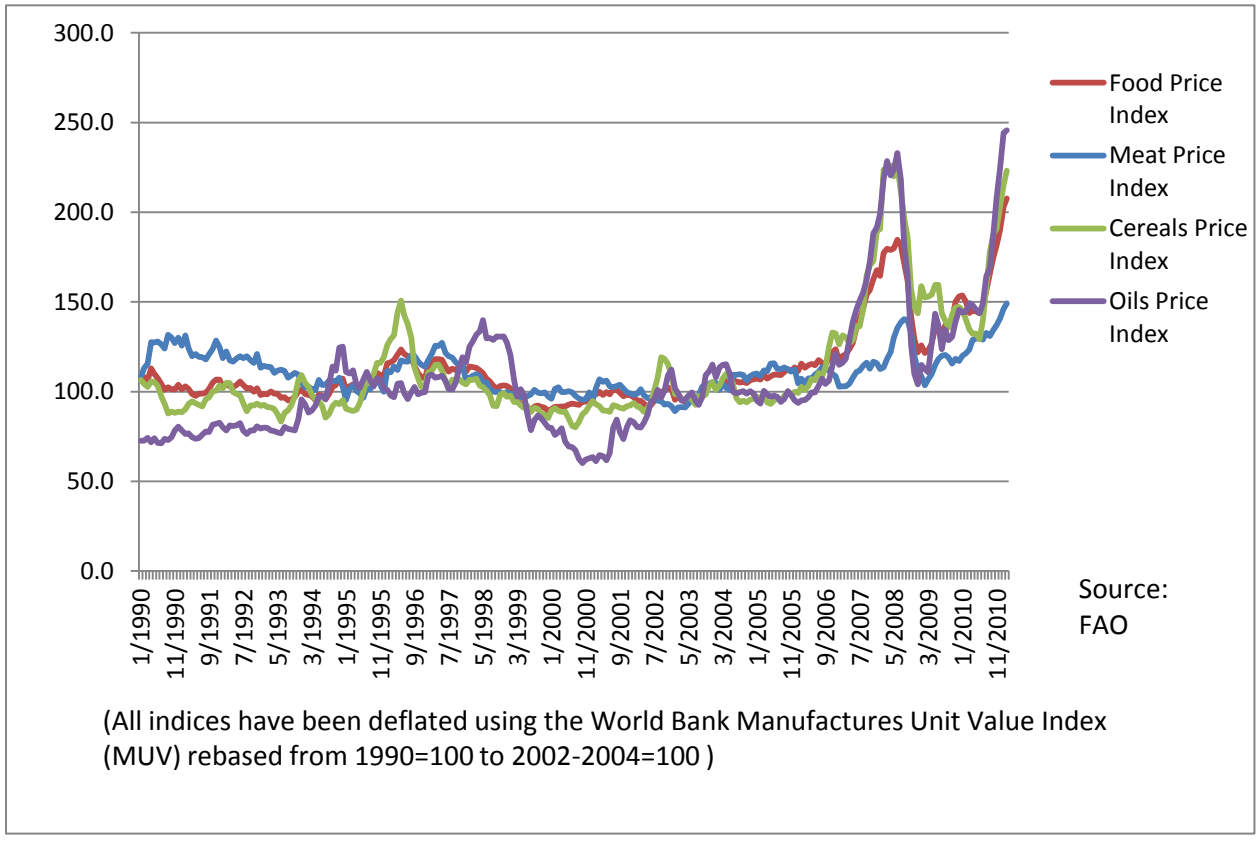
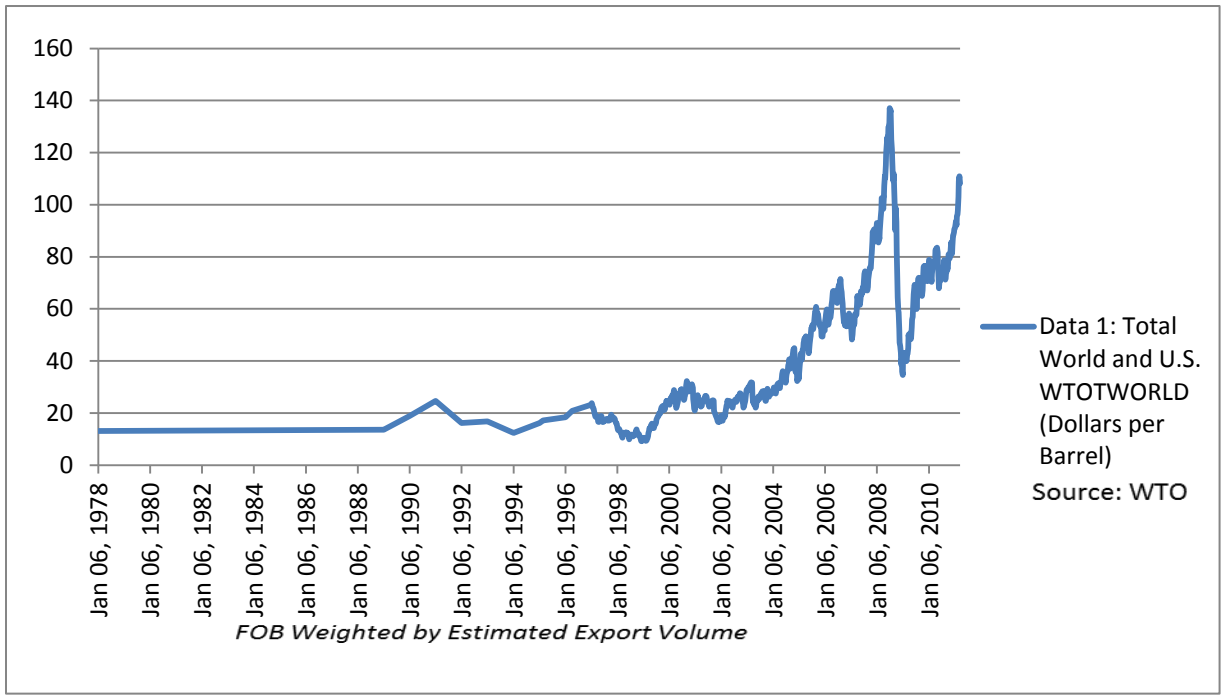


Figure 1.2 Weekly All Countries Oil Prices, 1978 - (March)2011



1.6 Methodology

This study intends to examine the current dynamics of global agricultural production as it relates to current and future food insecurity via the small hold farmer. It will focus on the United States as a major producer and policy negotiator, its production dynamics and its relations with developing countries with which it has trade agreements and official aid disbursements. It argues the need for a re-orientation of agrarian policy in advanced economies in favor of ecological sustainability, more egalitarian terms of trade and a re-think of subsidization that would have positive implications world-wide in real and diverse terms. It examines the most recent literature on global food security and attempts to frame the current debate between agricultural sustainability and food security through development of local best practice on one side and liberalization of domestic agricultural markets and industrial agriculture on the other. It further attempts to make a case for absolving them from

their political contexts which has for so long rendered them biased and unscientific. A more specific study in Chapter 5 will concern the relationship between the United States and a sub-Saharan West African agricultural context, with a special focus on Ghana. It intends to show that much of the commerce between this region and the U.S. has not produced the significant beneficial conditions for African small hold farmers or the nation at large that would meet proposed goals for development. The research will make analysis in the context of three key issues to be addressed for the progress of long-term food security and the plight of the small-hold farmer. Compiled here as a consensus taken from review of the current literature they are a) economic, ecological and social sustainability, b) the effects of crises and shocks and d) subsidies and terms of trade. It will conclude with an assessment of these factors in the global context.

Chapter 2. The Multifunctionality of Small Farms

2.1 What is a "small farm"?

Food insecurity and hunger has historically been the plight of the impoverished. It therefore affects those who have relatively little or no capital to establish production or purchase resources. This chapter will discuss the current state of farms and farm dependents which have relatively little capital and are working in small-scale agriculture. This global group represents nearly 75% of the world's impoverished. Promoting the small-scale argicultural sector is increasingly seen as one of the most important, efficient and equitable ways to fight hunger and food insecurity. The reasons behind this recent turn in development thinking will be discussed in this chapter.

A primary issue for small-scale farmers is that there is so much disaggreement about what a small farm actually is. There are very few – if any – internationally recognized definitions of a small farm. Definitions vary widely internationally and differ significantly over time even among the same domestic organizations. (Hubbard, 2009) (USDA, 1998) (USDA, 2007) Unfortunately, the current definition in use by the the USDA, the World Bank and several major international agencies narrowly focuses on the monetary value of production only and thus provides a very narrow preception of farm assets and value. In the United States for instance, in use is what could be considered a rather broad definition of what constitutes a small farm. A small farm is defined as a farm with a gross farm income of less than $250,000 per year. (USDA, 2007) Subsequently, the claim is made that 94% of farms in the United States were small farms in 2007. (Ibid.) This threshold is set quite high to include as many farms as possible within the nomenclature and suggest the relative health of the small farm

community in the U.S. Therefore it is more of a political definition than one that corresponds to reality. A pertinent example of this bias toward vague description can be seen on the website of The Washington State Department of Agriculture. It makes neither a stipulation of size nor of any other quantification whatsoever in its definition, "WSDA defines a small farm as one where the farmer or farm family participates in the day-to-day labor and management of the farm, and owns or leases its productive assets."[6] (WSDA) This in effect makes a "small farm" nearly any farm.

This paper would prefer to use a more precise definition of "small family farms" – one that more aptly reflects the production and asset-holding realities not only in the United States but internationally for small hold farmers. However, though definitions even in developed countries are vague and changed on a fairly regular basis, they vary further in dealing with international comparisons. For the purposes of this study, it is important to clarify this concept of a small-holder according to a more realistic description. It must be more in keeping with what the reality of their day to day reality in the context that the world agricultural systems dictates. They comprise the largest group of farmers and are those specifically involved in owner/operator labor-intensive, non-industrial food or commodity production on which the land under use constitutes that which can be managed by a small labor force without the use of large industrial equipment or major technological input. In monetary terms this means sales well under $250,000 dollars a year, though in nearly all countries, especially developing countries such as Ghana, the number will likely be far far less.
An apt analysis and literary review pertaining to the problems associated with defining small farms in the EU was carried out by Hubbard, 2009. He asserts that the

[6] http://agr.wa.gov/Marketing/SmallFarm/smallfarmdefinition.aspx (WSDA) (Since 10/4/2011, this link has been removed)

Common Agricultural Policy (CAP) in the EU differentiates among small farms as substinence and semi-substinence and that the latter are "agricultural holdings which produce primarily for their own consumption and also market a proportion of their output"[7] (Hubbard, 2009) These definitions provide a theoretical basis for an assessment which is far closer to the mark in describing a majority of small farms worldwide.

Yet, the vagaries in defining the asset classes of farms are relevent in the much larger conversation of establishing non-monetary value assessments of agricultural production. Given the enormous importance and wide scope of environmental impact both positive and negative in the agricultural sector, a broadening of the factors involved in farm-asset definitions is sorely needed. Though difficult to quantify, many factors such as *in situ* biodiversity, soil replenishment, carbon capture and off-farm "externalities" must be included among them. Similar to the wider spectrum of indicators involved in Amartya Sen's "Capabilities Approach" to human development, such a spectrum must be adapted to the valuation of agricultural assets and production to include elements currently unaccounted for which are leading to a market failure in the real assessment of costs in food production.

2.2 The state of small farm dependents

"Over 75 % of the world's poorest people – 1.4 billion women, children and men – live in rural areas and depend on agriculture and related activities for their livelihoods."[8] Small farms make up the bulk of this agricultural production and therefore constitute perhaps the world's most populous productive economic activity. In the eyes of many, the way to sustainable food security and equitable rural

[7]Council Regulation (EC) 1698/2005, Article 34 (1) on support for rural development by the EAFRD
[8] (IFAD, 2011) Retrieved from IFAD website 24/5/2011: http://www.ifad.org/governance/index.htm

development world-wide is the support, protection and empowerment of this most broad of human economic and ecological activities, small-scale agriculture.

Yet, they are to a great extent under assault both theoretically and in real terms by the present developmental paradigm. Samir Amin states in 2003, "Modern capitalist agriculture – encompassing both rich, large-scale family-farming and agribusiness corporations – is now engaged in a massive attack on third world peasant production." (Amin, 2003) Furthermore, despite their optimistic tone, the outlook assessment on food security of many international lending and development organizations is fairly grim. Projections demand an increase in production by 70% to meet population demands with a modest to negligible increase in agricultural land and perhaps increasingly adverse growing conditions due to global climate change and water scarcity - given consumption demand trends remain stable. (FAO, 2010a)To solve this problem and to fill this gap the common rallying cry is to improve productivity, efficiency and to engineer crops to suit this purpose. Yet the rallying cry is misleading. There is currently plenty of food to properly feed the world population and certainly enough agricultural infrastructure, if there were a re-orientation of policies and appropriate pricing. Increasing demand for meat in the developing world (especially in countries such as China, India, Brazil) has led to higher soy and wheat prices (since there is more being used as feed) as well as more potentially productive land being put under pasture. (Magdoff, 2008) Secondly, increased production of biofuels has crowded out food production and further driven up prices. (Ibid.) In a 2010 FAO report,

> "Livestock is the world's largest user of land resources, with grazing land occupying 26 percent of the earth's ice-free land surface, and 33 percent of cropland dedicated to the production of feed. The quick expansion of the sector is a cause of overgrazing and land degradation and an important driver of deforestation. …It is also the largest global source of methane emissions."(FAO, 2010a)

It would in fact not be difficult at all to produce enough food to feed the world properly – in fact we are currently most likely doing it - but it would require a shift in priorities in the manner of consumption and in fuel provision and the political will to pursue improvements. In this way, international aid/food/development agencies and governments who send a distress call for greater production before addressing misallocations of current resources seek to perpetuate the current unequal, unsustainable and highly illogical system and its glut of wrongly-oriented susbsidies and special interest concessions.

Hand in hand with this improper stewardship of policy is the irresponsible stewardship of land and financial resources. Indeed, many of the best arguments for a renewed orientation toward small farms are the effects of the large farms themselves - their effects on people and the environment. Much of this irresponsible stewardship is the lack of much stewardship at all. At fault is the permission of policy-makers for the agricultural sector to be oriented, directed and governed by short-term monetary profit margins rather than short-, middle- and long-term social, environmental and developmental considerations. This profit-oriented structure is exemplified in the large-scale industrial monoculture system, which is the dominant structure of the current global agricultural system. It has,

1) increased the need for inputs such as chemical fertilizers, insecticides and herbicides which have caused severe damage to land and sea ecosystems worldwide. (Blann et al., Nov 2009)
2) reduced biodiversity and produced a dependence on technological and genetic innovation as well as significant inputs (fertilizer) without which the system would fail to produce. (IAASTD, 2008)
3) kept trade prices low worldwide, hindering development in poorer, food-exporting countries and abetting worldwide urbanization trends. They have

marginalized the democratic involvement of rural populations and have broadened rather than narrowed the inequality gap between the richest and the poorest. (Wade, 2001) (Amin, 2003)

4) created an environment of unnatural growing habitation where viruses and bacteria grow stronger and increasingly immune to many modern medicines, giving birth to super-contagions such as: avian flu, swine flu and mad-cow disease. (Altieri & Rosset, 1999)

These agricultural trends have occurred because it is the most efficient way to accumulate capital through farming and food production on a large scale, and they have done so often with the support of governments and other marketing agencies.

Yet, this profit-based system of agricultural production continues to be a destabilizing factor in the world economy, it is debilitating not only to the environment through effects such as run-off and biodiversity loss, but to its own means of production in the form of soil degradation. (Blann et al., 2009) Furthermore it is depressing prices world-wide which hinders farmers in developing countries from realizing gains from non-depressed, non-distorted prices and from realizing maximum gains from their own domestic markets. At the same time, it invites speculation in major commodities which further distorts prices and creates development aid and price volatility – also shown to hinder development. (Ponczek, Markandya, & Yi, 2006) (IMF, 2005)

An acceleration of the status quo system of production as promoted by many of the major actors presents no long-term answer to food insecurity. The system is in fact, a threat to itself and to future food supply. Perpetuation of this thinking creates a dependence that moves us further and further away from sustainability for the sake of cheap production. The counter balance to this failing system is the small-scale farm and the traditional subsistence farmer; but of course, they cannot hope to compete on

an even field in commodities whose industrial producers enjoy subsidies and economies of scale.

Agriculture remains the primary source of employment, livelihood and income in developing countries, usually for between 50 and 90% of the population. From this percentage, "small farmers make the up the majority, up to 70 – 95% of the farming population." (Kwa, 2001) Small farms continue to be one of the most important economic units on the planet consisting of a significant proportions of the population of developing countries – and furthermore a significant proportion of the world's "food insecure."

2.3 Production on small farms

One of the main arguments for large-scale monoculture is that it is very productive. However, it has been shown on numerous accounts that small farms are considerably more productive per acre of farmland.

> Evidence from around the world demonstrates that small, owner-operated farms typically produce more output per acre than large farms cultivated by means of wage labor or tenants. A recent report on the relationship between farm size and total output in fifteen countries in the global South found that in all cases relatively smaller farms were more productive per unit area, by a factor of two to ten times. (Rosset, 1999)

There is greater production potential in small farms because they are more labor intensive and tend to produce more high value crops such as vegetables. (Rosset, 1999) Small farm production, being subsistence or semi-subsistence, generally produces higher quality crops and vegetables due to the fact that since the farmers are typically growing for themselves and selling the surplus, they may in fact produce a higher quality product that will more likely be bought and sold and consumed locally.

While the argument over the benefits of genetically modified organisms (GMO's) continues and many major problems coming to light, new arguments are being made for the benefits of *in situ* biodiversity realized on small holder farms. (Bellon, 1997) (Boyce J., 2004) *In situ*, referring to biodiversity on the farm, is more natural and more resilient than *ex situ* diversity preservation in gene and seed banks. The preservation of seeds in seed banks is not an adequate substitute for diversity that is yearly exposed to changes in climate and soil, and with the decline of small farms in their prominent role as protectors of these "evolutionary gardens" as Boyce refers to them, fewer species become naturally resilient to these changes, potentially greatly altering the food system as a whole in the future. Furthermore, scientists often find the genes they need to create stronger species in the very diversity that the industrial system is supplanting. As is noted in Boyce 2004:

> In other words, the long-run sustainability of low-diversity agriculture rests on a continuing flow of biological inputs from the high-diversity agriculture.

As a case in point, he cites a1970 corn blight in the Southeastern US in a 2004 report:

> The stakes in this 'varietal relay race' are high, as was demonstrated in the United States in 1970,when the southern corn leaf blight destroyed one billion bushels of maize, including as much as half the harvest in some southern states. The epidemic was caused by a new strain of a fungus, *Bipolaris maydis,* which was virulent on plants with a genetic makeup shared by 85% of the maize grown in the US at the time. Plant breeders were able to respond in the following year by incorporating genetic resistance they found in some maize varieties grown in Africa. (Mann, 2004) reports that scientistswere 'shaken by how close the system had come to disaster.'And that 'theyhad been lucky that the problem was quickly contained, and luckier still that the African maizehad not been supplanted by vulnerable modern hybrids.' (Boyce J. , 2004)

Small farms are often far more diverse in their production, a key factor that is often ignored in most studies done by major institutions when looking at farm-size productivity. This biodiversity is important for reasons that are not easily quantified by economic research and are therefore largely left out of discussion. In fact nearly all farm research surveys done by major institutions such as the World Bank and the USDA include only a very limited range of factors for assessing farm efficiency and productivity. Therefore, nearly all measures of production – and perhaps more importantly the real value and harm of all inputs and outputs – are distorted and miscalculated. This reflects a bias for non-inclusion of many beneficial and or harmful factors and a perpetuation of a misguided status quo in development thinking. Often unincluded or underestimated in their valuation of developmental support and progress is an accurate assessment of benefits and negative externalized elements.

Though there is increasing awareness of this oversight, it has been slow in translating to real and effective shifts in policy. Instead of promoting more sustainable and ecologically-oriented systems of agriculture to augment negative effects in monoculture production (such as soil degradation, run-off of fertilizers and biodiversity loss), the focus has been to offset (and subsidize!) these losses elsewhere in the system by allowing fields to lie fallow in "carbon capture" schemes or to offset them in markets through other trading schemes. (FAO, 2008) The chief international institutions of development have renewed their commitment in writing to a broader measurement of development and the goals supported by the indicators of the Human Development Index (HDI). Yet, they largely fail to provide much assessment data on the real – non-monetary– values of production and perhaps more significantly, the kind of ecological damage caused by non-sustainable agricultural production that is an unfortunate and prominent aspect of the developed world.

Chapter 3. Price Volatility: IntegratedWorld Markets andSpeculation

"Developing countries have got to de-link from that global market and ensure their own food supplies as soon as possible through their own production, through regional arrangements and other means because the global market is simply too unstable." *–Jayati Ghosh, Interview with RealNews.com,2011*

3.1 The Dominant Agricultural Regime

In this chapter, the current dominant industrial agricultural production regime is discussed as well as its relation to price volatility in world markets. The chapter examines briefly what the history and theoretical foundations of current policy are as well as the structure and charactersitics of operation. It discusses the inherent weaknesses and negative impacts of a highly volatile system, which are multi-dimensional and include ecological, social and developmental aspects. It analyzes further the relationship that globalization trends share with food insecurity and the lack of development progress both in terms of inequality and hunger.

The current dominant economic philosophy of world markets and trade is free-market capitalism. It is the dominant ethos for policy-making in the world's largest economies and institutions, and is often the primary ideological driver for policies of international trade and development, such as the WTO rules. One of the most dominant *forms* of capitalistic regime (as it is held by the several of the largest economies) is "neo-liberal" capitalism, and claims that any attempt by government to intervene in markets whether in promotion of growth or in a regulatory capacity is a corruption of a system seeking balance and a violation of consumer's freedom of choice. (Cato Institute, 2001) However, in practice, no market in the world is a "free-market". Even its strongest proponents are often in contradiction with their ideals as

they support special agreements and maintain barriers in their own home markets. (McKinnon & Cumbers, 2007) Understanding this current neo-liberal global paradigm is important as the plight of the small hold farmer is discussed within the context of this greater economic framework. It is truly is a "David and Goliath" relationship.

The current agricultural production and trade policy regime sought after in the global South by the advanced economies can be considered to be at best a tangled web of contrasting interests and questionable policies in the pursuit of liberalization and globalization. Globalization represents an increasing level of integration of the world's collective markets, however it is an umbrella term and its meaning ambiguous. Therefore, in reflecting on these policies, it is necessary to break it down into more descriptive and useful parts to understand it more clearly in context. It is used here as a term referring to the composite of internationally integrating processes 1) financial arrangements 2) trade 3) FDI 4) monetary and other transfers 5) human capital transfers (skills, information, migration).

Agricultural policy is affected by all of these aspects, and to understand what is good policy is to understand the current and future requirements of agricultural production in this context. Agriculture is a unique enterprise. On a very basic level it is the industry that provides our needs on a daily basis. In times of crises, an individual can do without a new car or a new t-shirt, but our agricultural systems produce that which all humans need in quality, quantity and quotidian regularity. Its constant supply is a basic requirement for life and – less tersely – all other forms of production. Its production is dependent on sensitive ecological systems that must be maintained well within the limits of their survival. Removing all constraints on the regulation of such delicate systems in the name of releasing them to efficient, profit-oriented market forces is a dangerous and potentially disastrous notion. For since we as humans are

dependent on them for our survival, the failure of such systems is simply not an option.

3.2 Causes of Crisis

It stands to reason that to know what kind of boat one needs to build, it's important to know on what kind of seas one plans to sail. On the oceans of the world's global economy, those seas are becoming more turbulent and the strength in the designs of the ships is becoming of greater importance. In recent decades, a greater prevalence of crises has buffeted globally integrated markets with an uncertainty they have been and are currently ill-adapted to navigate. Several such factors of destabilization in world agricultural markets are listed in a 2010 FAO policy brief:

> Increased vulnerability is being triggered by an apparent increase in extreme weather events and a dependence on new exporting zones, where harvest outcomes are prone to weather vagaries; a greater reliance on international trade to meet food needs at the expense of stock holding; a growing demand for food commodities from other sectors, especially energy; and a faster transmission of macroeconomic factors onto commodity markets, including exchange rate volatility and monetary policy shifts, such as changing interest rate regimes. (FAO, 2010b)

To be sure, in agriculture "weather vagaries" are an intrinsic element of instability. Droughts, disease and otherwise adverse conditions in changing climate dynamics can lead to unexpected yields and therefore fluctuations in prices due to supply and demand conditions, and must be planned for as constituting the natural element of uncertainty in food security.Yet to a far greater extent than weather vagaries, an upward trend in the force and frequency of "storms" in other sectors and markets affect the amount of demand and capital in many agricultural markets. Speculation can and does cause abrupt and significant price fluctuations. Recently, these

fluctuations have reached levels that developing countries (DE's) and advanced economies (AE's) alike have proven to be either unable or ill-equipped to absorb. As Fred Magdoff outlines three major reasons for food price increases in a 2008 article,

> "The reasons for these soaring food prices are fairly clear…increasing petrol prices…, …increased demand in countries that traditionally didn't import food like İndia and China, [a shift toward] production of corn for ethanol in that US rather than food, and an increase in prices of corn and soybeans and soy cooking oil is (due to) increasing demand for meat among the middle class in Latin America and Asia, especially China". (Magdoff, 2008)

We have seen pushback to this trend in the form of more loudly-voiced concerns from governments and international agencies. This has led to the formation of a few committees to carry out research such as the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) and the (Report on) Plant Genetic Resources for Food and Agriculture (PGRFA). These committees were designed to pursue fairly specific yet universal concerns in food security and agriculture held by governments from around the world. Their findings, often calling for a far different approach than the current one, have been largely written off by many major agro-industrial firms and their political counterparts as inconclusive. (IAASTD, 2008)

Furthermore, price insecurities have been a significant contributing factor to riots in many parts of the world in 2008 and 2010 and regime change in Tunisia and Egypt (Observer, 2008) To a greater extent than hunger, food prices and their volatility.have been on the rise for more than a decade and in some countries, especially in the Middle East, these shortfalls of security have proven to be a force for change, but not enough has yet been done to counter the trend.

Though prices in the world markets can be manipulated by the direct or indirect policies of the main producers of a commodity, the parallel inclining trends of both prices and volatility over the last ten years especially are due to three maincauses:

1) Climate change and increasingly "serious weather events" have caused conditions to change in many of the world's growing regions and they are forecasted to continue to do so. (PGRFA, 2009) (FAO, 2010a)

2) Increasing demand due to growing consumption, primarily in India and China has led to higher prices – as has greater consumption of biofuels and the higher price of oil. (Magdoff, 2008)

3) Increases in both the volume and kinds of financial instruments associated with commodities markets have allowed for greater speculation in commodities markets through the purchase of contracts in the world's largest commodities market – the Chicago Board of Trade. Passed in 2000, The Commodity Futures Trading Act of 2000 at the Commodity Futures Trading Commission, intended to "…lessen the regulatory burdens on U.S. futures markets by creating a more flexible regulatory framework."(CCFT) In 2007, a merger of the Chicago Board of Trade and the Chicago Mercantile Exchange created the largest commodities market in history. In the months that followed, many commodity prices were driven up to the highest prices in history.This regulatory lax has led over the past ten years to speculation that has pushed futures markets up and – in tandem – real commodities prices have followed. (Ghosh & Pollin, 2011)

The most recent notable example of this was the world food crisis of 2008. In conjunction with other factors such as mildly sub-expectation yields and greater demand in that year, the crisis was in many countries a result of massive transfers into

commodities speculation in agricultural markets and had very little to do with traditional production/demand dynamics that couldn't have been avoided.The ensuing run on food and fuel markets drove prices beyond the reach of millions world-wide and disproportionately so in regards to those living close to the margins in developing countries. As stated by the World Bank, the now well-known number of 100 million people plunged from relative stablility into poverty in 2008. Yet many more were forced to make priority-related adjustments, sacrificing previously accumulated assets, health care and education opportunities in order to have and afford food. These are long-term losses in development for short-term consumption needs. Therefore, as unregulated markets pass through crisis originating at the highest levels of income, it is the world's poorest who are set back years in their own plight for progress.

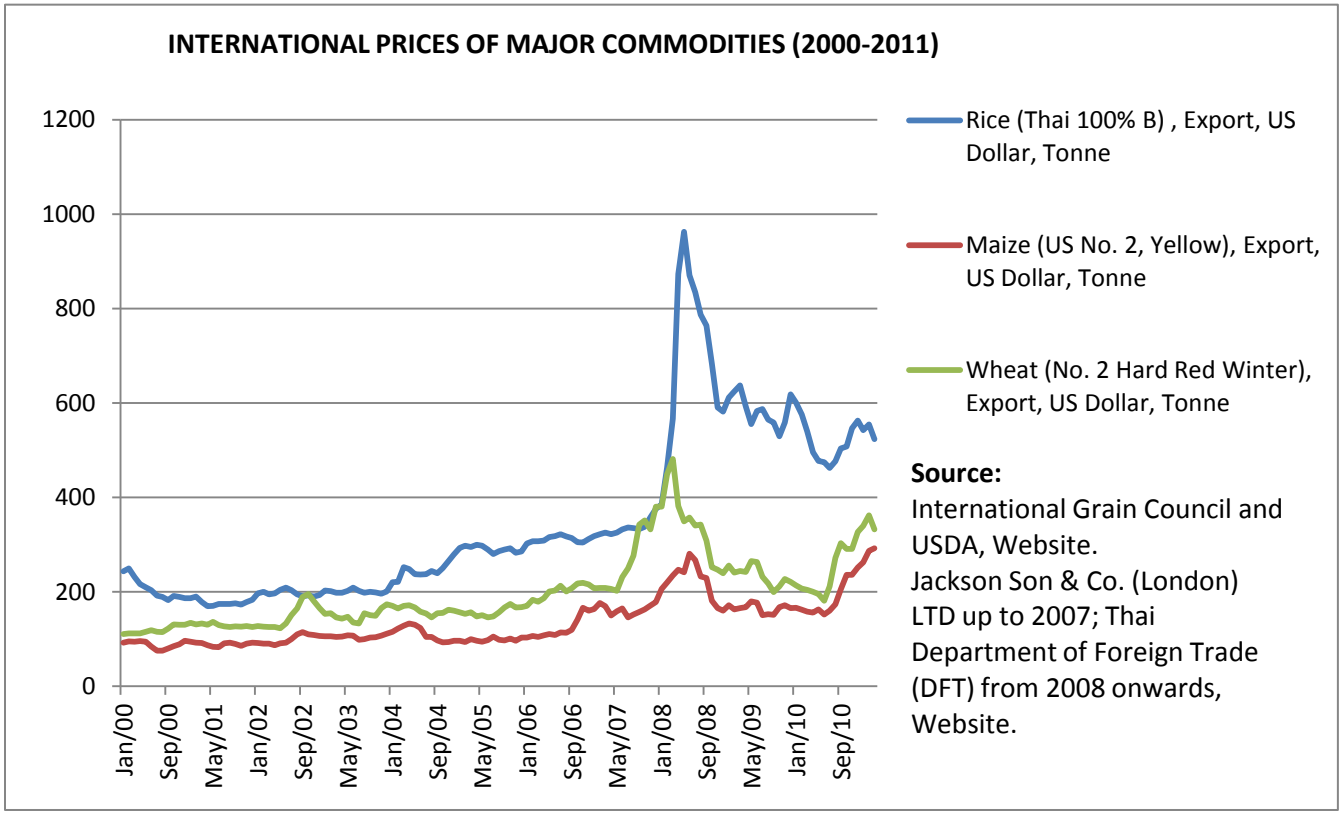
The effects of this speculation in commodities markets and the exposure to crises in other sectors are neither trivial fluctuations nor short term aberrations. Their significance in recent crises is stated here by the IMF,

> Recent commodity price developments are a reminder of the marked effects that broad financial market volatility has had on commodity prices during the global financial crisis and the early recovery. Such volatility spillovers from broader financial markets to commodity markets are not unusual, although their strength has varied depending on the underlying factors. When driven by rapidly changing expectations about future global economic prospects, as in May and June of this year, strong volatility spillovers are to be expected, given that commodities are both goods and real assets and that inventory demand is forward looking. Similarly, higher currency market volatility often leads to increased commodity price volatility. (IMF WEO, 2010)(p.63)

The extent to which regulators and their trader counterparts in liberalized commodities markets can set in motion events that force the re-assessment of poverty

on a global scale in a matter of months has a historical context. It lies in trade and market relationships that have been established over decades and how within the last decade or two vulnerabilities have begun to manifest in increasingly real terms. These global linkages and the liberalization of speculation in agricultural markets and trade are crucial to understanding the nature of the "storms" that are causing chaos in many parts of the world where integration through liberalization programs has often left them vulnerable.

Figure 3.1 International Prices of Three Major Commodities (Maize, Rice and Wheat) 2000 - 2010



3.3 Structural Adjustment and Agriculture

During the 1980s and 90s in the aftermath of world debt crises, liberalization of agricultural markets was coupled with the structural adjustment reform conditionalities of World Bank and IMF debt relief. It began the process of opening up the markets of many of the DE's to global competition. (Rao & Storm, 2002)

Even before the Uruguay Round and the Agreement on Agriculture (AA) in the mid-90's, many of these structural programs had moved many DE's well on their way toward global market integration, international competition and institutionalized uniformity, reducing the options and resources available to them for controlof their own agricultural policy.(*Ibid.*) In many DE's where the agricultural sector represents (or represented at that time) a significant proportion of GDP, this became a very significant condition on overall macro-economic policy. "Agriculture-related pricing or trade policy conditionalities were part of 60 percent of all World Bank adjustment lending, 80 percent in the case of Africa." (Rao & Storm, 2002)

These adjustments, which by and large created terms of trade favorable to the economies and policies of the AE's, continue to have major implications to both development and food security. In 2008 and 2009, the repercussions of these liberalizing reforms have been made visible by the fact that so many people were pushed into poverty across the developing world by crises originating in the markets of the western world. Reeling from a crisis in which commodities speculation played a major role in driving up world food prices in 2008, DE's and AE's alike resorted to emergency measures and safety nets to avert larger humanitarian crises.

Worldwide traditional agricultural production has been negatively affected by these conditions imposed by the recovery instruments of the major lending institutions. This has cleared the in-roads for many multi-national corporations and their

continuingly dynamic contribution to agricultural production. This has been largely the result of two main areas of liberalizing reforms:

a) the dismantling of the protections of DE's from world markets and trade rules set under the auspices of heavy lobbying initiatives from powerful firms based in AE's. This has created vulnerabilities so apparent, that the IMF has begun rating country systems according to their assessed exposure levels to world crisis potentials and vulnerabilities to transfer fluctuations. (IMF 2010)

b) altering the production dynamics of DE's away from "inefficient" smaller farms towards the "efficient" capitalist, industrial dynamic of agricultural production found primarily in countries that can afford the kind of high-input systems of the AE's. The small-scale production dynamic is at present unable to meet the needs of all growing demand in its current state, but it's slow eradication incurs invaluable losses in terms of rural poverty reduction, sustainability, crop diversification and food security. (Boyce, 2004); (Boyce, 2005); (Rao & Storm, 2002) (IAASTD, 2008) Another factor is the exploitation of the weak, post-debt crisis bargaining position of developing economies by the AE's to impose favorable terms of trade for the "North". It was this which the Uruguay Round and the formation of the WTO were intended to remedy. The continuing absorption of valuable resources away from DE's to AE's will be discussed more in chapter 4.

The reality for many developing countries is that under the reforms that were made a condition for major institutional lending during the 1980's and onwards, the trade-off was greater exposure to increasingly volatile international markets and fewer tools (as well as incentives) to manage domestic agricultural policy according to long-term goals. This has often left them with little recourse but to accept less than favorable

terms of both trade and borrowing policies. The Agreement on Agriculture during the Uruguay Round was intended to restore more balanced benefits in addressing the inequities produced by these adjustment policies. Instead it produced further inroads for AE's in terms of trade and quotas and further reduced the capacity for autonomous trade or agriculture policy for developing countries.

3.4 Price Volatility due to Speculation

However, it would be a mistake to consider developing economies as the only ones who are unhappy with the current state of world agricultural markets. In addition to the poverty and the human health concerns associated with massive price upheavals in food, many wealthy countries that are not agricultural producers and have strong social safety nets recognize their vulnerabilities as well. Many are seeking to secure price stability now and for the future through unconventional means. Though the countries of the Gulf Cooperation Council (GCC) have long enjoyed the benefits of low inflation and ample financial resources due to oil exports, inflation in food imports over the last several years has set wheels in motion for changes in policy.

Agriculture is not a significant sector in the economy of many GCC countries, roughly 1–4% of GDP. (Kotilaine, 2010) What little there is can be easily and heavily susbsidized by the profits in other sectors. The typically arid countries of the GCC import between 60-90% of their food and are therefore quite vulnerable to fluctuations in international markets. (Woertz, 2008) Due to ample capital and few domestic agricultural resources, they are eyeing investments in land and resources in poorer countries throughout Asia and Africa, not in the form of trade agreements –

which are limited by WTO regulations – but through lease agreements and contracts. (see Appendix B[9].) (Ibid.)

Though this sort of investment is needed in many parts of the world, it raises an important issue about the nature of this foreign-owned infrastructure and these resources during a crisis. Given the event of a food crisis, these investments are intended to stabilize prices and secure food for the country that has provided the capital for the investment, not the country in which they exist. In such times, vital food resources may be removed from poor regions and transferred to wealthy areas, aggravating the crisis. This may then be a partial solution to food stability for wealthy countries that have minimal agricultural production, but for the poorest countries of Asia, Africa and South America, it represents a structural weakness in their own system in the long run.

South Korea is a country that has also sought unsuccessfully in the past to secure long-term leasing agreements in developing countries. The chaebol Daewoo secured a 99-year lease agreement for agricultural production in Madagascar in 2008. (Walt, 2008) When the agreement failed in 2009, it became clearer that often such arrangements are untenable. (Blas & Burgis, 2009) As a well-developed industrial economy, South Korea has a relatively small but high-cost agricultural production and

[9]Since 2002, GCC countries have put extensive financing into the Merowe Dam, 350 km north of Khartoum at the fourth cataract of the Nile. The project was first conceived in 1993 and realization started in 2000. The private equity company Abraaj Capital and other UAE companies and institutions have already acquired 800,000 acres of farmland in Pakistan, and GCC countries now engage in close dialogue with food-producing countries. At the first Middle East-Pakistan Agriculture and Dairy Investment Forum in Dubai in April 2008, investors pledged over $3billion worth of new investments in Pakistan's agriculture and dairy sectors, highlighting the country's potential for milk and fruit production. "Forum Tackles Pakistani Role in Solving Global Food Crisis," Arabian Business, May 1, 2008, available at: http://www.arabianbusiness.com/press_releases/detail/17551

a history until the late 1980's of protecting and supporting small-scale farming and agriculture. A disadvantage is that less than a quarter of its mountainous terrain is arable agricultural land and the legacy of price supports and other protection has gradually eroded since the late 1980s. The US has been a major contributor to increasing pressure on South Korea to open its agricultural markets during this period. Most notably so toward the end of the recent decade when the US was at last successful in prying open (again) the Korean market for cheap US beef. US beef was banned in Korea in 2003 because it was discovered that some of the beef had been inefcted by mad cow disease. At that time, Korea had been the third largest market for US beef with revenues in 2002 of US$816 million. (USMEF (website), 2009) The market was re-opened in 2008 amid intense South Korean citizen protests.

This sort of exposure to foreign markets and the lessons learned have prompted S. Korea to move on the offensive in promoting food and price security within its borders by measures other than protections considered unnacceptable by WTO rules. To do this, recently it has sought to buffer itself against speculation in the commodities markets by opening its own trading house on the floor of the Chicago Board of Trade. The purpose is to secure certain price contracting agreements more directly rather than go through stratified brokerages. (Oliver & Blas, 2011) It is not alone. Abu Dhabi succeeded in establishing the same sort of trading entity to secure certain prices for metal and food in 2010.(Blas, 2010)

The continuing rise in the volumes of price contracts and derivatives in commodities markets has prompted these governments to take action and establish their own trading houses. They have done this for the simple reason of securing greater price stability and supply in their domestic markets in the context of greater instability. If the trend continues, more countries will attempt to establish their own trading houses in the major markets and their success will depend on the resources, negotiating

capital – influence related to current trade and enterprise partnerships – and the size of the markets that they can bring to the table. South Korea is one of the largest net importers of food in the world, and the GCC is the world's largest importer of cereals. (Blas, 2010) Yet, while these wealthy and influential governments secure their prices among the world's most powerful commodity traders, developing markets will be left vulnerable and exposed to the greater price hikes this added speculation creates.

Currently (2011), the Commodities Futures Trading Commission in Chicago is debating regulatory measures to control the volume and nature of speculation in these markets. These reforms if passed will represent a small step in the right direction for imposing controls on the severity of the price fluctuations these trades create. (Ghosh & Pollin, 2011) Relative price stability in commodities is an essential component for development. (IMF, 2005) Implementing more clear and stringent rules and limitations on futures markets and derivatives is of the utmost importance in maintaining this stability. However, speculation and derivatives are not the only way in which prices are distorted on world markets by AE's. Subsidies and trade policies have played an integral role in shaping the current pro agro-industrial regime.

Chapter 4. Price distortions: Subsidies, Trade and Production

4.1 Free Trade and development

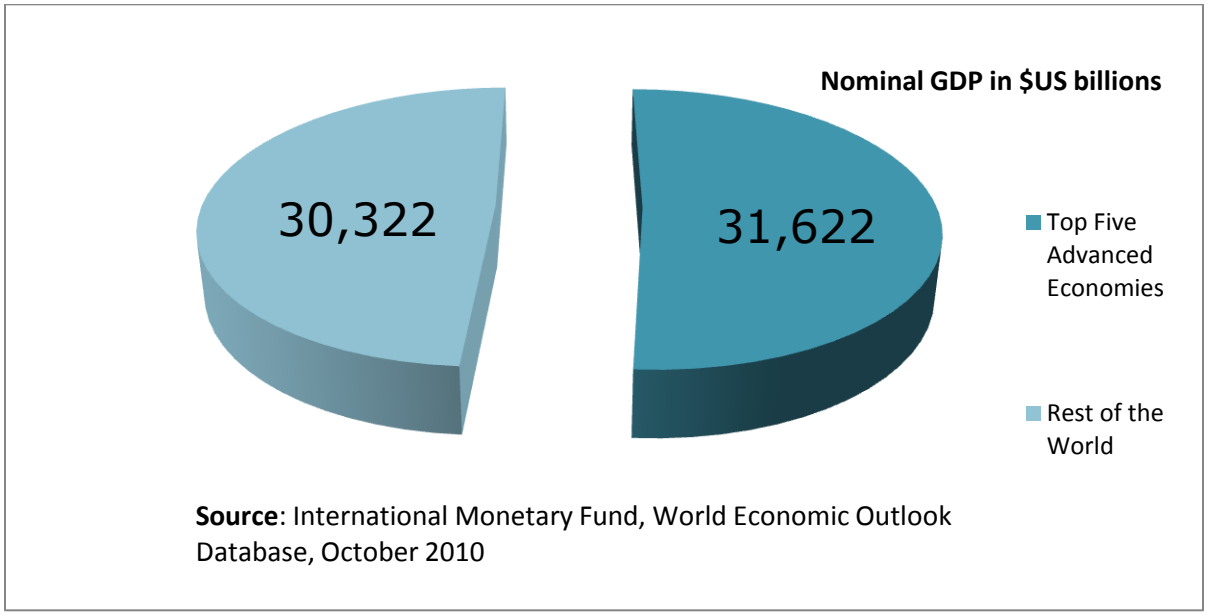
There are several arguments made for free trade. The argument most often put forward is the vision of 18th century political economist David Ricardo that it creates an environment in which different foreign exporters compete in a given market and thus realize efficiency through comparative advantage. A second argument is that it is pro-poor and pro-development by allowing poorer countries to realize their natural production advantage through lower wages and therefore maintain higher production "efficiency" and attract capital. (Morris, 2003) A third argument is that it is an essential human freedom to choose products and to not be subject to trade distortions in either your imports or your exports. It is completely dependent upon the consumer to choose what is best for the consumer and for the entrepreneur to pursue his best interest, or as Adam Smith called it, "the natural system of liberty."

Indeed, these principles are attractive and seem sound. Yet, after fifty years of steadily increasing liberalization of global trade and the expanding implementation of what are named free-trade principles in trade agreements, the world's poor and the developing economies of the global "South" are calling loudly for protection and a fairer system.There exists a widening gap in the concentration of wealth between AE's and a significant number of DE's. (see Wade 2001) Even before the crises of the past decade, we see that,

> The income gap between the fifth of the worlds' people living in the richest countries and the fifth in the poorest doubled from 1960 to 1990, from 30 to 1 to 60 to 1. By 1998, it had jumped again, with the gap widening to an astonishing 78 to 1. (UNDP HDR 1999 p.3)

According to Riccardo's theory, this is exactly the opposite of what we should see as a result of liberalizing reforms. In 2010, we see that the top five advanced economies constituted more GDP than the rest of the world combined. (*Figure 4.1*). The answer to the above questions is that there is a significant gap between the theory and reality of current free trade dynamics. The theory asserts a level playing field, which can hardly be argued in today's reality. There is simply far more capital in advanced economies and therefore more bargaining power. Furthermore, transnational corporations (TNCs) who are legally obligated to seek the advantages of profits only are an increasingly powerful actor in global markets, and have a unique advantage in this system of high capital mobility. Their interests and investments often belie short-term profit orientation with little interest in the kinds of local development necessary to sustain long-term social, environmental and political benefits. (see Madeley 1999)

Figure 4.1 Nominal GDP: Top Five Economies vs. The Rest of the World, 2010



Source: International Monetary Fund, World Economic Outlook Database, October 2010

One thing that can be agreed by both sides of the argument concerning the nature of the capitalist system is that it is necessarily a system of uneven development. Its

proponents would say that capitalism thrives on efficiency because it seeks out lowest cost production inputs or particular advantages, and when inflation raises the cost of those inputs or the inputs are depleted, it seeks out new locations. Critics would say that this results in the accumulation of wealth among fewer people, an increase in inequality and a depletion of resources – creating economic, political and environmental instability. (McKinnon & Cumbers, 2007)

4.2 The Neo-liberal framework and Agriculture

However, with all the talk of free-trade, all countries and especially developed countries maintain some forms of programs of regulation, monitoring and investment in the public sector, as well as trade stipulations. Indeed, some of the strongest proponents of liberalization have very strong systems of government support in place. Despite the pro-development rhetoric of free-market capitalism, the rise of the current period of globalization and the liberalization of domestic markets has had a destabilizing effect on world markets, on development, rural poverty and hunger; and as well the most basic system of sustenance – the small hold farmer. Though there are many forces and variables exerting pressure in any given circumstance, this trend has occurred for two major reasons, one indirect and one direct. Put briefly,

a) Economic growth, over the last several decades, has been largely centered in and around urban centers where concentrations of cheap labor can be found in proximity to markets. (McKinnon & Cumbers, 2007)

b) The dominant narrative of market liberalization, under the auspices of conditionality and trade agreements, has promoted the establishment of industrial agricultural production – which has prioritized the minimization of

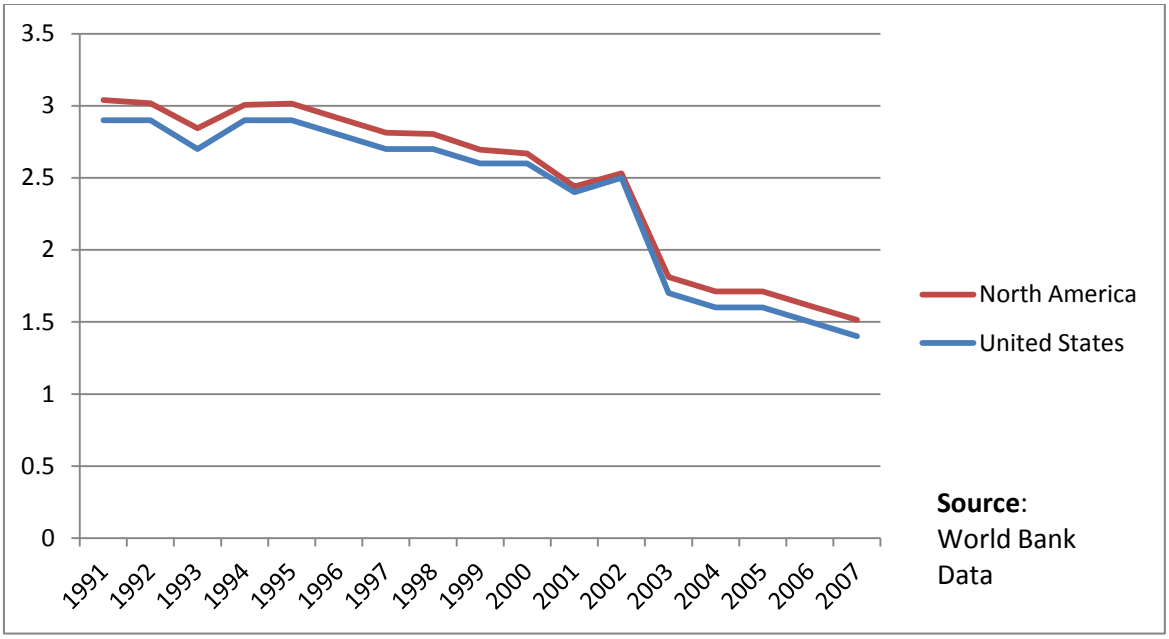
> costs and the maximization of profits without adequate or substantive inclusion of social, political or environmental values. (Madeley, 1999) (Jacobs, 1991)

By taking advantage of scales of production and minimizing or failing to include the value of any impacts or effects of that production, MNC's and TNC's are able to produce agricultural products at prices that are too low for small-hold farmers to compete with. Such an instance is well-illustrated by Boyce 1999 in his comparison of the Mexican and US corn production regimes before and after NAFTA. His research elaborates on the conclusion put forward previously in Michael Jacobs' book *The Green Economy* that to a large extent, modern industrial agricultural production represents a significant and devastating "market failure" in which the market values of benefits and externalities are excluded (Jacobs, 1991). Boyce explains,

> Under free trade, the Mexican campesinos (small-hold farmers) who generate positive externalities sell at prices which fail to internalize the full social benefit of their production, while U.S. producers sell at prices which fail to internalize the full social cost. The resulting double market failure not only undermines sustainable rural livelihoods in Mexico, but also jeopardizes the long-term sustainability of this key crop worldwide. (Boyce J. , 1999)

What is being discussed here is the inherent and unrecognized value in highly labor-intensive small-hold farming through its benefits of sustaining high levels of *in situ* biodiversity, rural employment and sustainable ecological practices. The primary relevance here is that these values are largely unrecognized and undervalued in global markets allowing the profit and efficiency advantages of agro-industrial production to be realized and a more labor-intensive yet more sustainable and beneficial production regime to be crowded out, by creating an uneven field. One glaring example is the rather stark decline in the number of North American and U.S. agricultural workers over the past few decades as a proportion of total employment. (*Figure 4.2*)

Figure 4.2 Agricultural Employment as a Percentage of Total Employment



4.3 The U.S. Case

This industrial agricultural production dynamic, in keeping with the neo-liberal economic structure, has initiated a growing inequality of land ownership. A particularly severe case is the United States. The share of production on small family farms ($10,000-$250,000 in sales) fell from 42 percent in 1989 to 16 percent in 2007, despite the fact that they comprise 94% of all farms in 2007. (*see Figure 4.3 and 4.4*) (Hoppe, Banker, & MacDonald, 2010) To a large extent, smallholding farmers have been priced out (or are retiring) and an ever-increasing share of total production and commodities payments is going to increasingly wealthy landholders. (Ibid) Through the combination of "monoculture", subsidized crops, the help of major seed and fertilizer firms and accumulating larger landholdings, large-scale farmers have been able to dominate the market share of production, suppress prices globally and push non-wealthy farmers out of business. As explained in a 2006 ERS/USDA report,

Federal commodity programs have traditionally provided support to producers of selected commodities, principally grains and oilseeds. With production of "program commodities" shifting to larger farms, commodity payments are also shifting in that direction, since payments are linked to planting and yield histories. (MacDonald, Hoppe, & Banker, 2006)

Figures 4.3; 4.4 Percentage of U.S. Agricultural Production: Large Farms vs. Small Farms: 1989 and 2010

Figure 4.3

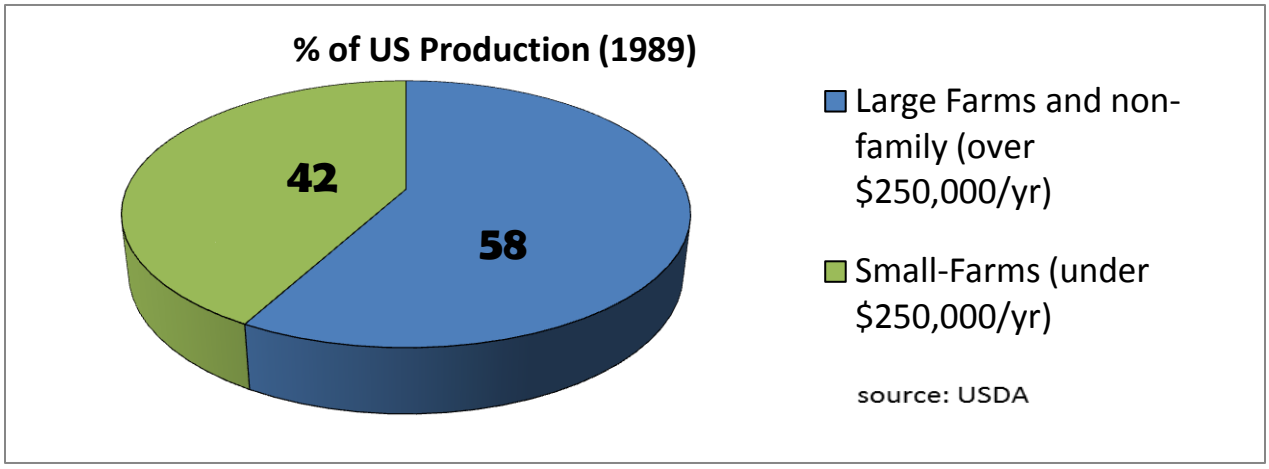
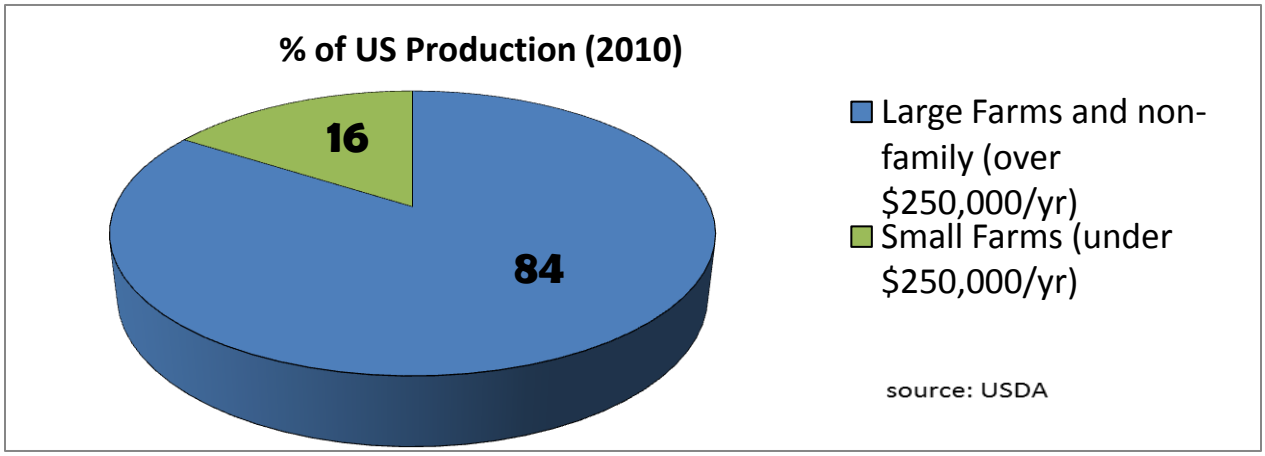


Figure 4.4



It is also important to note that this nomenclature differentiating small farms and large farms is "arbitrary"[10], and constitutes an opportunity for distortion of the statistics. As recently as 1979, a small farm was defined by the USDA as producing $50,000/yr. This was changed by the National Commission on Small Farms in 1998 to incorporate more farms in the proportion, though it seems that the change has done little to improve their plight. The mean income of all farmers in the US in 2010 was $68,500, and 60% of all farms produce $10,000 or less (Hoppe, Banker, & MacDonald, 2010); therefore the "arbitrary" cutoff number of $250,000/yr seems a bit unrepresentative of the majority and hides the ever-diminishing status of the traditional small-holder in the United States.

Furthermore, through the specific nature of the wealthy-farmer bias of subsidization policies, wealthy farmers receive an increasingly larger share of benefits from government programs. Small-farmers are not only therefore competing with larger scales of production, they are competing against a form of subsidization that promotes inequality in their own domestic market from their own government. These anti-small farm, anti-market diversification policies over time simply produce a top-heavy, non-competitive environment that is almost completely intolerable for the non-wealthy farmer, yet advantageous for high-input, large-scale monoculture and seed and fertilizer firms. The lowest share of government payments goes to the lowest-producing farms, because payments are based on narrowly defined production standards.

> About 32 percent of all farm households receive farm program payments, excluding environmental payments (such as those received under the Conservation Reserve Program and the Environmental Quality Incentives Program.) The share is lowest (12 percent) for households operating the smallest farms (sales less than $10,000); (…) The high-income

[10] USDA Typology: http://www.ers.usda.gov/briefing/farmstructure/glossary.htm

high-wealth group is more likely to be receiving program payments (34 percent) than the low-income, low-wealth group (18 percent). Among recipients, payment levels increase with production levels, and so payments disproportionately go to farm households operating larger farms, with their higher average incomes and wealth. (Jones, El-Osta, & Green, 2006)

Figure 4.4 and 4.5

Comparison of US Government Commodity Payments, 1989 and 2010

Figure 4.4

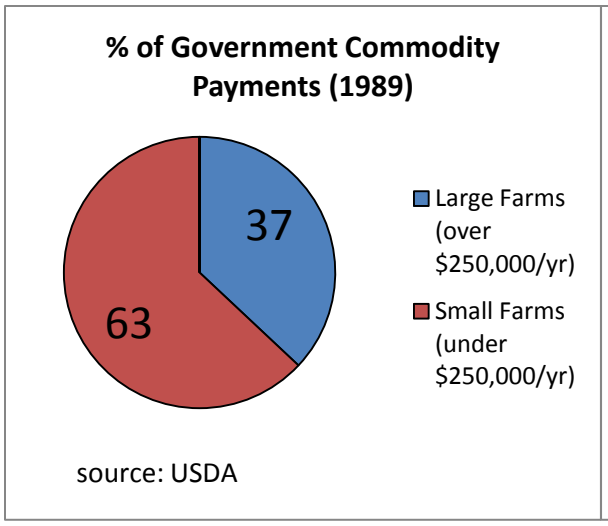


Figure 4.5

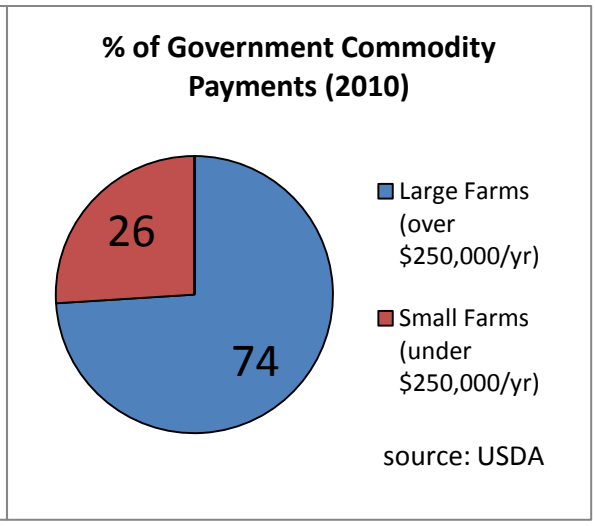


Figure 4.6 Mean Size of Farm Holdings in the U.S., 1850-2000

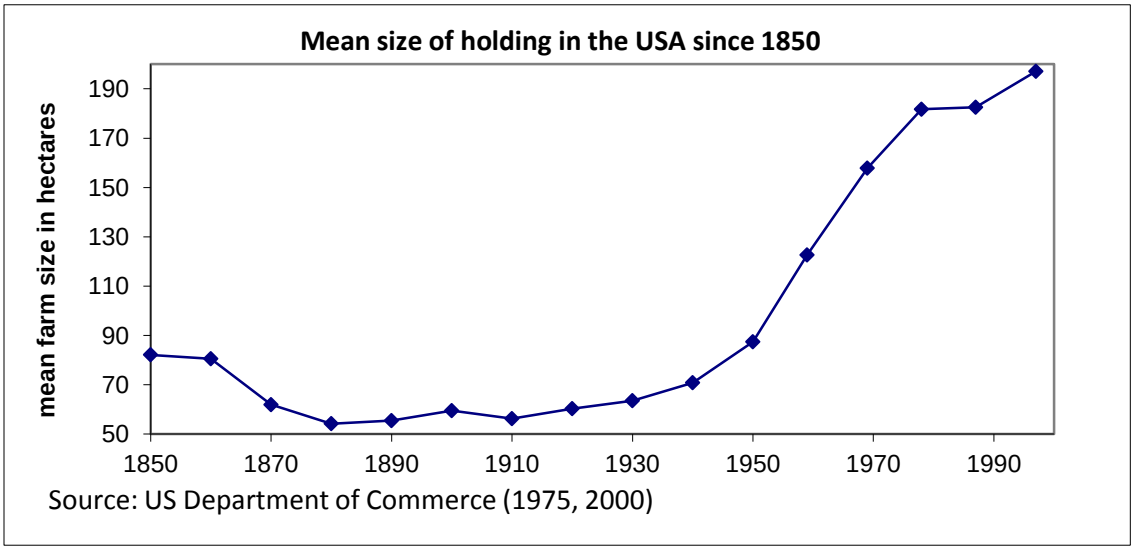
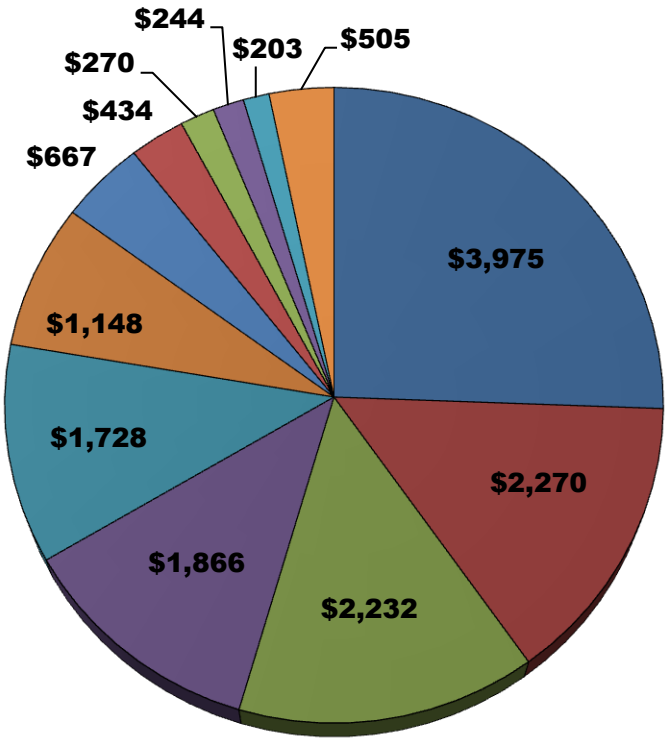


Figure 4.7 U.S. Agricultural Subsidies, 2009 (in $US millions)



** In some cases, direct payment data was unavailale and estimates were made based on 2008 data. Crop insurance premiums are included. Counter-cyclical payments are not.
Source: Environmental Work Group, Farm Subsidy Database; USDA

4.3 Distortions on World Markets

Over time, the commodity compensation for a small number of major crops – particularly in the US and particularly in corn and wheat and other grains – has become ever more increasingly concentrated in the farms of large-scale farmers. This has in fact created *a greater* financing burden on the government as more acres leave more diversified production and come under production of these commodity crops. As well it has created significant distortions in domestic prices for not only the items themselves, but perhaps more importantly for items that are

comprised of derivatives of these commodities (such as corn-fed beef, soft drinks, and even cleaning supplies). Many "food-related items" that the US produces are corn-based. This is largely a direct result of large subsidization programs for corn that create large surpluses for which creative uses must be found.

Unfortunately, these price distortions are not confined to the borders of the US, but significantly influence trade relations and the nature of U.S. development aid. As Robert Guell outlined in his textbook *Issues in Economics Today* when speaking about the effects of price support mechanisms in U.S. food commodities, he draws attention to the fact that a release mechanism is needed for overproduction.

> If it [government] buys up what is left by consumers, the government still has to figure out what to do with the excess. There are three options: let it spoil, give it away, or store it. The first does not cost anything more than trucking the surplus to a place where it can be dumped. Giving the excess away sounds more appealing, but if you give people something that they would normally pay for, you still are not solving the agriculture price problem. You are reducing demand even further by the amount you are giving away. You can only give the good to people who are so poor that would have gone without, and you are most likely to find such people in the developing world. (Guell, 2009) (p.293)

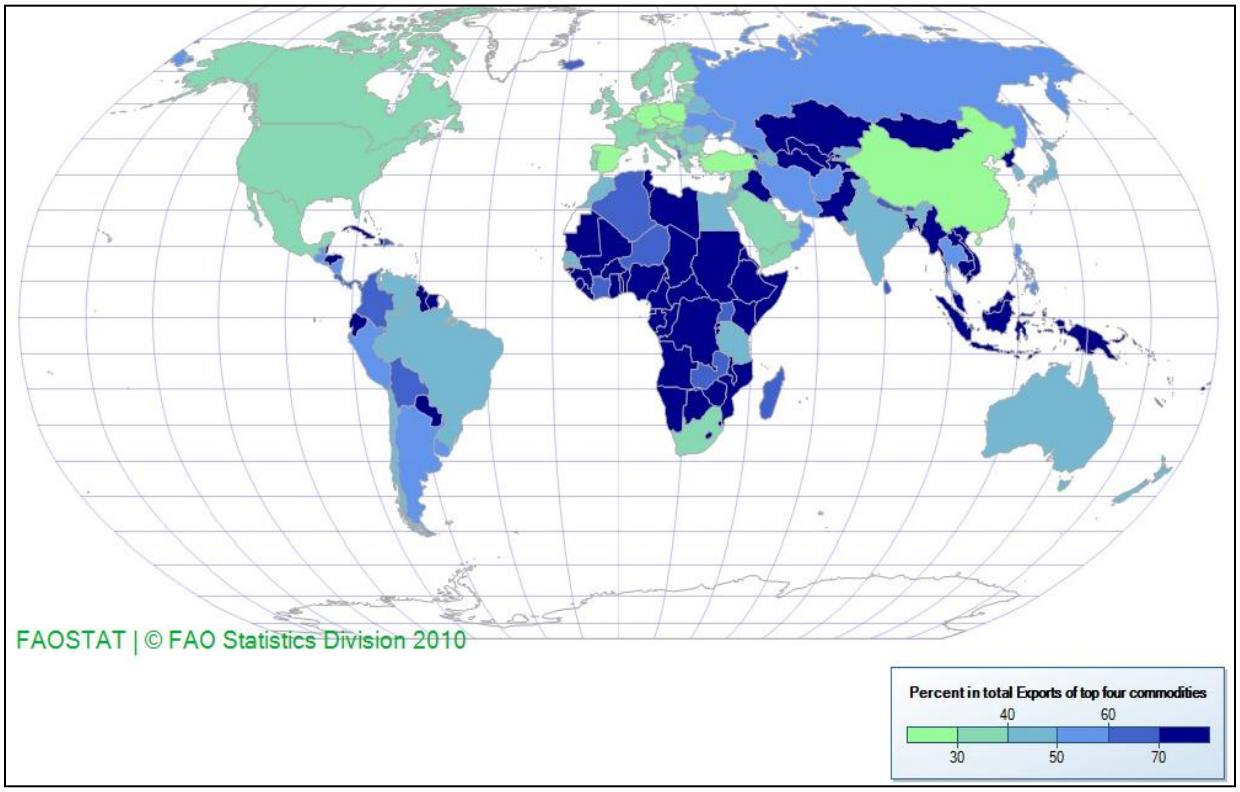
The distribution of these subsidized commodities in the developing world has done much to feed hungry people. It has also done much to ensure that local markets in developing countries must compete with a heavily subsidized food import from abroad. Corn is the single most heavily subsidized crop in the United States, receiving nearly 25% of all farm subsidies totalling US$4billion in 2009. Corn prices worldwide are subsequently depressed by this subsidy program and the large-scale production of the US industry. These low prices ensure that maize farmers in other parts of the world receive distorted and artificially low prices for their crop. Guell continues,

> It may sound somewhat cynical, but the government of the United States is a leading contributor of foodstuffs to victims of starvation and natural disaster in the developing world in part because the United States has an excess that it needs to dispose of. (Guell, 2009)

Furthermore, maize remains one of the most important cash crops in Africa. It is the number two crop in Africa (after cassava) in terms of overall production – more than 55 million tons in 2008 - and the eighth most important in terms of overall income despite current low prices[11]. The potential positive effects on development of the reduction and eventual abolishment of direct commodities subsidies in the West are significant. If the price of corn were to increase on world markets a miniscule $5 per ton due to a subsidization decrease in the U.S and remain there., this would generate an estimated $275 million dollars a year for farmers in Africa where a significant portion of the population live on less than $2/day. Aggregately, and in keeping with the current paradigm of development economic theory and export-oriented growth, African countries dutifully export a significant percentage of their agricultural production and major commodities. (*Figure 4.8*) A significant portion of the price increase would be absorbed by countries that receive African corn, not necessarily placing a strain on consumption, but greatly increasing revenue.

[11] FAO STAT; based on 2008 data. http://faostat.fao.org/site/339/default.aspx

Figure 4.8: Percentage in Total Exports of the top four commodities in each country (Darkest areas are over 70%; Lightest are under 30%)



Source: 2010 FAO World Factbook

(http://www.fao.org/fileadmin/templates/ess/ess_test_folder/Publications/yearbook_2010/maps/map10.pdf)

Chapter 5: The Agricultural Development of Ghana

5.1 Background

With economic growth over five percent for much of the decade 2000-2010 and having made progress toward reaching more than one of the Millennium Development Goals, the West-African country of Ghana is often seen as a positive economic example of continuing development in Africa. It has fairly solid infrastructure in several respects but not all, with considerable mobile phone coverage, decent paved and unpaved roads and as well as having met its MDG for water provision in 2008. Ghana underwent a significant round of structural adjustment programs (SAPs) in the late 1980's and early 1990's; the liberalization of its economy and the increased exposure to foreign firms, an orientation towards privatization and the implementation of new policies had significant detractors in many parts of society. (Krauss, 1991)

At present, Ghana remains a largely agricultural economy, and the agricultural infrastructure is of great importance. Ghana has a population of about 24 million people, of which about 50% live in a rural setting.[12] As of 2007, about 40% of GDP was from agriculture, livestock, forestry and fishing; and the agricultural sector constituted 70% of all employment. (Chisenga, Enstua-Mensah, & Sam, 2007) Most of the population and resources are located in the south and southwest of the country. On the coast there are two major ports at Tema and Tekoradi where the majority of Ghana's exports are shipped. The north is more sparsely populated with more dispersed, small-scale and remote agricultural production. It is also the poorest region, with the instance of poverty at or more than 60-70% of the population. (Foster & Pushak, 2007)

[12] World Bank data: http://data.worldbank.org/country/ghana

Ghana's largest agricultural commodity (in monetary terms) is yams, for which it is the third largest exporter in the world behind Nigeria and Cote d'Ivoire. The country's second most valuable product is cassava, followed by plantains and cocoa beans, for which it is the world's number two producer at 20% of world production.[13]

5.2 Structural Adjustment in Ghana

After the structural adjustments of the 1980's and 1990's, Ghana's agricultural system became largely export-oriented, more liberalized and its infrastructure more privatized in the standard fashion of the "conditionality" agreements with Western international lending institutions. Many of these changes hit many Ghanaian small farmers quite hard throughout the 90's and continue to do so. This fallout in Ghana (in particular) is well documented in (Khor, 2006a); (Khor, 2006b); (Aning, 2006); (Chisenga, Enstua-Mensah, & Sam, 2007); and (Gibson, 2007).

Following the oil crisis of the late 1970's, Ghana was one of the many countries hit hard by high inflation. It began a serious restructuring programs in 1983, and began to reduce government involvement in the economy, privatize and bring down inflation per the recommendations of the international lending institutions. (IMF, 2000) However, the agricultural sector was slow in adapting to these reforms. An IMF report states,

> Private investment and economic growth were also hampered by the slow implementation of critical structural reforms in the financial, parastatal and agricultural sectors. Export growth, particularly in nontraditional sectors, was disappointing and Ghana continued to depend on external assistance. (Ibid.)

[13] FAOSTAT data:http://faostat.fao.org/site/339 (retrieved 20/5/2011)

This was perhaps because the agricultural sector covered such a wide proportion of all employment that it was slow to adapt to these changes, but also possibly because it was productive. However, after structural adjustment reforms, domestic production (especially small-scale) of many important commodities in food has fallen off dramatically. Several case studies have been conducted over the last ten years to assess the effects of these policies. Among such research are studies on rice, poultry and tomatoes by Martin Khor. According to (Khor, 2006b), in the 1970's Ghana produced 100% of its domestic rice consumption. Over the eighties and nineties it fell dramatically and by 2002, its domestic production comprised 64% of total consumption. Filling the gap is (perhaps surprisingly perhaps not) heavily subsidized U.S. production – coming in number two in rice exports to Ghana after Thailand. (Khor, 2006b)

> In 2003, the US exported 111,000 tonnes of rice to Ghana. In the same year, the US government gave US$1.3 billion subsidies for rice. A government study found that 57% of US rice farms would not have covered their cost if they did not receive subsidies. In 2000-2003 the average cost of production and milling of US white rice was US$415 per tonne, but it was exported for just $274 per tonne, a price 34% below its costs. (Khor, 2006b)

In 2009, the US spent $434 million dollars on direct subsidies for its rice production and exported 3.2 million tonnes as the world's third largest exporter. (FAOSTAT) This means that the US uses its wealth to compensate domestic farmers to *export* rice at a price that is less than it cost to produce, thus undercutting Ghanaian farmers who do not have such government support. This is the anti-thesis of the principles of free-trade theory.

A second cited example involves Ghanaian tomatoes. Tomatoes were a primary agricultural product grown in one of the poorer areas of Ghana, the North-East. Restructuring reforms in the mid-nineties saw the dismantling and/or privatization of

many tomato canneries as well as the removal of tariffs on trade.(Khor 2006b) Since 1994, Ghana has seen increases in its tomato paste imports rise from 3,200 tonnes to 45,600 tonnes in 2008 (FAOSTAT). This has come significantly from Europe where, as of 2004, the EU subsidies for tomatoes were €298 million in that year. (Ibid.)
A third and perhaps the most striking example of the SAP fallout is Ghana's poultry sector, examined by (Chisenga, Enstua-Mensah, & Sam, 2007); and (Khor, 2006b). Khor states than the poultry sector was in relative health and had reached its peak in the late eighties when the tariffs were dismantled. In 1992, Ghana imported just 6,600 tonnes of chicken meat. In 2008, the number was 71,000 tonnes with the majority of those imports originating from Europe. On Europe's chicken meat subsidization,

> In 2002, 15 European countries exported 9,010 million tonnes of poultry meat for Euro 928 million, at an average of Euro 809 per tonne. It is estimated that the total subsidy on exported poultry (including export refunds, subsidies for cereals fed to the poultry, etc) was Euro 254 per tonne. (…) In 1992, domestic farmers supplied 95% of Ghana's market, but this share fell to 11% in 2001, as imported poultry sells cheaper. (Khor, 2006b)

In their study of Ghanaian poultry farmers, Chisenga, Entsua-Mensah and Sam focus specifically on the effects of globalization on small-scale poultry farmers. Their study involves interviews and a survey of 25 Ghanaian poultry farmers at their point of sale at a distributor and their perceived needs and/or liabilities. Of the 25 farmers asked to prioritize major concerns, 100% said that imported chicken and chicken parts were an important factor and 75% said that it was the primary concern for competition for their livelihood. 21 out of 25 said that high costs were a major factor and 19 said that lack of government incentives was a major concern.[14]

[14] See Appendix

This study reflects what a proportion of Ghana's small-scale poultry farmers see as the greatest hindrance to their progress, and it is directly the result of unfair trade with advanced economies . These farmers are made vulnerable and poorer by the direct subsidization of this commodity in the developed world and the aggressive tactics of the major economies to keep government protections of the domestic market minimized.

So, why was it acceptable for western lending institutions to require Ghana to dismantle its price support systems for its local production, citing them as a liability; while at the same time breaking down trade barriers so that the same subsidized products could be imported to Ghana from the US and Europe?
This is fallacy when viewed in terms of development policy for Ghana, yet logical when viewed in terms of the export markets in the EU and US. Considering the cost of growing and milling rice in the US, it's interesting to see that there is production at all – let alone exports. However, in a 2007 study, it was found that despite significant potential for rice production expansion in Ghana, imports increased 19% 2005-2006, "…with Thailand followed by the United States of America as the leading source of imported rice." (Kwabiah & Essabra-Mensah, 2007)

Rice, tomatoes and poultry are largely the commodities that small-scale growers in Ghana were selling to domestic consumers before the subsidized imports from the U.S. and Europe gained significant market share through requiring lowering of tariffs and dismantling of trade barriers. However, to more fully understand the plight of Ghanaian farmers, it is important to understand not only the food crops but the cash crops, the primary of which is cocoa beans. [15] Ghana is the world's second largest

[15] Note, yams have historically been a food crop in Ghana yet are starting to be shipped abroad in greater quantities as a cash crop.

exporter of cocoa beans, fulfilling 20% of the world export market in 2009.[16] Cocoa is largely sold to distributors in Europe and the U.S. to be processed primarily as cocoa butter, cocoa powder and chocolate products and sold at prices that would generally be too high to be sold to Ghana's domestic market.

Due to the relatively labor-intensive nature of cocoa production, it is often done by small-scale farming. Its production and sale constitutes a major source of income for these farmers. Historically, (prior to the 1980's), the government provided price and social service supports for these farmers. However, after the SAP's these supports were removed (Khor, 2006b) and price fluctuations in cocoa on world markets over the last 10 years have left Ghanaian farmers in a precarious situation. In order to secure more stable production, foreign firms and governments have been quick to see an opportunity in a highly valued market such as cocoa production. The United States especially has been quick to respond to the need for assistance in Ghana that it helped to create. Their response will be discussed in the next section.

5.3 U.S. /Ghana Policy in the 2000's

Yet despite these hurdles to small-scale Ghanaian farmers orginating in the developed world, there has been continuous interest ***from*** the U.S. in supporting under-producing Ghanaian farmers. In 2006, (one year after U.S. agricultural subsidies reached their highest-ever peak of $24.3 billion) (EWG, 2007-2010); the U.S. pledged $547 million dollars in development aid grants to Ghana called the "Ghana Compact" through the development organization, the Millennium Challenge Corporation. (MCC (website), 2006) The MCC is a right-leaning Washington-based organization whose stated intention is to promote private-sector led development and agribusiness.

[16] FAOSTAT, 2011: http://faostat.fao.org/site/342/default.aspx

Much of the $547 million in the "Compact" is allocated to agriculture. The intent of the agricultural project is fairly self-explanatory, yet at the same time nothing if not vague. It seeks to "accelerate", "facilitate", "establish", "improve" and "augment" agricultural production, yet sees no contradiction that the process itself is contrary to its neo-liberal form of allowing markets to dictate demand. Furthermore, with specific mention of (poorly-defined) "fixed base operators" (FBOs) entities which are specially licensed to carry out a specific task, one must be concerned about the possibility for rent-seeking opportunities for Ghanaian firms; and further, to what extent the document allows American-based firms to be paid consulting fees with development money for Ghana.

Yet the message for their role is clear, to facilitate the production of export-oriented products through accelerating the expansion of commercialized production. They seek to make particularly cocoa production more efficient and create a grander scale, by reducing the variability of factors to production and promote its monoculture as a "most valuable product." The intention to focus on small-scale farmers seems disingenuous in this context because it seeks to promote larger commercial operations, even more so as the MCC consistently seeks investors for Ghana's agricultural industry both in Ghana and abroad as evidenced in its memoranda reports. (Armah, 2011)(see Appendix A) Furthermore, the need for increased inputs (meaning fertilizer) and the awareness of a greater future strain on resources for this production (irrigation investment) is only minimally acknowledged.

Though Ghana's agricultural production undoubtedly needs support, facilitation, augmentation and growth, it is arguable about whether the same agricultural processes that have created the need for highly-subsidized, unsustainable agribusiness

production systems in the west are well-suited to provide the best practice recommendations to country ill-suited to provide such enormous price-supports to this production. One might also be suspicious of whether aid such as the "Ghana Compact" doesn't offer advantages large enough to commercial firms to drown out alternative small-farmers that the program claims to aid and support. More research on the effects of these policy implementations is required. Since its implementation by the US Congress, as of 2009, only half of the money promised has been spent and the projects continue.

Chapter 6: Concluding Remarks

The continuation of the neoliberal development ideology markets will likely do little lend support to small hold farmers or to improve food security. Fewer public supports, more select private incentives, minimal (or no) trade barriers and the intolerance in world markets for sovereign trade and policy will likely continue to push world development toward along its current and inegalitarian trajectory.

The current terms of trade between the developed world and the developing world have already done much to destabilize and disrupt the established pattern of production, crowding out and marginalizing small-scale farmers and sustainable, biodiverse production in the pursuit of higher economic growth rates in which an increasingly small number of producers, industries and governments experience real (and often sizeable) benefits.

Speculation in de-regulated commodities and futures markets has created increased levels of uncertainty in especially the last ten years. This has resulted directly in at least

one major crisis that sent shocks of high food prices around the world in 2008, which had little to nothing to do with actual supply of food.

In addition, as fuel costs rise, transportation costs will rise in tandem, adding precariousness to an already byzantine network of trade and production seemingly designed to move profits and benefits away from small-scale farmers and towards larger commercial operations. An example of this vulnerability is the perishable tomatoes and poultry that are shipped across a oceans from developed nation to developing nation when local varieties were and could be grown domestically. This is happening simply because price distortions for exports countries are strongly in place in developed countries and significantly removed in countries with little sway in policy negotiations.

The system of agro-industrial monoculture has continuously proven itself to be untenable in the medium to long-term due to its high input "nutrient enrichment" needs and high levels of negative environmental practicalities such as water usage, fertilizer runoff and soil degradation. Yet it further imposes unsustainable conditions on the local communities in which it exists because it is invariably supported by exporting its production. The erosion of farming communities where this production dynamic has taken over has been a steady phenomenon over the last fifty years in the United States. Since in Ghana, the result of the reforms has produced greater growth in non-agricultural sectors, there has been a shift of farmers to the city for work. (Khor, 2006b)This represents a negative trend for both rural development and democracy as relocated urban poor are more likely to be without property and therefore under-represented democratically in urban centers and nationally. As long as the progression toward high-input, unsustainable monoculture under price supports is allowed to continue, these farm communities will remain under pressure.

A shift in the priorities of world agricultural production is partly underway and largely overdue. The shock of the 2008 World Food Crisis has sent a message to a great many people around the world that the current system contains major flaws that must be resolved if there is to be greater and not less food security in the coming generations. A renewed focus is on the role of the small-scale farmer. Progressively seeking to support small-scale, sustainable production is largely the cure for the plague of harmful externalities befalling local and global communities from agro-industrial monoculture. To reiterate, some the major benefits of small-scale farming, as discussed throughout the previous chapters, are as follows:

a) Small farms are more productive per acre than larger, monoculture farms.
b) They are more generally labor intensive, which means less fuel inputs. As well, by employing more individuals per acre and increased productivity per acre, they are therefore beneficial for rural development .
c) Greater stablility in market prices benefits both consumer and producer as speculation on commodities pricing needs to be more strictly regulated in financial markets. This must absolutely be part of small-farm support to ensure that price fluctuations are minimal and as stable as possible to encourage growth at the very margins of production. Those farmers with little capital are less likely to become involved in highly volatile markets.
d) *In situ* biodiversity preservation through multi-cropping, as discussed in Boyce 2006, and the "evolutionary garden" concept is a key advantage in small-scale farming techniques as it provides a natural and continuous response to pests and contributes to soil quality and therefore production in the medium and especially the long-term.
e) They are less harmful to the environment at the macro and the micro levels by requiring fewer inputs (with the exception of labor) and far less petroleum-based inputs (such as fertilizer and fuel) This in turn produces less fertilizer

runoff that contaminates global water supplies and ecosystems. As well, small-farms have been consistently shown to increase biodiversity and improve soil nutrition rather than degradation.

Recommendations based on study:

Despite the growing awareness of these realities, there remain immense barriers to the success of a pro-sustainability and pro-responsibility agricultural movement; notably, the inertia and resources of the current system. During the neo-liberal period spanning much of the last forty years, these production dynamics have produced great wealth in certain sectors that have become powerful and often heavily influence policy-making at the micro and macro level. To preserve the benefits reaped by many involved in the hierarchy of the current structure, the message and the data will continue to be manipulated and perceptions coerced until there reaches a point when its failure is quite obvious for everyone to see. A more equitable, sustainable and democratic paradigm of production and development to counter the current system would be based on:

a) locally-owned, locally-produced and locally sold agricultural production; supplemented with minimal to no subsidization of exports to truly capture comparative advantage realities.

b) Using different standards of measurement for production which..
    1) are not solely based on monetary value of production
    2) estimate and include the cost of external impacts such as pollution, soil and biodiversity degradation, social responsibilites and product

quality in the price of the product (first) in a developed world context, followed by reforms in the developing world

3) universal units of measure for agricultural production and pollution. Currently, U.S., European and International agencies use complex and different units of measurement for weights, units and different definitions for the size of farms.
4) Greater transparency, clarity and collaboration with international monitoring and research agencies for the ease of access by the everyday non-academic user (particularly web sites)

c) Terms of trade which promote decreases in economic inequality
d) Subsidization for small holders only. Large farms will realize economies of scale. Subsidies should be based on ecosystem health, carbon capture (and release) and in situ biodiversity assessments. They should be reassessed yearly.
e) Shift focus from *ex situ* technology inputs to *in situ* biodiverse systems of living organisms. Scale back incentive-based private research and development in favor of public sector research based on public need.
f) Striclty regulate speculation in financial markets with the specific aim to create the highest levels of stability and price accuracy.

Several movements have gained ground in recent years on these platforms of safer, more sustainable and more equitable food production. However, the majority have taken place in developed countries and largely in rejection of established food production norms (the Slow Food Movement, Fair Trade certification). It is the developing world that is perhaps the most vulnerable to continued coercion of its production systems by neo-liberal, profit-oriented interests, and also they who have the most to gain. Since 75% of the world's poorest individuals are engaged in this form of agricultural production, the benefits of a greater consciousness of the effects

of the food system in the developed world would have the greatest impact there. The compensatory changes made in the above-mentioned areas with an intent to pursue equity and ecological protection, may be of far greater consequence to the developing world in the short and long run than any dollar amount of direct aid or policy prescription any country or organization could ever pledge – let alone deliver.

Appendices

Appendix A. The Millennium Challenge Corporation "Ghana Compact"

The Millennium Corporation "Ghana Compact" Mission Statement
• Program Overview • Transportation Project • Rural Development Project • Agriculture Project In August 2006, the Millennium Challenge Corporation signed a five-year $547 million Compact with the Republic of Ghana aimed at reducing poverty by raising farmer incomes through private sector-led and agribusiness development. MCC investments are intended to increase the production and productivity of high-value cash and food staple crops in some of the poorest regions and to enhance the competitiveness of Ghana's agricultural products in regional and international markets. The MCC Compact in Ghana entered into force (EIF) in February 2007, formally initiating the 5-year timeline for project implementation. **Source**: http://www.mcc.gov/pages/countries/program/ghana-compact (retrieved 31/5/2011)
"The Agriculture Project" of the Ghana Compact Increase profitability of cultivation, services to agriculture & product handling in support of the expansion of commercial agriculture among groups of small holder farms enhanced by:

- Accelerating the development of commercial skills and capacity among FBOs and their business partners;
- Improving tenure security for existing land users and facilitate access to land for commercial crops;
- Establishing a limited number of water retention devices requested by the FBOs and FBO partnerships;
- Facilitating strategic investments by FBOs in post-harvest infrastructure improvements;
- Building the capacity of the public sector to introduce and monitor compliance with international plant protection standards;
- Augmenting the supply of, and access to, credit provided by financial institutions operating in the intervention zones, and
- Increasing access to major domestic and international markets, and to facilitate transportation linkages from rural areas to social service networks.

Source: http://www.mcc.gov/pages/countries/evaluation/ghana-compact
(Retrieved on 31/5/2011)

Appendix B: **Accounting of Massive FDI in Agriculture Infrastructure Project**

Since 2002, GCC countries have put extensive financing into the Merowe Dam, 350 km north of Khartoum at the fourth cataract of the Nile. The project was first conceived in 1993 and realization started in 2000. The private equity company Abraaj Capital and other UAE companies and institutions have already acquired 800,000 acres of farmland in Pakistan, and GCC countries now engage in close dialogue with food-producing countries. At the first Middle East-Pakistan Agriculture and Dairy Investment Forum in Dubai in April 2008, investors pledged over $3billion worth of new investments in Pakistan's agriculture and dairy sectors, highlighting the country's potential for milk and fruit production. "Forum Tackles Pakistani Role in Solving Global Food Crisis," Arabian Business, May 1, 2008, available at: http://www.arabianbusiness.com/press_releases/detail/17551

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