

Undernourishment in Sub-Saharan Africa

Marlies Overbeeke

Virginia Polytechnic Institute and State University
Master of Science
Sociology

Professor Dale Wimberley (Chair)
Professor William E. Snizek
Professor Richard E. Wokutch

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Abstract

Since 1992, the annual decline in the undernourished fraction of the world's population has been minimal (0.3%) making undernourishment one of the most pressing and alarming global issues. The FAO annually publishes a list of best and worst performing countries that respectively significantly decreased or increased the proportion of the population that was undernourished. Strikingly, seven out of ten global best performers and four out of ten global worst performers are located in Sub-Saharan Africa. This study therefore seeks to explore the variables affecting undernourishment rates, in an attempt to explain this variance.

Six case studies hence explored three best performers (Angola, Chad and Ghana) and three worst performers (Botswana, Democratic Republic of Congo and Liberia) as the unit of analysis. Three clusters of variables were studied; natural shocks, agricultural production and economy. Changes in these variables were examined between 1992-2000 and Ragin's qualitative case study research strategy was applied to facilitate the analysis. The data indicated that the most influential variable was agricultural production. Furthermore, good governance leads to improvements in all three clusters of variables, whereas a civil war negatively affects all three clusters. Undernourishment proved to be a very complex and intertwined problem and similar research on a larger scale was recommended.

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Abbreviations

AFDB	African Development Bank
CIA	Central Intelligence Agency
CPI	Corruption Perception Index
DRC	Democratic Republic of Congo
EIU	Economist Intelligence Unit
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
GDP	Gross Domestic Production
IMF	International Monetary Fund
NTGL	National Transitional Government of Liberia
OECD	Organization for Economic Co-operation and Development
PPP	Purchasing Power Parity
SADC	Southern African Development Community
TI	Transparency International
UNCTAD	United Nations Conference on Trade and Development

Chapter 1 – Introduction

1.1 General Statement of the Problem

The Rome Declaration calls upon us to reduce by half the number of chronically undernourished people on the Earth by the year 2015...

H.E. Romano Prodi ~ Chairman of the World Food Summit

The Food and Agriculture Organization of the United Nations (FAO 2001a) estimates that there are currently 840 million undernourished people in the world, of which 799 million live in the developing world. Since 1992 there has been an average annual decline of 2.5 million undernourished people. Whilst this may appear to be a significant amount, it is no more than a 0.3% annual decrease. To combat these alarming realities, several political plans of action have sought to reduce hunger and undernourishment. The dominant plan of action is that set forward by the World Food Summit, which was developed by the FAO in Rome in 1996. The World Food Summit came into existence as a response to the continuous prevalence of widespread undernourishment. The objective of the summit is to renew global commitment at the highest political level to eliminate hunger and undernourishment by providing food security for all the people in the world. Representatives from over 185 countries attended the conference. The Summit established the Rome Declaration that consists of seven commitments to meet the target of reducing by half the number of undernourished people in the world by the year 2015 (World Food Summit 1996). Now, almost seven years later, it appears as though the world is not well on track in reaching this target. In fact, if undernourishment continues to decline at this rate, the target will only be met in one hundred years (FAO 2001a).

Thus despite undernourishment being high up on the global political agenda, the actual outcome of the plans of action is not sufficient to reach the target. Clearly the issue of undernourishment is very complex and caused by many factors. A sound understanding of these factors, their effects as well as possible correlations between factors is vital in evaluating action plans. This study will therefore investigate the causes of undernourishment in an attempt to determine the main variables and their respective effects on undernourishment rates.

There are several approaches to undernourishment. Often the issue is related to the more general concept of *development* following the hypothesis that undernourishment is most prevalent in the developing countries and that by stimulating development, undernourishment would be reduced. A more recent approach is the concept of *food security* arguing that undernourishment is not a result of a lack of food but rather due to the fact that food security, notably availability of food, access to food and adequacy of food, are not met. This chapter will therefore first provide a brief overview of general theories on development. This will be followed by a discussion of the more specific, food security approach. The factors influencing undernourishment as presented in the literature, shall then be discussed resulting in a hypothetical framework of variables determining undernourishment rates.

1.2 Theories on Development

As much as 95% of the undernourished population can be found in the developing world. Furthermore, undernourishment is often viewed as a direct cause of underdevelopment (Lewellen 1995). It is therefore essential to obtain a general understanding of the two main paradigms of development, as this will determine the actual approach to reducing undernourishment rates. By recognizing the different views and corresponding approaches to development, additional conclusions with respect to the underlying causes of undernourishment can be drawn.

The *modernization paradigm* focuses on the internal systems of nations and at the international level distinguishes between developed and underdeveloped nations. All nations start out underdeveloped but through processes of modernity become developed. Development by definition requires the same approach the Western countries have taken. Crucial elements include the transfer of Western technology, capital and expertise. The process of modernization inevitably creates dual economies. The modern economy is capitalist or semi-capitalist and is characterized by high levels of technology, stimulating innovation and an entrepreneurial ethic, as well as having an educated and progressive elite. The traditional sector on the contrary is feudal with minimal levels of technology. Later modernization theorists also focused on the need for foreign aid and investment to overcome poverty. Open trade was further promoted in an attempt to reduce inequality (Lewellen 1995).

The *developmentalist position* is certainly a part of the modernization paradigm in that it views underdevelopment as the failure of a historic transition from a non-capitalist to a more Western society. Development is viewed as economic growth. The greatest obstacle to modernization is low productivity due to a lack of entrepreneurial drift and a scarcity of trained expertise. Furthermore, the absence of a stimulating, systematic government discourages progress. Therefore significant internal changes can only occur through external aid in the form of foreign aid and technology. The most critical triggering agent of change is the adoption of innovations, Western ideas, techniques, values and organizational structures. Elites are viewed as crucial to the development because of the ‘trickle-down effect’ suggesting that one should invest in the elites and that the benefits would consequently trickle down to the rest of the population (Dunaway 2000, George 1984, Luke 1990). The modernization paradigm would thus suggest that a transfer of Western technology and expertise is essential in combating undernourishment. Improvements in for example

agriculture technology would significantly reduce undernourishment rates. Possible causes of undernourishment are a failure to transfer sufficient Western technology, expertise and capital.

In theory the suggested transfer of capital and technology should have closed the gap between the First and Third World, but instead the gap only widened. As a result the *dependency paradigm* evolved, which approached the international system as being historically developed. Emphasis was placed more on the history of the Third World and the effects of this history over a number of centuries. The dependency paradigm can be further separated into *dependency theory* and *world system theory*. Both have a strong economic focus and point to capitalist exploitation as the main source of underdevelopment. The most commonly cited dependency theorist is Andre Gunder Frank who elaborates even further to conclude that world capitalism is in fact the cause of underdevelopment. He defines underdevelopment as the systematic exploitation of the poorer countries by the richer countries and thus does not see any solution in transferring capital, technology and expertise to the developing world, for this will only intensify underdevelopment. The only solution lies in delinking from world capitalism (Frank 1996). The domestic economy is to be developed and foreign investment can only be accepted with strong control so that the initial dependency can be broken (Lewellen 1990).

Immanuel Wallerstein, who focused primarily on a single global capitalist economy, introduced *world system theory*. Wallerstein views capitalism as a system in which the owners of the means of production compete with each other to maximize profits and it thus functions through markets rather than states. The world system is an interdependent system of countries linked together by economic and geopolitical relations. The modern world system is nothing but a capitalist world economy. The system is based on an international division of labor between the core, the periphery and the semiperiphery (Wallerstein and Hopkins 1996).

Thus with respect to undernourishment, dependency theorists would argue that a significant cause of undernourishment lies in this persistent inequality as a result of the capitalist exploitation. Instead of transferring technology, expertise and capital, the focus should be on the domestic economy of the country itself.

The *Neo-Institutionalist Position* would agree with this point of view in that these theorists believe a situating analysis is necessary (Streeten 1973). This implies that detailed knowledge of a society is vital at all times. Nevertheless, this position does recognize the importance of innovation for development and thus in effect also the reduction of undernourishment. However, rather than transferring these innovations from the West, Neo-Institutionalists call for a strengthening of the state. Emphasizing the essence of public planning, the state could then shift the economy in an upward dynamic (Dunaway 2000). A cause of undernourishment from a Neo-Institutionalist point of view is thus insufficient public planning as a result of a weak state.

Clearly there is little consensus amongst the theorists on the causes of underdevelopment and the recommended path forward. As a result the different paradigms allude to different, opposing, causes of undernourishment. Nevertheless, the theories show that technology, more specifically innovation, capital and expertise do play a role. However, where the dependency paradigm sees the transfer of technology and expertise as the reason for underdevelopment and its respective problems, the modernization paradigm suggests that this should be the solution to reducing underdevelopment. Evidently, these factors play some role in undernourishment, but further empirical analysis is needed to indicate whether they are causes of reduction or increases in the proportion of the population that is undernourished.

1.3 Food Security

Food security is defined as every individual having access to enough food to maintain a healthy and active life (McCalla 1999: 96). In fact, the right to sufficient and safe food is considered a fundamental human right (FAO 2001b). Sen (Sen and Drèze1999) applies this notion of food security in his *entitlement approach* in which he argues that one should focus on the ability of a person to acquire food and other commodities within prevailing economic, social and legal arrangements. In this approach, *entitlements* are measured not simply as income, but rather as a bundle of rights and opportunities that are available to an individual. More specifically, an individual's entitlements characterize the 'totality of things he can have by virtue of rights' (Sen and Drèze1999). Thus food security should be defined as the acquirement of sufficient and nutritious quantities of food (Sen 1981).

McCalla (1999) introduces three critical dimensions of food security in his discussion of the future prospects of food security and analyzes food security at three different levels. First and foremost, food security must be solved at the household level for this is where people simply do or do not eat. At the national level, governments must either produce sufficient food to satisfy this need at the household level, and / or introduce policies to make food available and accessible. Finally at the international level, aid can contribute to the national and household level, but it is impossible to solve food insecurity by international investments alone. Along similar lines, the short-term focus should be on providing food security at the household level. The medium term (5-15 years) focus should be on the national level. Nations must

engage in economic development programs, sustainable production systems and agricultural research.

The long term focus ideally

should be on all three levels but now the global dimension becomes more critical in terms of

"The world has ample food. The growth of global food population has been faster than the unprecedented population growth of the past forty years... Yet many poor countries and hundreds of millions of poor people do not share in this abundance. They suffer from a lack of food security caused mainly by a lack of purchasing power."

(Reutlinger and Sclosky. 1986:1)

international trade, available technology and sufficient global production and stocks (McCalla 1999, Van Rooyen and Sigwele 1998). The final third dimension looks at three essential conditions for food security: *availability* of sufficient food due to agricultural production and / or trade. *Access* refers to the degree to which the consumer is able to obtain food both in terms of purchasing power and distribution. *Utilization* (also referred to as adequacy in the literature) relates to the nutritional content of the food provided (FAO 2001a). However, it is essential to realize that there is sufficient food in the world. The World currently produces enough grain to provide every human being with 3500 calories per day, it is an abundance rather than a scarcity (Lappe, Collins and Rosset 1993)!

Undernourishment is thus not so much a case of there not being enough food, but rather of that food not being available to that specific proportion of the world's population. This is due to inadequate distribution and above all lack of purchasing power (cf. Devereux, 2001, FAO 2001ab, Foster and Leathers 1999, George 1984, Reutlinger et al. 1986, von Braun, Teklu, Webb 1999; World Bank 2001; World Bank 1997). The inability to purchase food will clearly lead to undernourishment and possibly also malnutrition as one particular type of cheap staple food will be consumed rather than a balanced diet.

Thus when analyzing undernourishment based on the food security approach, it becomes apparent that it is not merely a question of producing enough food to combat undernourishment, rather there is enough food produced on a global scale, but the problem lies in the access, availability and adequacy of the food. Bearing this in mind, conclusions with respect to the possible causes of undernourishment can be drawn. With respect to availability, causes of undernourishment include insufficient agricultural production and population. Agricultural production is especially challenging in Africa where farming systems are very complex and the length of the dry season becomes critical (Grigg 1993). Indeed, weather conditions and the possibility of droughts have a considerable negative

impact on farm level food production (Van Rooyen and Sigwele 1998). Thus given these land constraints, food availability can only effectively be improved if more resources are allocated to agricultural research and natural resource management (Smith and Haddad 2001, Van Rooyen and Sigwele 1998). Technology developments can increase agriculture productivity and also produce more environmentally sustainable food products. Countries that insufficiently invest in and develop agriculture, nor have the technological expertise available, are thus more prone to reduced food availability and undernourishment. Food availability can be improved due to trade, that is food imports. Undernourishment can also be a result of either insufficient imports or a skewed trade balance in which far more is being exported than imported leaving the local population hungry. Per capita food availability in a country is affected by population growth and could, if not paralleled with increases in agricultural output, also be a potential cause of undernourishment. Access translates primarily to distribution bottlenecks. Given the nature of distribution in developing countries, this poses a challenge for the distribution networks are not developed sufficiently. Furthermore, due to increasing urbanization, the composition of food demand and thus availability will be altered (McCalla 1999, Van Rooyen and Sigwele 1998). This implies that more of the food supply will have to be processed, stored and distributed. Hence again the importance of access through adequate distribution becomes apparent. Reducing poverty would also significantly benefit the distribution systems (Van Rooyen and Sigwele 1998). Finally adequacy / utilization related causes of undernourishment can be found in insufficient education of the masses with respect to their daily dietary needs (McCalla 1998, Smith and Haddad 2001).

Based on the concept of food security, the possible causes of undernourishment can be

“The challenge can be met if international and domestic policies, institutional frameworks, and public expenditure patterns are conducive to cost-effective and sustainable agricultural development”
(World Bank 1996: 10)

summarized as follows: insufficient agricultural production (due to weather, minimal

technology and trade) population growth, inadequate and/or underdeveloped distribution and insufficient education. It is fairly obvious that government policies could potentially play a huge role in minimizing the negative impacts of these variables on food security. In fact several authors have claimed that undernourishment and hunger are also caused by politics (George 1984, Lappe, Collins and Rosset 1998, Van Rooyen and Sigwele 1998). Politics play a role in two main areas. The first role is that of democracy. In a democratic country, leading authorities can be held accountable for their actions and the state of the country. Furthermore, in a democracy, people ideally have a say in the day to day actions. The second role is that of general policy making and the creation of safety nets. This includes tax policies and development programs. A proactive government geared towards increasing agricultural production, stimulating technology and providing education and safety nets, will presumably reduce undernourishment levels. The possible causes of undernourishment as discussed in this section will be analyzed in greater detail and elaborated on in the next section when a hypothesis about the actual effect of the variable on undernourishment rates is suggested.

1.4 Factors Influencing Undernourishment Rates

The State of the World Food Insecurity Report (FAO 2001a) discusses two clusters of variables that contribute to changes in the undernourishment rates. One cluster of variables reflects extreme national shocks such as the political situation, environmental disasters and demographic variables. Variables reflecting growth in agricultural productivity and hence increasing the food availability are grouped in the second cluster. Other literature sources support this classification (For example Foster and Leather 1999). This section will draw upon the previous two sections as well as elaborate using more literature sources. In this light the two clusters of variables will be discussed. Some careful hypotheses will be made with respect to the potential effect each variable will have on the undernourishment rates. That is,

will the presence of the particular variable potentially increase or decrease undernourishment rates.

The national shock cluster

Hunger and undernourishment most certainly have a **political dimension**. In fact, the root cause of undernourishment has been defined not as a scarcity of food, but rather as a ‘scarcity of democracy’ (Lappe, Collins and Rosset 1998: 1). These authors argue that a democracy carries accountability and thus especially in the case of economic life, the key persons can be held accountable for their actions. George (1984) also argues that it is a political problem claiming that one should not study the poor but one should study the powerful more so that the problem of power can be understood and ways can be suggested to empower the majority so that the masses can increase their own resources. Sen in his entitlement approach would also suggest that in a stable political situation such as a democracy, a person will have more rights which would enable her/him to pursue his capabilities and enlarge his personal entitlements. He further argues that public action as an initiative of the state will also play a large role in preventing famines (Sen and Drèze 1999). The importance of government policy is a common issue in many discussions on hunger and undernourishment (see, for example, Grigg 1993; McCalla 1998; Van Rooyen and Sigwele 1998). It is very likely that in a democracy, policy making will be more efficient and more effective. In fact, it would be logical to conclude that the presence of a democracy will in actuality affect most of the other variables discussed. For example, a democracy will be more likely to introduce policies to increase investments in agriculture and / or take precautions for environmental disasters. The Neo-Institutionalist position on development also emphasizes the importance of strengthening the state for this will enhance public planning and lead to development. *Thus it is hypothesized that the presence of a democracy will have a positive effect on the reduction of undernourishment rates.*

Natural and environmental emergencies form the second dimension in this cluster.

It has been argued that it is a myth to conclude that droughts, floods and other such environmental conditions that cause famines and thus undernourishment, are beyond human control. Rather, it is suggested that it should be related to vulnerability. The part of the population that is more prone to the harmful effects of such disasters is more vulnerable and thus more likely to become undernourished as a result (Lappe, Collins and Rosset 1998). The FAO also claims that such environmental emergencies are not totally beyond human control. Rather climate change and its corresponding emergencies are a result of human induced changes. Another example is the current pressures on natural resources. To avoid further climatic and environmental disasters efforts must be made to manage resources in a sustainable fashion as well as stimulate the use of degradable resources (FAO 2001b). Regardless of who is responsible for natural and environmental emergencies, *it is hypothesized that the occurrence of such emergencies will adversely affect undernourishment rates*. Nevertheless, in the case of a natural emergency, it would be worthwhile to analyze whether the effects could have been minimized by, for example, more effective policy making (safety nets).

Demographic variables form the final dimension and include changes in life expectancy and population growth. The issue of population growth as it relates to undernourishment, is a hotly debated. On the one hand it is argued that an increase in population implies that more food is needed and this then affects the food availability within a country. The actual impact though varies per country but mathematically speaking, the larger the population, the more drastic the expected increases and decreases will be (FAO 2001a). Due to an increase in both fertility and life expectancy, population growth has exceeded the growth of food output (Grigg 1993). Other sources however, claim that agricultural production can easily exceed population growth and that in effect population

growth is slowing (George 1984; Lappe, Collins and Rosset 1998). Either way, it cannot be denied that population growth is a global trend and poses challenges on the food production and distribution (FAO 2001b). Currently in most developing countries agricultural production is not sufficient to combat the harmful effects of this trend. *Therefore especially in combination with an increasing shift towards urbanization, the processing and transportation of food increasingly becomes a challenge and negatively affects food security and thus undernourishment rates.* Specific demographic characteristics of the population will also affect food requirements and thus undernourishment rates (Foster and Leathers 1999). Pregnant women, for example, will need a higher calorie intake.

The agriculture cluster

The first dimension can be defined as an **increase in resource allocation to agricultural production**. Resources can be both domestic and external. Domestic resources are defined as the total net value of capital stock in agriculture, such as livestock, tractors, land improvements, permanent crops and so on. Increases in this net value by definition imply increases in national investments. External resources are mostly in the form of external assistance by multilateral and bilateral donor agencies. Again there is much debate about the actual effectiveness of food aid. The developmentalist position is clearly in favor of increases in food aid for this is the only way to stimulate development and reduce undernourishment. Other resources also suggest that especially on the short term, food aid is critical in providing food security and reducing undernourishment rates (FAO 2001a, McCalla 1998, World Bank 1996). A study by the FAO proves that the best performer countries, that is the countries that significantly reduced undernourishment rates also received an increase in external assistance (US\$ 5.3 per worker) whereas in the best performer countries the amount of external aid actually decreased (US\$ -31.0) (FAO 2001a: 7). More radical opponents claim that more aid will not benefit the undernourished at all (Lappe, Collins and Rosset 1998). It is argued that

aid investments are only geared towards integrating the developing country into the world economy rather than being focused on improving the local food systems (George 1984).

Nevertheless, both sides agree that increases in domestic resource allocation to agricultural production will lead to economic growth and aids in the direct availability of food. Thus it can be hypothesized that *increases in resources directed to agricultural production will reduce undernourishment rates*.

The second dimension addresses **increases in agricultural production and output**.

An increase in agricultural production is the main means through which food availability can be increased (Smith and Haddad 2001) and plays a critical role in providing food security and reducing undernourishment rates (McCalla 1998; Van Rooyen and Sigwele 1998). Research has shown that in countries where undernourishment rates decreased, the average annual growth in per capita food production (3.4%) was significantly higher than in those countries where the undernourishment rates increased significantly (0.4%) (FAO 2001a: 6).

Agricultural production is affected by natural and environmental emergencies such as pests or droughts destroying the harvest. Advanced technologies such as genetic engineering could potentially reduce pesticide use and environmental degradation (FAO 2001b). Agricultural production and output can also be increased by efficiency gains as a result of new technologies or better-trained and educated farmers. The developmentalist theorists argue that the diffusion of Western technologies and innovations is the only key to development and thus to reducing undernourishment rates. The dependency paradigm on the other hand would stimulate a more local approach. This debate can also be traced in the more specific literature. However, it is commonly accepted that transferring Western technologies and innovations is no longer the key to achieving development and reducing undernourishment. Rather the debate now concentrates on the extent to which new technologies should be introduced and what the focus of these new technologies should be. On the one hand it is argued that the

developed nations and aid organization should provide only limited assistance with the focus on the local situation. Enough support should be given to the education of a few local scientists who can then improve the local food systems (George 1984). The other side of the debate emphasizes a much larger role for the global community (McCalla 1999) in that it stimulates international research and the availability of international technology. Regardless of the approach, it can be hypothesized that *increases in agricultural production and output will reduce undernourishment rates*. Nevertheless, the way in which this increase in agricultural production is achieved is open for debate.

Summary of Hypotheses

1. Presence of democracy and extensive civil rights will decrease undernourishment rates.
2. Natural and environmental emergencies will increase undernourishment rates
3. Rapid population growth will increase undernourishment rates.
4. Increases in resource allocation to agricultural production will decrease undernourishment rates.
5. Increases in agricultural production and output will decrease undernourishment rates.

Box 1.1 Summary of Hypotheses

1.5 The role of the economy

The link between poverty and undernourishment is widely discussed in the literature (Devereux, 2001; FAO 2001a; Foster and Leather 1999; von Braun, Teklu, Webb 1999; World Bank 2001; World Bank 1997). However, whilst several literature sources indirectly or partly address economic issues such as trade, foreign aid and foreign direct investment, little attention is directed toward the actual effect of these variables on undernourishment rates. No reliable source could be traced that combined both the variables discussed in section 1.4 and specific economic variables in an analysis of undernourishment. However, it is very likely that a correlation and causation exists. This section will therefore discuss four dimensions; balance of trade, foreign direct investment, foreign aid and gross domestic

production, in more detail and group them in a third cluster of variables, namely the economic factor cluster.

The more traditional theories on development already addressed the economic factors in the discussion of economic growth. The *developmentalist paradigm* equates development with economic growth. Economic expansion is critical in replacing the current primitive values. The catalyst to change comes from external foreign aid and assistance in technology. Free international trade will alleviate poverty and modernize developing countries. Stimulating a free capitalist market will lead to economic growth and thus by definition to development and improvements in undernourishment. The Neo-Institutionalist school of thought also emphasizes the importance of economic growth (Dunaway 2000). Whilst also stimulating economic growth, the *Neo-Institutionalists* do not believe in free trade for this only has back-wash effects as it would only widen the gap between the developed and the developing world as economic growth in one region can only be achieved at the expense of other regions (Myrdal 1957).

The issue of free market and trade are still a hot debate. **Trade** therefore forms the first dimension of the economic cluster. In the last forty years the value of international trade in the food industry has tripled. The actual tonnage of food shipped between nations has grown fourfold (Halwell 2002). A fair and freely working trading system can improve food security (McCalla 1998). A study by Maasdorp (1998) showed that in the Southern African Development Community (SADC) trade could significantly improve food security. SADC is a very recent attempt (established in 1996) to achieve trade integration. A free trade area is to be established by 2007. The research further showed an increase in both intra-regional (especially grain) and extra-regional trade opportunities. Regionalism (intra-regional trade) will be more likely to benefit food security as import and export parity prices outside the region are simply higher due to the vast amount of transportation costs (Koester 1996). An

increase in imports would imply that more food would be available and thus improve food security and reduce undernourishment rates. Furthermore, imported foods may be more suitable to combat malnutrition as the nutritional value of these imports could potentially be higher thus improving the *adequacy* of foods. On the other hand the notion of a free market and increases in especially extra-regional trade has been heavily criticized. It has been argued that a free market does not address the root causes of hunger. Free trade through globalization and trade liberalization will not reduce undernourishment either for such policies will only benefit the local economic elites and at the same time drive local farmers out of business (Lappe, Collins and Rosset 1998). Furthermore, as a result of this focus on trade, local farmers devote their best land to cash crops intended for export, at export prices beyond their control, and as a result these local communities go hungry (George 1984; Halwell 2002). However, a certain amount of trade is most definitely useful but the focus should be on meeting food needs locally first and then focusing on trade. A good example of this in practice is the concept of farmer cooperatives. In Kenya, for example, the Association for Better Land Husbandry coordinates sixteen co-ops so that the local farmers can benefit from the marketing and distribution advantages. Under the ‘farmer’s own’ brand, products are sold in the local and global markets (Halwell 2002). Thus it is unclear based on the literature what the real and long-term effects of trade will be on undernourishment rates. However, it appears feasible to conclude that especially in the short term, *increases in imports will reduce undernourishment rates*.

Related to the trade dimension is the **Foreign Direct Investments (FDI)** dimension. In this study, foreign aid will be treated as a separate dimension and thus FDI is primarily corporate FDI by transnational corporations. This can be in the shape of trade but also more specifically in the expanding of business into these developing countries. Investing in developing countries can be both a business opportunity as well as a possibility to aid the

local population (Overbeeke 2002). Corporate FDI not only leads to economic growth, but also are commonly accompanied by expertise and technology, which could potentially improve production processes (Fortanier 2001). Such transnational corporations have the power and influence to significantly improve living conditions in the developing world (Prahalad and Hammond 2002, Prahalad and Lieberthal 2003). A good example is the fortification technology that is very popular with food transnational corporations. Using Biotechnology, the nutritional value of specific foods can be improved. Consider the example of fortified salt. In Africa, one of the leading causes of malnutrition is vitamin A deficiency leading to blindness and retardation. A transnational corporation has now fortified salt, the most routinely used food substance, so that it contains an increased amount of vitamin A and can directly combat the deficiency (Overbeeke 2002). Critics on the other hand argue that by introducing new food products to the developing countries, their dietary needs are forcibly altered. Transnational corporations are further claimed to abuse cheap labor possibilities and press their Western norms and values upon local populations as well as killing local businesses. Despite these criticisms, it cannot be denied that *improvements in technology and general investments in the economy will stimulate economic growth and thus reduce undernourishment rates.*

Closely related to FDI is the issue of **Foreign Aid**. Foreign aid is the transfer or resources from one country to another in an attempt to stimulate development. It is often assumed that these goods and services are provided 'gratis' but in fact, a large amount of foreign aid consists of loans. Nevertheless, these loans will be at better rates than those available through private or multilateral banks. Aid can also be humanitarian, this is especially common after an environmental crisis such as an earthquake or famine. Aid can further be bilateral, that is between two countries, or multilateral through international agencies (Lewellen 1995). It is generally assumed that foreign aid can promote overall

economic growth and human welfare development. It logically follows that foreign aid thus also potentially affects undernourishment rates. In fact, the literature shows that foreign aid can assist a country in four main ways. First, an increase in resources for investments implies that more capital is available for investment and growth. Second, investments in public goods such as the infrastructure can promote development. A third way in which foreign aid benefits countries is through increases in human capital. This can be achieved through supporting education, sponsoring research but also through the immunization of children to provide a healthier population with an increased life expectancy. Finally foreign aid can facilitate the transfer of technology. This also takes shape in making the existing local resources more efficient and effective. Examples of this include the educating and training of government officials and the creation of institutions to protect property and minority rights (Labs 1997). Critics on the other hand argue that foreign aid is selfish and the donor country often has a hidden agenda. George (1984) for example suggests that development aid and international money assistance are geared primarily towards integrating the Third World nations into the global economy. Countries are in the first place encouraged to develop export industries. More aid is not believed to alleviate hunger and undernourishment because the root cause of the problem is considered to be antidemocratic political and economic structures that cause poverty. The problem can only be solved when real freedom is won by the people themselves (Lappe, Collins and Rosset 1998). Too much foreign aid can also overwhelm a country and as a result undermine the actual effectiveness of aid (Labs 1997). The literature on foreign aid is both quantitative and qualitative. Quantitative research has not been able to show whether foreign aid is successful with respect to development. No significant results have been obtained thus far, but it is well possible that this is due to the fact that the aid flows are commonly relatively small. Qualitative case studies on the other hand have showed that the benefits of foreign aid can be significant, but that this is dependent

on the policy environment of the specific country. Three main conditions are believed to be crucial to the successful implementation of foreign aid; political stability, honest and capable government and the existence of a functioning government institution that can support a growing economy (Labs 1997). In this way the elites can be bypassed and aid can be targeted at the proportion of the population that truly needs it. Therefore it is hypothesized that *if the policy environment is favorable foreign aid can stimulate economic development and human welfare and will thus reduce undernourishment rates.*

Gross domestic production per head is analyzed using **Purchasing Power Parity (PPP)** that measures the relative purchasing power of different countries' currencies over the same types of goods and services. These may cost more in one country than in another and thus by evaluating the PPP accurate comparisons of standards of living across countries can be made. It thus shows how many units of a country's currency is required to purchase the same amount of a particular good or service in the domestic market as one US dollar would buy in the United States (World Bank 2003d). National incomes can be translated into a common currency and therefore the PPP indicator can be used as a measure to compare living standards across different countries. As this indicator is not affected by exchange rates, it is a more accurate indicator than **gross domestic production**. In general the currencies of the lower-income countries are undervalued with respect to the US\$. This implies that the US\$ when converted at market exchange rates has a greater purchasing power in a low-income country than in the United States. This could potentially be due to lower prices for non-tradable items such as housing and services (Vachris and Thomas 1999). *Therefore a higher country purchasing power parity implies higher standards of living and thus a likely reduction in undernourishment rates.*

Furthermore, the data in the research might very well show further **structural economic changes** as both a result and cause of this economic growth. An example of this

includes more specifically the effects on employee job creation. It is very likely that investments by transnational corporations directly create jobs for the local population and this could also lead to economic growth. On the other hand it may also eliminate jobs, as certain goods are mass-produced herewith potentially putting for example local farmers out of business. Possible class favoritism, that is that certain benefits are limited to the elites of a country, should also be taken into consideration when analyzing structural economic growth. Further questions might include whether investments favor a particular sector or part of the country, whether the investments are labor or capital intensive and finally whether there are links between the effects of these structural economic changes.

Summary of Hypotheses with respect to Economy

1. Increases in imports will reduce undernourishment rates.
2. Increases in Foreign Direct Investments (both technology and general investments) will stimulate economic growth.
3. Economic growth will reduce undernourishment rates.
4. If the policy environment is favorable, foreign aid can stimulate economic development and human welfare and will hence reduce undernourishment rates.
5. Increases in Purchasing Power Parity improves the standards of living and therefore reduces undernourishment rates.

Box 1.2 Summary of Hypotheses with respect to Economy

1.6 The Case for Africa

When studying the possible underlying factors of changes in undernourishment rates, it is not sufficient to study the global political plans of action. As the literature shows, there are a significant number of variables that potentially have an impact on undernourishment rates. It is very likely that these variables are correlated in one way or the other. Population growth, for example, will indirectly affect the amount of resources dedicated to agricultural production and also influences the food availability in the country. It is therefore essential that a specific country and /or region is analyzed in greater detail so that variables truly influencing these undernourishment rates can be defined.

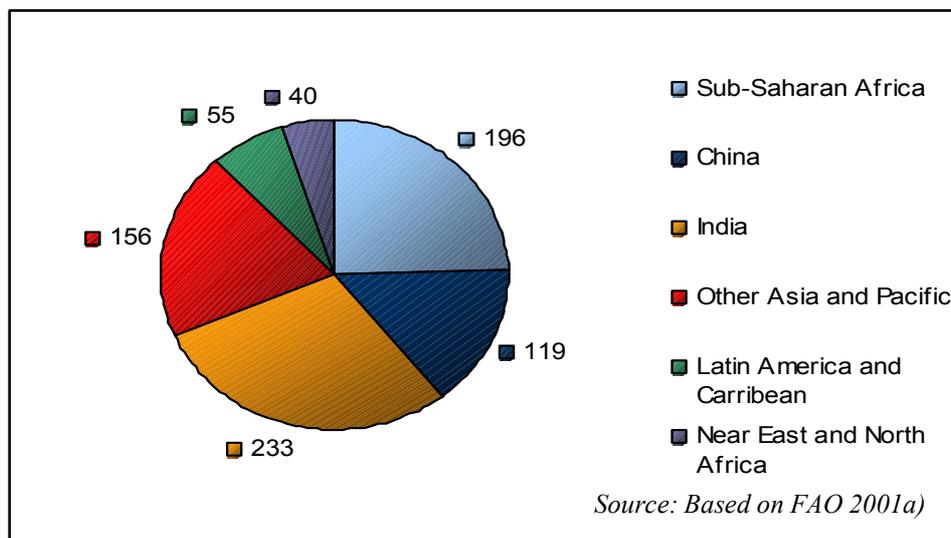


Figure 1.1 – Undernourishment Rates 1998-2000

As the above figure 1.1 shows, the greatest number of undernourished people are found in sub-Saharan Africa and India (FAO 2001a). A study by the World Bank (World Bank 1997) has shown that poverty in Africa is most pervasive; 45-55% of the population lives below the poverty line. In effect, in 1998, more than half the population in sub-Sahara Africa had an income of less than US\$1 a day. In 1995, 43 million children were stunted as a result of malnutrition. Annually more than two million infants die before reaching their first birthday (World Bank 2003d). Over the past three decades global food production has significantly increased; the amount of food available per capita rose from 2410 to 2800 kilocalories between 1969-71 and 1997-99. Still, despite a decline in the absolute number of undernourished individuals an estimated 777 million people were undernourished in 1997-1999. Unequal distribution and, equally important, a lack of purchasing power; result in inability for the poor to access food. This causes deprivation for poor people, especially in, urban areas (FAO 2001a).

Studying undernourishment factors in Africa is thus a legitimate choice. Sub-Saharan Africa is even more interesting to study with an eye to the best and worst performers list as established by the FAO (2001a). With respect to progress in decreasing undernourishment rates, seven out of ten best performers and four out of ten worst performers can be found in this region. Despite being in the same geographic region, there is thus great diversity in the actual success of decreasing undernourishment rates. This study thus seeks to explore the three clusters of variables (national shocks, resources to agriculture and economic investment indicators) influencing undernourishment rates in Sub-Saharan Africa in an attempt to understand why some countries are extremely successful whilst others in the same region are not.

1.7 Conclusion

Based on the literature review and its resulting hypotheses, the following summarizing figure can be constructed.

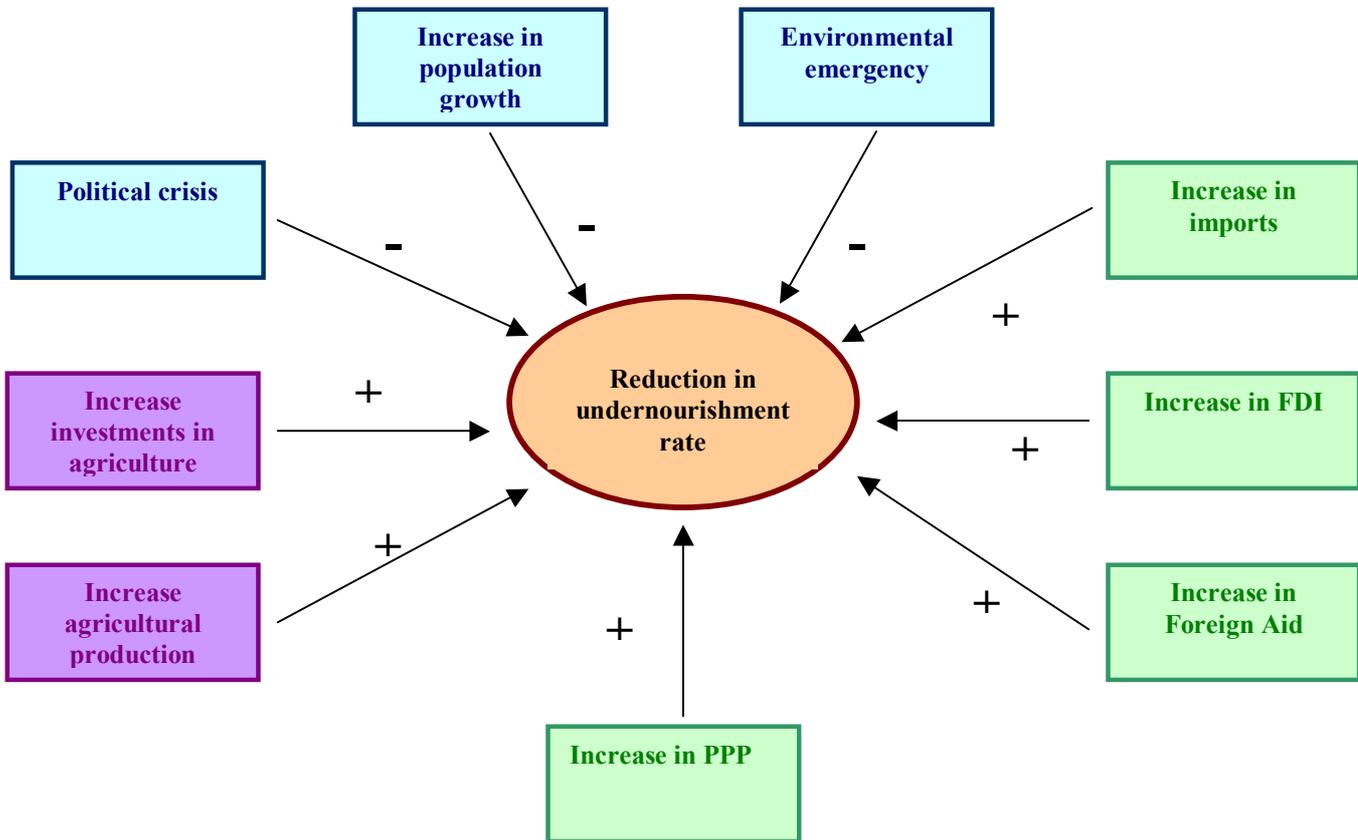


Figure 1.2 Hypothesis of the variables influencing undernourishment rates

These hypotheses are based on the literature and will be empirically analyzed in six Sub-Saharan countries. The following chapters will discuss the methodology and the empirical case studies. Conclusions with respect to the accurateness of these hypotheses can then be made.

Chapter 2 – Outline of Study

2.1 Introduction

This study will analyze the three clusters of variables as discussed in the literature review. By developing case studies on six different Sub-Saharan African countries, the hypothesized effects of these variables on undernourishment rates will be evaluated. As stated, the literature predominantly addresses the national shock and agricultural clusters of variables; but the role of economic variables is not as commonly addressed. The purpose of this study is thus to explain the variance in reducing the undernourishment rates in six Sub-Saharan African countries by studying each country in light of these three clusters of variables. By analyzing these variables and assessing their relative importance, it can be determined why some countries are very successful in reducing the proportion of the population that is undernourished, while other countries are experiencing an increase in this proportion. The final objective of this research is to formulate a model showing the most crucial variables and their effects on undernourishment rates. This model can then also be applied to other regions in further research. The central research question is shown in box 2.1

What are the most crucial variables influencing and determining undernourishment rates in Sub-Saharan Africa?

Box 2.1. Central Research Question

In order to be able to answer this central research question, several sub-research questions should also be addressed. The following sub-research questions have been identified.

1. *What are the factors influencing undernourishment rates discussed in the hunger and undernourishment literature?*
2. *Are there other factors and variables that could influence undernourishment rates?*
3. *Do the empirical case studies support the theoretical model?*
4. *Is the effect of one variable arguable more than another variable?*
5. *Can generalized statements be made regarding variables influencing and determining undernourishment rates in any region?*

In order to answer these questions an empirical but quantitative case study approach is recommended. The first two sub-research questions have been addressed in chapter one, which discussed the literature. Chapter two discusses the outline of the study by defining the variables and discussing the methods. Chapter three will then present the actual empirical case studies in which six Sub-Saharan countries will be analyzed. Chapter four will then summarize the findings and discuss what factors determine the changes in undernourishment rates. A model will be presented that can be applied to assessing undernourishment rates in any geographical region.

2.2 Defining and Measuring the Variables

For the purposes of this research, **undernourishment** is defined as the measurable nutrient deficiencies in the diet that can eventually lead to illnesses (for example lack of energy, retardation, and blindness) and even death (FAO 2001a). **Undernourishment rates** are defined as a percentage of the population to correct for different population sizes and thus varying absolute numbers. The main source of information for these undernourishment will be the reports presented by the FAO (2001a, 2002). In order to draw conclusions about the factors influencing both the success and failure rates of reducing undernourishment rates in Sub-Saharan Africa, best performers and worst performers are studied. **Best performers** are countries that, based on the statistics, have made a significant improvement in reducing the

undernourishment rates between 1990-1992 and 1998-2000. **Worst performers** are countries that have not realized improvements but rather have continued to significantly increase undernourishment rates during this period. A list of best and worst performers is presented by the FAO in the State of the World Food Insecurity report (FAO 2002) and will function as a measure in deciding which countries will be considered in the analysis. The **unit of analysis** will therefore be the specific Sub-Saharan African country. Three best performers and three worst performers will be analyzed and evaluated based on the variables derived from the literature.

The literature has shown that there are two accepted clusters of variables (national shocks and agricultural resources) and that a third cluster (economic factors) should be added when analyzing the causes of changes undernourishment rates. The following variables are suggested for the analysis of each performer.

The national shock cluster will include political and environmental factors. The **Political** variable describes the political situation in the country. Has the country had to face political crisis in the past decade? If so what were the scenarios and the outcomes? Is the country a democracy? Does the population have civil rights? Is the country faced by corruption? Data on such political phenomena can be derived from the country profiles based on information by the Economist Intelligence Unit (EIU), the Central Intelligence Agency (CIA) and the World Bank. Similarly the **environmental** variable can be studied to answer questions with respect to food emergencies and whether environmental factors such as the weather or pests have ruined the harvest yield. Finally **life expectancy** is defined as the number of years a person is expected to live. It is a good measure to anticipate the general state of the country. A higher life expectancy possibly suggests lower undernourishment rates due to better living conditions. This indicator is readily available from all three sources and can thus easily be used.

The agricultural productivity cluster includes variables that reflect growth in agricultural productivity. **Investments in agriculture** will be defined as the direct monetary investments in agriculture. Actual output will be defined as **agricultural production** and is measured as the net per cap output in metric tons. These statistics are available from the EIU and the World Bank. The FAO (FAOSTAT 2004) statistical database also has food balance sheets that include domestic production.

The final cluster, economic indicators will seek to explore the role the economy in improving undernourishment rates. **GDP** is defined as gross domestic production and indicates the total value of goods and services produced in the economy of that country. Changes in GDP are therefore a good indication of the economic situation in a country. **Purchasing power** is nominally defined as gross domestic production (GDP) per capita, purchasing power parity (ppp). The **import** variable looks at increases and decreases in actual imports. This is an indicator available from all three sources. Furthermore, the FAO statistical database specifies trade indices that allow insight into the actual import and export subjects and destinations. **Foreign Direct Investments** are the monetary investments by international organizations and corporations. FDI will be measured as the actual inflows in millions of dollars into the country during a particular year. FDI inflows include direct or indirect (through other corporations) capital provided by a foreign direct investor to a corporation. It also includes capital given to a foreign direct investor by an FDI corporation. FDI inflows hence consist of three components: equity capital, reinvested earnings and intra-company loans (UNCTAD 2004d). This information is available from the UNCTAD database on foreign direct investment (UNCTAD 2004d). **Foreign aid** is the monetary assistance a country receives from other countries and/or organizations. This information is available from the same sources. Finally **population growth** must also be taken into account. It is hypothesized that this could be an intervening variable. It is therefore essential

that population growth and trends are also studied so that possible spuriousness can be identified.

By comparing these variables over time and noting their respective changes, conclusions can be drawn regarding the actual effects of these variables on undernourishment. As the research progresses, classifications will be made with respect to whether a particular effect is accepted to be significant.

2.3 Methods

Six developing Sub-Saharan African countries will be studied and the unit of each analysis will thus be the specific country. In order to identify possible causal factors relating to both positive and negative changes in undernourishment rates for any country, it is essential to study countries that have been extremely successful in reducing the undernourishment rates, as well as countries that have not been able to significantly yield improvements in undernourishment rates. Therefore the research will study three countries that are considered 'best performers' and/or have significantly improved their undernourishment rates and three countries that are considered 'worst performers' and/or have shown drastic increases in the proportion of the population that is undernourished. Comparisons will be made based on undernourishment rates in 1990-1992 and 1998-2000. These countries are selected using the FAO undernourishment rates as expressed in the State of the World Food Security Report (FAO 2002: 3). This report lists the countries based on their respective reductions or increases in the proportion of undernourished population over a period of time. If a country reduces their proportion of undernourished population by one percentage point per year, that country is considered a best performer. If the undernourished proportion of the population increases by one percentage point per year, then that country is considered a worst performer. Furthermore, as the continent is very large, it is likely that the geographic location could also have significant effect on the degree of undernourishment,

consider for example the climate. In order to control for geographic location therefore, it was decided to select within each region the country that best improved undernourishment and the country that showed the largest increase in proportion of the population that is undernourished. Three regions were identified, west, central and south. The east region was not analyzed as this includes the most impoverished nations such as Ethiopia and Somalia on which there is simply no reliable information readily available. Furthermore, in the Southern region there were actually three countries that appeared on the global best performer list presented by the FAO (2001a) notably Angola, Mozambique and Malawi. Even though Malawi was the absolute 'best' performer of these three countries, Angola was chosen in this analysis for three reasons. First of all because the percentage improvements were relatively close indicating minimal differences, second there is more information available on Angola and most importantly because Angola was faced with a thirty year civil war but still managed to show improvements in undernourishment rates, thus making it a far more interesting case study. The chosen three best performers are Ghana, Angola and Chad. The three worst performers include Democratic Republic of Congo, Botswana and Liberia. Using three main complementary sources, notably the Economist Intelligence Unit, Central Intelligence Agency and the World Bank, country profiles were constructed for each performer. In this way each performer was rated based on specific indicators.

The research strategy that will thus be followed is case-oriented, as is described very adequately by Ragin (1987) who provides a detailed overview of qualitative research strategies. The author suggests studying four to eight cases and applying the *method of agreement* and / or the *indirect method of difference*. The basic research strategy for the method of agreement follows three steps. First, the underlying similarities between the cases are identified. The research could for example show that all the countries that have a high degree of agricultural production, have a lower rate of undernourishment. These similarities

are then shown to be causally relevant to the phenomenon studied. In this particular research it would thus be necessary to show that for example the variable of agricultural production is indeed relevant to the study of undernourishment. Finally, on the basis of these similarities and by using inductive and deductive reasoning, the researcher formulates general statements. Following similar steps, the indirect method of difference studies the identified differences among the cases. To facilitate reasoning and the formulation of statements, the similarities or differences can be noted in a table where the number one represents the particular variable to be present and the number zero represents an absence of the variable. Using basic algebra and reasoning, conclusions can be drawn.

Applying Ragin's method to the research at hand, the following strategy was followed. First a brief qualitative overview of each country was provided based on the literature sources. This enabled the researcher to obtain some understanding of the situation in the country. The qualitative profiles discuss of all the selected variables and for each country the results were summarized in a table (see table 2.1).

Table 2.1 – Country XXX

Variable	Description
1. Undernourishment Rate	
2. Decrease / Increase in Undernourishment Rate	
3. Political Situation	
4. Rank on corruption index	
5. Environmental Emergency	
6. Life expectancy at birth	
7. Proportion of the population below poverty line	
8. Population Growth %	
9. Amount of resources to agriculture	
10. Agricultural production and changes	
11. GDP Growth %	
12. Purchasing Power Parity	
13. Increase in imports	
14. Trade Balance	
15. Foreign aid	
16. FDI	
17. Previous period good or bad?	

Thus the research will seek to find an answer or description of each of these variables and include a statistical figure where relevant. Indicators and where applicable changes in the indicator value will need to be noted. Once the above table has been constructed for all of the studied cases, the analysis will follow the methodology suggested by Ragin (1987). This implies that the descriptive tables will now need to be summarized into one table using the (0,1) denotation. An example of this table is shown on page 33. By noting the similarities and differences and applying algebra and deductive and inductive reasoning, general statements with respect to the causes of increases and decreases in the undernourishment rates can be suggested.

2.4 Limitations of the Study

This study will have several limitations. Even though the significance level of the variables will be determined upon further research and studying of the particular variable, the actual determination of the value will still to a certain degree reflect the subjectivity of the researcher. Similarly, when applying the method as suggested by Ragin it may not be very clear in all cases whether a particular variable is to be classified as (0) or (1) and it will again imply a subjective judgment by the researcher. Nevertheless, provided these potentially subjective judgments are justified and explained as much as possible, the actual results obtained in the research will still be valid. Furthermore, to increase this validity the description and codification of the variables are to be confirmed by the three-committee members.

There is furthermore an ongoing debate regarding the measurement methods applied in calculating undernourishment rates. Svedberg (1999), for example, heavily critiques the method of the FAO (Method of prevalence of food inadequacy) suggesting that these are unreliable indicators that incorrectly point to Africa as the most undernourished region, that as a result policy is directed in the wrong direction and that in short the data are not suitable for monitoring the World Food Summit 2015 objective.

Another study (Weikard and Gabbert 2001) also critiques the FAO method and claims that especially in the Sub-Saharan Africa region there is a bias towards overestimation of undernourishment. In other regions however, there is an underestimation and that is logically a more critical concern. The FAO recognizes the difficulty with these methods and organizes forums and workshops so given the limited availability of statistics in many developing countries the actual data gathering can be improved. A forum in 2002 discussed the advantages and disadvantages of five methods. It led to the conclusion that the different methods measure different aspects of food security but can be used in a complementary

matter to improve both information regarding food security as well as action plans to improve it (FAO 2002). Regardless, the FAO data are a close enough representation of the variability across the countries (Smith and Haddad 2001). Furthermore, as the FAO data are complemented with other resources such as the Central Intelligence Country Reports and the Economy Intelligence Unit's Country Reports, this is not viewed as a limitation to the study.

The study will examine six countries and present six case studies. It must be realized that these case studies form a brief overview in order to get insight into the country but are not intended as a complete case study of each country. Nevertheless, it is hypothesized that sufficient information with respect to the research questions can still be obtained in this manner. As only six countries are studied this may impede generalized statements regarding undernourishment on a global scale. However, the case studies can illustrate the relevance of the three clusters of variables and can possibly fine-tune the methodology and scales so that these can be used as a blue print for further research on a larger scale.

Table 2.2. Dummy Table for Overview of Ragin’s Methodology Results

	Decrease in undernourishment rate	Undernourishment proportion	Political crisis	Environmental crisis	Increase in life expectancy	Significant incr. in resources to agriculture	Significant incr. in agricultural output	Significant incr. in GDP	Significant incr. in PPP	Significant incr. in imports	Significant incr. in foreign aid	Significant incr. in FDI	Significant incr. in population growth	Previous period bad?
Angola	1													
Botswana	0													
Chad	1													
D.R. Congo	0													
Ghana	1													
Liberia	0													

Chapter 3 – Case Studies

3.1 Introduction

Chapter one has provided an overview of the variables possibly affecting the undernourishment rates in any particular country. This chapter will now provide an overview of six Sub-Saharan African countries. Each case study will examine the three clusters of variables as presented in figure 1.2 (page 22) and conclude with a table of variables as portrayed in table 2.1 (page 31). The six countries have been selected based on their performance with respect to undernourishment rates. Three best performers have been selected (Angola, Chad and Ghana) and three worst performers (Botswana, Democratic Republic of Congo and Liberia). Selection of these countries was further based on their geographic location. Angola and Botswana represent the southern African region. Liberia and Ghana can be found on western part of Sub-Sahara Africa. Chad and the Democratic Republic of Congo, finally, represent the central territory.

3.2 Angola

3.2.1 Introduction

In 1575, Portugal colonized Angola in its capital Luanda, which soon became a slave center. During the early twentieth century, Portugal also stimulated its poor “whites” to migrate to Angola and live there. Angola was considered a province of Portugal but gained its independence in 1975 after a coup. Since then, Angola has been confronted with a civil war, which was brought to an end in 2002 shortly after the rebellious leader Jonas Savimbi died (Economist Intelligence Unit 2003a). Currently Angola is recovering from the devastating effects of twenty-seven years of war and with a per capita income of US\$500 in 2002, is truly one of the poorest countries in the world (World Bank 2003a). Angola is located on the west coast of Africa and is bordered by the Democratic Republic of Congo, the Republic of Congo,

Namibia and Zambia. The total area is 1,246,700 sq km. The climate is semi-arid in the south and along the coast to Luanda. The North of Angola has a cool and dry season from May to October and a hot and rainy season from November to April. The main natural resources include petroleum, diamonds, iron ore, phosphates, copper, feldspar, gold, bauxite and uranium (CIA 2003).

3.2.2 Angola and the National Shock Cluster

The Political Dimension

With fighting starting even before the day of official independence, the decolonization of Angola was very chaotic. This presumably originated in the fact that the three main parties (MPLA, FNLA and UNITA) all fought the Portuguese separately from the mid 1960's onwards. Even before official independence, a transitional government including these three parties collapsed. Matters were complicated by the external support these three parties received. Initially the MPLA was supported by Cuba and UNITA led by Jonas Savimbi was supported by South Africa and increasingly by more Western powers. The first peace agreement between the MPLA and UNITA was signed in Bicesse, Portugal in 1991 but despite being monitored by the US, Russia and UN observers, the peace did not last long. Mr Savimbi and his UNITA party lost the 1992 elections (49.6% to 40.1%). Savimbi felt the elections were fraudulent and he went to Luanda starting a new period of rebellious revolt. This action significantly decreased international support for UNITA resulting in fuel and arms embargos implemented by the United Nations. Another peace attempt was made in 1994 with the Lusaka Protocol. However, Savimbi refused to sign the protocol for he believed it to equal surrender. Using funds from diamond sales, UNITA engaged in guerrilla warfare especially in the country side. However, the Angolian army in 2001 successfully pursued a new strategy of moving civilians away from the country side into refugee camps so that basis of support for

UNITA would be significantly reduced. The government slowly began to regain control. The ambush killing of Savimbi in 2001 further decreased the likelihood of more revolts and put an end to twenty-seven years of civil war. Currently the UNITA forces have been disarmed and efforts are made to pursue democratic elections in 2004-2005. Officially Angola has been a multiparty democracy based on freedom of press, right to assembly and right to strike since 1991, but in practice this is not the case. Rather the country is dominated by the hegemonic MPLA (Economist Intelligence Unit 2003a). Furthermore, a new constitution based on the Portuguese civil law system was drafted in 2002 giving even more power to the president. The president is elected by universal suffrage (age 18) and the president is both chief of state and head of government and also appoints a cabinet (CIA 2003).

Regardless, the government is still believed to function poorly and inefficiently, paving the way for corruption (Economist Intelligence Unit 2003a, Transparency International 2003). Transparency International ranks Angola 98th (out of 102) on their Corruption Perception Index (CPI). This index is constructed based on surveys and indicates the degree of corruption as perceived by business people and risk analysts. The CPI value is 1.7 on a scale of 1-10 where 10 is highly clean and 1 is highly corrupt. Furthermore, the standard deviation is very minimal (0.2) indicating that all parties seem to agree that corruption is a very significant problem.

Natural and Environmental Emergencies

The main natural hazard is flooding on the plateaus due to heavy local rainfall. Other environmental problems include the deforestation of tropical rain due to an increasing demand of tropical timber as well as an increase in the domestic demand of fuel. The loss of biodiversity and soil erosion due to overuse of the land as a result of increasing population pressures could further develop as environmental emergencies. (AFDB 2003, CIA 2003). The civil war has not only left a significant amount of landmines, but also had significant negative

impacts on the water supply. In 2000, as much as 62% of the population did not have access to improved water sources (Economist Intelligence Unit 2003a). Furthermore, due to soil erosion the water is even more polluted (AFDB 2003, CIA 2003).

Demographic Variables

In 2002, Angola's population was estimated at 13.9 million and the population growth rate over the past four years has been relatively high (2.8-2.9 % annually) (World Bank 2003d 2003). It must further be noted, that the population is an estimate for the last official population census was in 1970. At that time the population was 5.6 million. Furthermore, due to the civil war, a large proportion of the population has fled to neighboring countries such as Zambia, Democratic Republic of Congo and Namibia. Moreover it will be interesting to see how population growth will develop as the war has left Angola in, what several humanity organizations refer to as; a serious post-conflict humanitarian crisis (Economist Intelligence Unit 2003a, FAO 2003, World Bank 2003). Due to the thousands of war casualties, there are many orphans and widows. The UN ranked Angola 146th out of 162 countries in its Human Development Index (in Economist Intelligence Unit 2003a) herewith suggesting that conditions related to health, nutrition and education are some of the worst in the world. This also translates into a low life expectancy of 40.2 years (United Nations 2002). Presumably due to the chaotic nature of the government institutions and the lack of a formal consensus of any kind, no reliable data with respect to poverty and proportions of the population that live in absolute poverty are available. Currently there are 6.3 million undernourished people in Angola and these equal 50% of the population. This undernourished proportion of the population declined 9% when comparing rates between 1990-1992 and 1998-2000 (FAO 2002).

3.2.3 Angola and the Agricultural Cluster

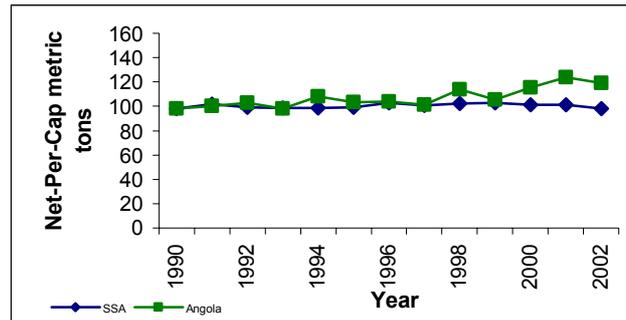
Despite having a very good climate for agriculture, actual agricultural output is minimal and Angola is very dependent on international food aid. This has not always been the case. Prior to independence, Angola was self-sufficient in food (with the exception of wheat) and was further a successful exporter of several cash crops. For example, Angola was the fourth largest coffee exporter in the world. After independence the government took control over the settler farms that were left behind and transformed these into very inefficient state farms. This in combination with the outbreak of civil war largely destroyed commercial agriculture and forced Angola to become dependent on food aid. Current agricultural production is further impeded by the presence of landmines (Economist Intelligence Unit 2003a). Agriculture does account for 85% of the labor force (CIA 2003).

Investments in agriculture

The government does not release any detailed financial reports and so there is no reliable information with respect to government investments in agriculture. However, it is apparent that the government spends a lot of money to develop oil production and on the military. As only 6% of spending in 2003 were directed towards the very pressing need for health care (Economist Intelligence Unit 2003a), it seems plausible to conclude that government investments in agriculture are very minimal. Rather, the Angolan government should continue to reform policies and especially agricultural policies because only then can the benefits of the vast amount of available natural resources be obtained (CIA 2003).

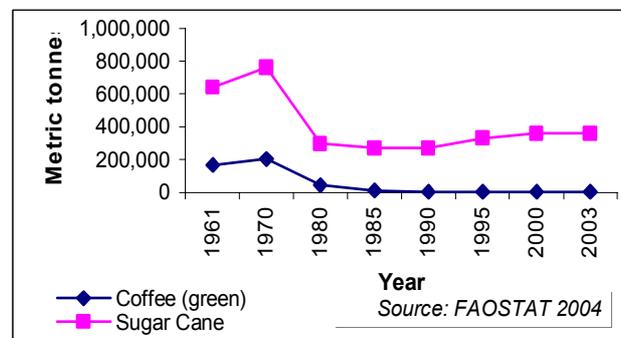
Agricultural output

In comparison to other Sub-Saharan African countries, the actual agricultural production is still slightly above average and an average annual growth of 7.5% in actual output can be noted between 1990 and 2002 (FAOSTAT 2004). It would thus seem that agricultural output is not so problematic as many institutions claim it to be (CIA 2003, Economist Intelligence Unit 2003a, FAO 2003, World Bank 2003).



Graph 3.1 Agricultural Output for Sub-Sahara Africa and Angola

However, a historic comparison over the past forty years yields very different conclusions. As can be deduced from graph 3.2, agricultural output of coffee and sugar cane peaked around 1975. After independence in 1975, agricultural production significantly dropped and never came close to its colonial levels again. It is very likely that this is also due to the devastating effects of the civil war following independence. Especially the fact that agricultural production for these two crops seems to be increasing again since 2000 is more evidence to suggest the civil war significantly impeded agricultural production.



Graph 3.2 Angolan Production of Coffee and Sugar Cane 1961-2003

Several sources suggest that this significant decrease in agricultural production is primarily due to inadequate government policy such as a lack of investments in technology (CIA 2003, Economist Intelligence Unit 2003a, World Bank 2003). Furthermore, government actions such as the displacement of peasants in rural areas also harm production. This was especially evident in 2002-2003 when the harvest was very poor due to the resulting upheaval and made even worse due to a poor rain season (Economist Intelligence Unit 2003a).

It is thus concluded that with respect to the agricultural variables, Angola still has a long way to go. The country has been heavily dependent upon foreign food aid since the 1980's. Now that the civil war has ended, prospects are looking better. However, the government is currently only concerned with oil production and military spending and as a result a large proportion of the population is deprived of basic needs and services such as clean water. Given Angola's history of self-sufficiency and the vast amount of natural resources available, it seems that with an adequate and targeted government policy, agricultural production could be tremendously increased reducing and possibly eliminating dependency on foreign aid. Undernourishment rates could hence be significantly improved if the government would realize the potential of the natural resources available and develop its policies accordingly.

3.2.4 Angola and the Economic Cluster

During its colonial period, Angola had a very prosperous economy that was targeted to the needs of the colonial power. This resulted in a focus on export cash crops such as coffee and cotton. After independence, however, a large proportion of the technical and managerial elite left the country and instead central planning based on the Soviet model was introduced. The economy is now dominated by the oil sector, which currently produces as much as 61% of GDP. This is much at the expense of agriculture that decreased from 18% of GDP in 1990 to only a mere 6% of GDP in 2000. The problem with such a large share of GDP coming from the oil sector is that the sector is very capital-intensive yet only employs a very small amount of people and benefits a very small elite. Furthermore, the domestic economy is very dependent upon the international oil prices. If the oil prices go up then the Angolan economy receives a boost too but on the downside if oil prices go down this has disastrous effects. Matters are complicated by the existence of the 100% state-owned national company

Sonangol. The corporation was established in 1976 and was given exclusive right by the petroleum law of 1978. Foreign businesses remained in the country but they were forced to form joint ventures with Sonangol. The latter continued to grow and expand also into very different sectors. Currently Sonangol has around 30 subsidiaries in manufacturing, telecommunications, banking and other services. The corporation is then also involved in several joint ventures with foreign-owned oil corporations. As a result the corporation has a significant amount of power. This is intensified through its interaction with the central bank and the president's office. Together these three parties rule the country and so the corporation also has a significant amount of political power (Economist Intelligence Unit 2003a). This vast amount of political and economic power impedes the regular market mechanisms and thus has further negative effects on the economy.

The government further has a very chaotic financial management. The biggest problem is accountability. Especially the differences between actual and declared revenue play a large role in the failure of economic policy. Other problems include weaknesses in tracking expenditures and the actual execution of the budget. The finances of the president are also believed to be a source of economic instability. In addition the president's refusal to comply with IMF financial and fiscal transparency demands for the country has significantly strained relations with international organizations and donors (Economist Intelligence Unit 2003a). International development assistance to Angola thus has a very strong focus on transparency especially related to governance issues (World Bank 2003).

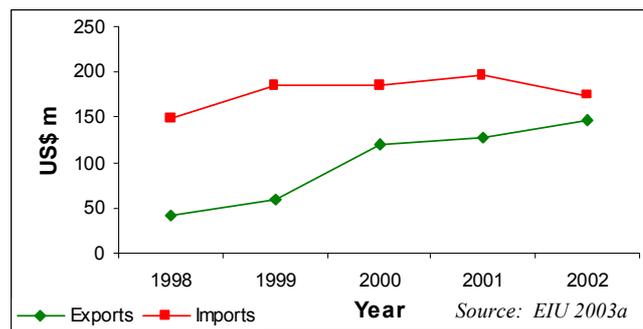
GDP

Current GDP growth is heavily dependent upon changes in the oil sector. The GDP growth rates over the past years confirm this. Between 1997 and 2000, average GDP growth was 4.4% (Economist Intelligence Unit 2003a). However, in 2001 oil production significantly increased resulting in an estimated GDP growth of 9.4% in 2002 (CIA 2003). However, it

must be noted that the extent of this actual growth is debatable as there are minimal linkages to other sectors of the economy and this growth has little effect on employment and poverty reduction. It is hypothesized that there are three main limitations to non-oil sector GDP growth: continuing macro-economic instability, distortion and corruption (Economist Intelligence Unit 2003a, Transparency International 2003). GDP per capita at purchasing power parity was estimated at US\$1,700 in 2002 (CIA 2003).

Trade

Unlike most African countries, Angola has had a significant trade surplus. This is a direct result of its oil exports. In 2001 crude oil sales accounted for 92% of the exports. Angola is the fourth largest diamond producer and diamonds accounted for 6% in 2001 (Economist Intelligence Unit 2003a). The main export commodities are 'crude oil, diamonds, refined petroleum products, gas, coffee, sisal fish and fish products, timber and cotton' (CIA 2003). The main export partners are the United States, China, France, Belgium, Taiwan, Japan and Spain (CIA 2003, Economist Intelligence Unit 2003a). Importing appears to be difficult and very slow. The situation has improved with the assistance of a British corporation in managing customs (Economist Intelligence Unit 2003a). The main import commodities are oil or military related. Other imports include medicines, food and textiles. The main importer is Portugal. Other larger importers are the United States and South Africa (CIA 2003, Economist Intelligence Unit 2003a). South Africa is increasingly becoming a more important import partner because it is within the region and supplies Angola with industrial and consumer products (Economist Intelligence Unit 2003a). The following graph illustrates the trade trends over the past five years.



Graph 3.3 Export/Import Trends for Angola 1998-2002

The graph clearly illustrates the highly fluctuating export rates paralleled by changes in the oil sector. It also shows that imports are increasing, between 1998 and 2002, the average growth in imports was 119%. In fact in 2002 were almost double as much as in 1998. This suggests that it is becoming easier to import into the country.

Foreign Aid and Direct Investment

Over the past four years foreign assistance has actually been declining. This is because the donor institutions feel that the government poorly executes its policies and could create far more structural improvements with the benefits from oil exports. It has even been argued that humanitarian and food aid substitutes for government aid rather than complementing it (Economist Intelligence Unit 2003a). When the president was at odds with the IMF in 2002, the government attempted to reform on its own but in practice Western donors and aid agencies did not wish to commit to such assistance due to the macroeconomic and humanitarian conditions. The foreign parties claimed that aid would not be effective if these conditions were not improved and these parties too felt that the government was not using the national wealth responsibly. This is also reflected in the decrease in development assistance. In 1997 the total assistance was US\$ 355m compared to only US\$ 268 m in 2001(Economist Intelligence Unit 2003a). It is likely that the end of the civil war also plays a role in the decrease in development aid, however on the other hand it can be argued that foreign aid is

especially crucial in a post-war situation to rebuild the country. Regardless, it does suggest that unless government policy changes, foreign aid will only decrease further.

Prior to 1998, FDI inflow into Angola was very similar to the general African pattern. However, in 1998 FDI inflow was over US\$1 billion owing to the large offshore oil investments. Since then FDI has fluctuated tremendously but has more or less always returned to the US\$ 1 billion level. In 2001, FDI inflows were US\$2.1 billion and this declined to US\$ 1.3 billion in 2002. However, given the vast amount of oil and diamond reserves, Angola is expected to become one of the main FDI destinations in Africa (UNCTAD 2004a). The average changes in FDI inflow between 1997 and 2002 was US\$674m or 167% (UNCTAD 2004d).

3.2.5 Conclusion Angola

Angola is clearly recovering from twenty-five years of civil war. The disastrous effects of warfare are evident in all three variable clusters and due to poor government policy, improvements are only minimal. The proportion of the population that is undernourished is decreasing but it is hypothesized based on this case study that this is primarily due to the fact that the undernourishment rate was calculated in comparison to a period when the country was still facing the civil war and undernourishment was an even bigger problem. With 50% of the population being undernourished, the country still has a long way to go. It is essential that the government restructure its policies, become more transparent and less corrupt and actively combat the poor humanitarian conditions that are currently present. Angola has proven to be a very interesting case study as it illustrates the importance of good governance in all the three clusters of variables. As discussed, poor governance significantly limits foreign investments and this is hypothesized to limit economic growth even further.

Table 3.1 Summarizing Variables for Angola

Variable	Description
1. Undernourishment Rate	50% =6.3 million people (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Decrease (9%) (1990-92/ 1998-2000)
3. Political Situation	Multiparty democracy but with strong presidential system (in theory; in practice dominated by hegemonic MPLA party)
4. Rank on corruption index	98 (2002)
5. Environmental Emergency	Most significant hazard is flooding. Drought also negatively effected 2002-2003 harvest.
6. Life expectancy at birth	40.2 years (in 2002)
7. % of population below poverty line.	n.a.
8. Population growth	2.8%-2.9% between 1998-2002
9. Amount of resources to agriculture	n.a., believed to be very minimal though
10. Agricultural production and changes	Increasing agricultural output. Annual average 7.5% from 1990-2002.
11. GDP Growth %	9.4% (2002), average 1997-2000 = 4.4%
12. Purchasing Power Parity	\$1700 (2002)
13. Increase in imports	Increase 119% average between 1998-2002
14. Trade Balance	+ US\$ 4,482 m (2002)
15. Foreign aid	Decreasing US\$ 268 m (2001)
16. FDI	Increasing US\$ 674 (average change 1997-2002)
17. Previous period good or bad?	Previous period bad due to civil war.

3.3 Botswana

3.3.1 Introduction

In 1872, Khama III became a dominant indigenous leader and built a powerful army. However during the ‘Scramble for Africa’ when European powers sought to expand their territory and colonize Africa, Khama III felt threatened. The Afrikaners in South Africa wished to expand into the region and this urge was intensified when gold was discovered near Francistown. Khama III therefore turned to the British for protection and the latter established the British Bechuanland in 1885 but allowed Khama III to maintain control over the local

administration, justice and law systems. His grandson, Seretse Kama became the first president of Botswana when the country obtained independence in 1966 (Economist Intelligence Unit 2003b). The British colonialists were pessimistic about the future of Botswana, but they were proven wrong (Samatar 1999). Botswana went from one of the most impoverished countries in the world in 1966, to a dynamic middle-income economy in the 1990's. This tremendous improvement is attributed to the government's growth promoting policies (CIA 2003, Economist Intelligence Unit 2003b, Leith 1999, Samatar 1999, Tordoff 1997).

Botswana is located in Southern Africa just north of South Africa and further borders Namibia and Zimbabwe. The total area is 600,370 sq km. The climate is semiarid with hot summers and warm winters. The most prominent natural resources are diamonds, silver, iron ore, copper, nickel, salt, soda ash, potash and coal (CIA 2003).

3.3.2 Botswana and the National Shock Cluster

The Political Dimension

Seretse Khama founded the Botswana Democratic Party (BDP) and by winning the pre-independence elections, he became the first president of the Republic of Botswana in 1966. Khama envisioned a multiracial multidemocratic society in which the traditional laws could be maintained without hindering modernization. The constitution was accepted at independence giving legislative power to the national assembly. This assembly currently has forty seats, but this is expected to increase after the 2004 elections following the increases in population. The National Assembly is elected for five years based on universal suffrage. The parliament elects a president and the president has executive power (CIA 2003, Economist Intelligence Unit 2003b).

There appears to be consensus in the literature that the economic success of Botswana is primarily due to government policy (CIA 2003, Economist Intelligence Unit 2003b, Leith 1999, Samatar 1999, Tordoff 1997). Tordoff (1997) points to the importance of a well functioning democracy. Samatar (1999) also attributes a large portion of this success to the functioning of a liberal democratic political system, arguing that there are two main domestic forces responsible for transforming the economy of Botswana. First, the political leadership of the dominant indigenous class and second, the state apparatuses that were created by this class. Leith (1999) also concludes that the policy regime in Botswana is key to explaining the economic success. He argues that the long-term development planning by the government was absolutely crucial. Profits from minerals were invested in funds promoting growth, human development and the maintenance of some degree of fiscal discipline. As a result not only economic growth was achieved, but significant improvements in social and human developments were also noted.

Botswana is ranked very high on the Corruption Perception Index (Transparency International 2003), 24th out of 102 suggesting that corruption is not a serious problem at all. In fact, the government actively combats corruption and established the independent Directorate of Corruption and Economic Crime (DCEC) in 1994. The DCEC investigates corruption cases, develops strategies to prevent corruption and also educates the general public. Furthermore, the media is focused on corruption and not only investigates cases but also prominently exposes them (Economist Intelligence Unit 2003b).

Natural and Environmental Emergencies

Periodic drought is the main natural hazard (CIA 2003, Economist Intelligence Unit 2003b). Another natural hazard is the unclear vision resulting from wind blow from the West carrying sand and dust around the country. This is especially a problem in August (CIA 2003). There are three main environmental issues: the limited availability of fresh water

resources, desertification and overgrazing (AFDB 2003, CIA 2003). The government views the bio-diversity of endangered species, water pollution, the deterioration of the urban environment and the degradation of agricultural land. For the latter two issues, the government has established policies to alter demographic trends in an attempt to minimize the harmful effects (AFDB 2003).

Demographic Variables

In 2002, the population of Botswana was 1.7 million. Between 1980 and 2000, the population growth rate averaged 2.8%. However, population growth appears to be slowing. In 1998, the population growth rate was estimated at 2%, but in 2002 this rate had dropped to 0.6% (World Bank 2003d). This slowdown is mainly attributed to a decline in fertility rates. Other factors contributing to the slowdown include improved living conditions and health services (Economist Intelligence Unit 2003b). However, the country is faced with a significant challenge in the form of HIV/AIDS (Economist Intelligence Unit 2003b, Leith 1999). According to UNAIDS (in Economist Intelligence Unit 2003b), the estimated proportion of 15-49 year-olds with HIV/AIDS was 39% in 2002. Not only was this a three percent increase from 2000, but it is also one of the highest HIV/AIDS prevalence rate in the world. The government does appear to have recognized the urgency of the issue and has declared HIV/AIDS as a national emergency. The president, for example, chairs the national AIDS coordinating agency and an additional US\$ 70 million for aids related expenditure was authorized by parliament in November 2001. As a result, the life expectancy at birth is very low and seems to be slightly decreasing. In 2000 it was 39 years and in 2002 it was 38.1 years (World Bank 2003d). The CIA (2003) even estimated a much lower life expectancy of 32.3 years in 2003. It is further suggested that the prevalence of AIDS also leads to higher infant mortality and death rates as well as lower population and growth rates (CIA 2003). Despite the economic successes of the country, 47% of the population is still estimated to be living

below the poverty line (CIA 2003). Undernourishment rates are not improving either.

Between 1998-2000, 25% of the population (0.4 million people) was undernourished. This was an increase of 8% in comparison to 1990-1992 (FAO 2002).

3.3.3 Botswana and the Agricultural Cluster

The agricultural sector is relatively small and only accounted for approximately 2.5% of GDP in 2003. The data confirm this as in 1991/1992, agriculture still accounted for 4.4% of total GDP. As much as 80% of agricultural output is beef processing. The Botswana Meat Commission exports most of this meat. The Commission is a co-operative owned by the farmers who sell it their cattle. Although the government does have some form of advisory control, the Commission holds a monopoly on the exports and benefits, and surplus payments are given back to the farmers. Foot-and-mouth did affect Botswana in 2002 and early 2003 but since late 2003, Botswana has been classified by the European Union as largely freed of foot-and-mouth. The main food-crop production is maize, sorghum, millet and beans. However, this production on average only provided for one third of the total consumption. Even in years when rainfall was sufficient and drought was not an issue, actual food-crop output did not reach its potential (Economist Intelligence Unit 2003b).

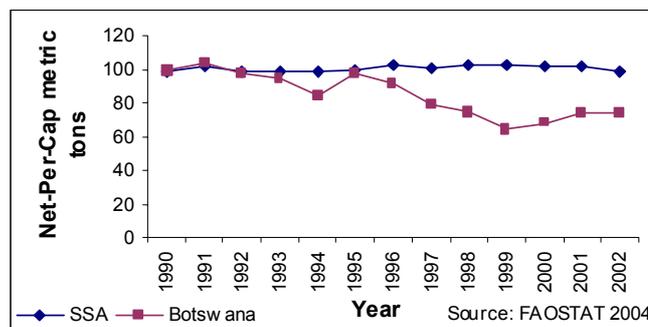
Investments in Agriculture

The government has recognized that the most plausible cause for the poor food-crop production lies in the traditional methods of rural and communal agriculture. Not only does production not reach its potential, but it also fails to alleviate poverty. As a result parliament approved the National Masterplan for Agricultural and Dairy Development in 2002. This plan recognizes the vast social basis of farming and also identifies niche areas for improvements. One such example is the usage of treated wastewater from urban areas for irrigation. With respect to the life-stock industry, cattle farmers receive financial support and tax treatments.

Currently the government is debating how and when the industry should be commercialized (Economist Intelligence Unit 2003b). According to the Ministry of Finance and Development Planning, government investments in agriculture have been relatively steady around 251-256 million Pula¹ annually. In 1998/99 this equaled 5.5% of the total National Development Plan expenditures but in 2001/02 this was only 4.4% of expenditures (in Economist Intelligence Unit 2003b).

Agricultural Output

Agricultural output is limited by the fact that only 5% of the land is cultivable. Furthermore drought is a serious reoccurring natural hazard affecting output. Foot- and mouth disease had a significant effect on the beef production in 2002 (Economist Intelligence Unit 2003b). Given that beef processing accounts for 80% of agricultural production, this is expected to influence agricultural output. However, as graph 3.3 shows, the actual effect was not significant. It is very likely that this is due to adequate government policy resulting in the ability to absorb such shocks.



Graph 3.4 Agricultural Output for Sub-Sahara Africa and Botswana

Still, the graph clearly indicates that in comparison to the average Sub-Saharan African output, the agricultural production within Botswana is far below average. This trend is especially obvious since 1996. In fact, as can also be deduced from the graph, rather than an

¹ On February 7th when the course was P 5.37. US\$1, this equaled between US\$47.4 and US\$47.7

increase in actual output and corresponding growth rate, Botswana is faced with a declining rate. Between 1990 and 2002 the average rate was -2%.

3.3.4 Botswana and the Economic Cluster

Many sources have pointed to the success of Botswana's economic transformation (CIA 2003, Economist Intelligence Unit 2003b, Leith 1999, Samatar 1999, Tordoff 1997). Referring to it as the 'African Miracle,' Samatar (1999) explains that Botswana transformed from one of the most impoverished countries in the world with a GNP per capita of less than US\$80 in 1966, to a dynamic middle economy averaging a per capita GNP of US\$1800 in 1996. Herewith Botswana not only outperformed all countries in Africa, but when analyzing GDP growth rate over the past three decades, Botswana's growth rate is even higher than the Asian Tigers- notably Korea, Thailand and Singapore (Leith 1999). In terms of shares of GDP, Botswana went from a largely agricultural dominated economy at independence to one in which mining has been the largest sector since the 1980's (Leith 1999). A closer look at the mining sector reveals that this growth is rooted in the diamond-mining industry. Diamond mining now accounts for more than one-third of GDP and as much as 90% of the export earnings (CIA 2003). However, also copper-nickel, soda ash and coal mining contribute to the growth. In fact, Botswana is now the second largest mining country (by value) in Africa where only South Africa is larger (Economist Intelligence Unit 2003b). Other key sectors are tourism, subsistence farming and cattle raising (CIA 2003, Economist Intelligence Unit 2003b).

The key to Botswana's success lies not merely in the availability of valuable resources such as diamonds, but also in the manner in which government policy has been structured (CIA 2003, Economist Intelligence Unit 2003b, Leith 1999, Samatar 1999, Tordoff 1997). As Samatar (1999), for example, argues, Botswana accumulated a vast amount of foreign

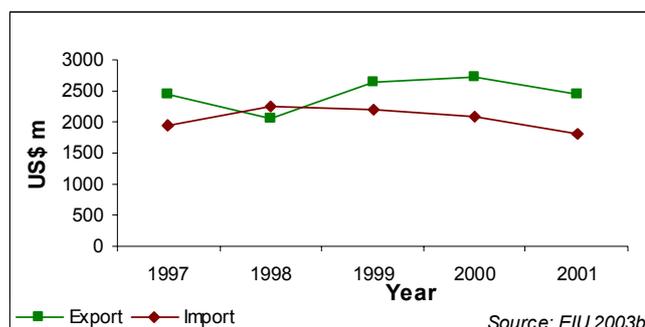
exchange reserves due to diamond export sales. However, some of these resources were then invested into the physical and social infra-structure. Furthermore, seeing as the economy is so heavily dependent upon diamond exports, it is likely to experience ‘booms and slumps’ and commonly real GDP growth in these cases will follow the same pattern. However, to minimize these potentially harmful effects and more effectively manage these booms and slumps, the government established the National Development Plan. The main focus of this plan was to focus on the tasks government was faced with and the respective expenditures needed to facilitate these. The goal of this plan was to rule out the government as a source of instability in the economy. The general steady growth in government expenditures shows that this goal was mostly reached. Furthermore, the foreign exchange reserves functioned as shock absorber for the diamond market (Leith 1999). Samatar (1999) concluded that there were important lessons to be learned from the ‘African Miracle’ of Botswana. With respect to the creation of a wealthy economy the most important lesson is that a purposive and effective state guidance of the economy can lead to sustained growth and development.

GDP

Between 1966 and 1991 Botswana had an annual real GDP growth rate of 6.1%. This was the largest GDP growth rate in the world. Growth was minimal during 1992/93, but quickly increased again in the period thereafter. GDP growth rates highly fluctuate depending on the market demand for diamonds. For example, in 2000/2001, the GDP growth rate was 8.4%, but a year later in 2001/2002 this was only 2.3%. The average GDP growth rate between 1997 and 2002 was 5.9%. Furthermore, when excluding the mining sector, the GDP growth rate was 5.5% in 2001/2002 compared to 4% the year before (Economist Intelligence Unit 2003b). GDP per capita at purchasing power remains high and was estimated at US\$8,500 in 2002 (CIA 2003).

Trade

Botswana has a very open economy. It is heavily reliant upon the export of diamonds and in return imports most of its consumables and especially food. Generally the country has a trade surplus owing to the large diamond exports. There was a small decline in diamond exports in 2001, but since 2002 demand has increased again and this trend is expected to continue during the next period. In effect this increase in 2002 minimized the loss in exports of beef due to foot-and mouth disease (Economist Intelligence 2003b). Other export commodities include copper, nickel, soda ash and textiles. The main export partners are the European Free Trade Association (especially the UK), Southern African Customs Union (SACU) and Zimbabwe (CIA 2003). Since the late 1990's, import spending has increased significantly and currently Botswana is heavily dependent on imported goods to meet the consumption demand. The food, beverages and tobacco category accounted for almost 14% of total imports in 2001. Only the machinery category with nearly 20% of total imports was larger. Most imports are intra-regional, that is the SACU is the most important source of imports. For example, more than 87% of the food, beverages and tobacco imports come from South Africa. The United Kingdom and Zimbabwe are also important import partners (Economist Intelligence 2003b).



Graph 3.5 Export/Import Trends for Botswana 1997-2001

The graph shows that the exports are fluctuating. As stated, this is largely due to the fluctuating demand of the diamond market. Given that diamond demand increased again after 2001, the downward trend in this graph is not expected to continue, but rather the line will go up again. Imports have been relatively steady over the past few years. It appears as though imports are decreasing a lot, but this is because of the pula-dollar conversion that was fluctuating a lot during this period. In absolute local value terms, imports remained fairly steady showing an average decrease of only -US\$36m (98.6%) between 1997-2001.

Foreign Aid and Direct Investment

Despite the transforming economy and the more ‘middle-income status,’ Botswana does receive a substantial amount of foreign aid. This is especially targeted at aid in severe drought situations and more recently the HIV/AIDS situation. Nevertheless, foreign aid has been in decline since the 1990’s and has decreased significantly since 1999. Overseas foreign aid in 2000 was only US\$ 30.7 million compared to US\$60.9 million in 1999. The largest bilateral donor is Germany followed by Japan, United Kingdom and Norway. A possible explanation for the decline in foreign aid is the government’s attitude towards foreign aid. The government does not believe to be dependent on foreign aid and in 2002 stated that it would rather see cuts in aid programs than have these foreign aid donors influence domestic policies. This statement was made in response to a dispute with the European Union regarding the relocation of Bushmen (Economist Intelligence Unit 2003b).

The transition from a poor economy to a middle-income economy is also reflected in the FDI inflow that changed from negative inflows to significant positive inflows (though these were fluctuating) from 1994 onwards. Total FDI inflow increased from US\$30.7m in 2001 to US\$32.3m in 2002 (UNCTAD 2004b). However, on average between 1997 and 2002 a declining trend could be noted as the average change in value was –US\$5.36m (UNCTAD 2004d). Most of the FDI inflows are accounted for by the mining sector, specifically the

diamonds. In 2001, mining accounted for 81% of inward FDI stock. The main three investment partners in 2001 in terms of inflow FDI were South Africa (60%), Luxembourg (29%) and the United Kingdom (6%) (UNCTAD 2004b).

3.3.5 Conclusion Botswana

With respect to the economy Botswana is referred to as the African miracle. The economic indicators and especially the high purchasing power parity confirm this. The case of Botswana illustrates the importance of good governance and a democracy. As the literature indicates, the economic successes can be largely attributed to government policy. Several sources claim that this economic success was also translated into significant improvements in humanitarian and social conditions. However, Botswana still has some improvements to make. The current HIV/AIDS status is a perfect example of this. Furthermore, even though the economy has significantly improved, as much as 47% of the population still lives below the poverty line. Undernourishment figures also indicate an increase of 8% with respect to the proportion of the population being undernourished. The fact that the economy and its respective success are so heavily reliant upon the diamond demand and the fact that food-crop production only meets the one-third of the consumption demand is alarming and puts the 'success' in perspective. It is further a plausible explanation for the fact that such an apparently economically sound country is still faced with increasing undernourishment rates. It is possible that the HIV/AIDS prevalence also impacts these rates. Regardless, the significant plus in the form of adequate and targeted government policies can not be ignored. Table 3.2 summarizes the case study according to the variables.

Table 3.2 Summarizing Variables for Botswana

Variable	Description
1. Undernourishment Rate	25% = 0.4 million people (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Increase (8%) (1990-92/ 1998-2000)
3. Political Situation	Parliamentary republic
4. Rank on corruption index	24 (2002)
5. Environmental Emergency	Drought. During past five years only one non-drought year (in 2000)
6. Life expectancy at birth	38.1 years (in 2002)
7. % of population below poverty line.	47% (2002)
8. Population growth	2.3% (1998-2002) but significantly declining: only 0.6% in 2002
9. Amount of resources to agriculture	US\$ 47.4 –47.7 m between 1998-2002
10. Agricultural production and changes	Decrease, -2% (1990-2002)
11. GDP Growth %	Fluctuating: average 5.9% between 1997-2002
12. Purchasing Power Parity	\$8500 (2002)
13. Increase in imports	Decrease: 98.6% (average 1997-2001)
14. Trade Balance	+ US\$ 642 m (in 2002)
15. Foreign aid	Decreasing: US\$ 30.7 (2000)
16. FDI	Decreasing –US\$5.36 average value change 1997-2002
17. Previous period good or bad?	No significant changes.

3.4 Chad

3.4.1 Introduction

During the Middle Ages, Chad was already known to European traders and geographers and functioned as a crossroad for the Muslim peoples of the desert and tribes of the tropical forests. Primarily fighting against the Muslim kingdoms, the French entered the country in 1881, but did not pacify the territory until 1911 and only officially colonized it in 1920. In April 1960, Chad gained its independence. However, the pre-colonial ‘cross road’ resulted in a strong division between North and South and this was to form the basis for many

years of conflict and political violence (Bureau of African Affairs 2003). Thirty years of ethnic conflict and an invasion by Libya finally lead to peace in 1990, but this was only temporary as rebellion broke out again in 1998. New peace attempts were made in 2002 and demobilized the rebels. Movements towards a more democratic government have not yielded significant results as in practice power remains in the hands of the northern ethnic parties (CIA 2003). Due to political instability, progress in social services has been limited making Chad one of the least developed and poorest countries in the world. However, in 2000 major oil field projects were started and oil revenues are expected to significantly boost the economy (Economist Intelligence Unit 2003c).

Chad is located in Central Africa, just South of Libya and also borders Cameroon, Central African Republic, Niger, Nigeria and Sudan. The total land area is 5,968 sq km. The north of the country is largely desert. There are mountain ranges in the northwest and the south is mainly lowland. The corresponding climate is tropical in the south and desert in the north. The most prominent natural resources are petroleum, uranium, natron and kaolin. Furthermore, Lake Chad is the fourth largest lake in Africa and provides plenty of fish (CIA 2003).

3.4.2 Chad and the National Shock Cluster

The Political Dimension

Prior to colonization, northern ethnic groups had dominated the south. Following independence though, the south took advantage of the colonial administration and seized political power (Economist Intelligence Unit 2003c). A tax revolt marked the beginning of a long civil war between the Muslim north and the southern government lead by the first president Mr. Tombalbaye. In practice he turned out to be a ruthless dictator alienating domestic and external supporters (Bureau of African Affairs 2003, Economist Intelligence

Unit 2003c). As a result, the military planned a coup in 1975 and the southern General Malloum took over as the head of state. This government was initially expanded to include more northerners and reached a peace agreement with the northern front (Frolinat) led by Mr. Habré and supported by Libya. Nevertheless, in 1979 as a result of internal government conflict, Habré his forces clashed with the government, took over the capital and the north once again politically controlled the south.

A transitional government was established in 1979 and was lead by a Frolinat faction leader, Oueddei. His faction also clashed with Habré and this resulted in more fighting in 1980 and came to a halt only when Libya intervened supporting Oueddei. However, more countries were drawn into the conflict as the United States, Egypt and Sudan supported Habré, allowing him to march back into the capital in June 1982. Mr. Oueddei responded by organizing more resistance and it was the French military that saved Habré (Economist Intelligence Unit 2003c). In 1984, following a trial at the International Court of Justice, French and Libyan governments agreed to remove their troops from Chad. However, Libya failed to comply with the agreement and its forces remained in the north (Bureau of African Affairs 2003). Habré certainly brought stability to the country, but he too ruled ruthlessly and his authoritarian measures alienated internal and external supporters. French support was declining and at the same time Habré's army chief, Déby, fled to Sudan and established a patriotic movement (MPS) with support from Sudan and Libya as well as French approval. The MPS quickly captured strategic towns and Habré left the capital on November 30th 1990, but not before he emptied out the treasury (Economist Intelligence Unit 2003c).

Déby promised a multiparty democracy with the increased political freedom, independent press and greater freedom of expression. In practice though, this was hardly the case. Whilst Déby allowed opposition parties to operate 'freely' he maintained true political power, received core military support and was able to overcome two serious rebellions

(Bureau of African Affairs 2003, Economist Intelligence Unit 2003c). After a popular referendum a new constitution was accepted in 1996 and multiparty presidential elections were held (Economist Intelligence Unit 2003c). Déby won the elections with nearly 69% of the vote, but international observers and opposition parties noted irregularities in the election (Bureau of African Affairs 2003, Economist Intelligence Unit 2003c). Several opponents struck deals with Déby, collaborating with him in return for positions in the government. As a result, Déby co-opted his rivals and in this way ensured MPS dominance. A good example of this is the electoral law in 2001 when opposition parties were unable to block the revisions that allowed Déby to be re-elected in the 2001 election. Déby again won the election and his six major opponents were arrested after they voiced complaints about irregularities. The resulting political unrest led to a break between Déby and southern opposition leaders. Overall Déby improved political stability, but did receive some opposition from the northern-based *Movement pour la démocratie et la justice au Tchad* (MDJT). However, after being injured by a land mine, their leader died and this severely weakened the party though enough strength remained to disturb government forces and control some of the northern Chad regions. Libya mediated in a peace agreement during January and May 2002 between the MDJT and government, but the negotiations broke down leading to more hostilities. Due to the lack of external support, it is very unlikely that the rebel groups will be able to advance further south. On the other hand it is speculated that the oil revenues will only strengthen Déby his current opposition. Nonetheless, rumors are circulating that Déby has serious medical problems and thus it is uncertain whether he will still make it to the 2006 elections (Economist Intelligence Unit 2003c).

The 1996 constitution thus established a multi-party system and republic in which the government is strongly influenced by an executive who has control over the judiciary and regional administration. However, in practice the MPS dominates the system as the MPS and

its allies control 80% of the national assembly and all the ministerial portfolios. The president is elected for five years by universal suffrage. The president appoints a Prime Minister who then nominates a parliament. The members of the national assembly are also elected by universal suffrage. Nevertheless, president Déby has implemented electoral measures to ensure that he retains control over the national assembly (Economist Intelligence Unit 2003c).

Transparency International does not rank Chad on its Corruption Perception Index. Quite possibly due to the uncooperative nature of the authoritarian regimes and the long period of civil unrest and violence. Transparency International requires at least three reliable data sources and/or surveys (out of a suggested list of fifteen) to be available for any country and corresponding assessment to be considered a sufficiently accountable evaluation (Transparency International 2003). Furthermore, given the way in which Déby co-opts his rivals, collaborates with opponents in return for government positions and frauds the elections, a significant amount of (government) corruption is almost certain.

Natural and Environmental Emergencies

In the north the main natural hazard is the hot and dusty winds that also lead to periodic droughts (CIA 2003). During the 1980's, drought was a main cause of food shortages (Economist Intelligence Unit 2003c). During the 1990's, incidences of drought occurred in 1993, 1995, 1996 and 1997 (International Bank for Reconstruction and Development 2000). In 2002-2003, the cereal harvest was 15% less than the year before because rainfall was very late (Economist Intelligence Unit 2003c). Other significant environmental issues include the inadequate supplies of potable water (AFDB 2003, CIA 2003). Only 27% of the population has access to improved water sources (World Bank 2003c). Water is furthermore polluted especially in rural areas due to improper waste disposal. This also pollutes the soil. A final problem is desertification (AFDB 2003, CIA 2003).

Demographic Variables

The UN Population Division estimates the population of Chad to be 8.589m in mid-2002 and further projects an annual average growth rate of 3% for the period between 2000-2005 (in Economist Intelligence Unit 2003c). The CIA (2003) estimated a population growth rate of 3% in 2002. The average population growth between 1998 and 2002 was 3.1%. With only 5.6 inhabitants per square kilometer, Chad has the lowest population density in the region. There remains a strong north (Muslim) and south (Christian) division. The capital is the main economic center and 10% of the population lives here. A large part of the population is further concentrated in the southern region that is most optimal for agriculture.

Urbanization is increased, from 16% in 1975 to 24% in 2002. It is further estimated that the Doba oil field project will lead to even more urbanization (Economist Intelligence Unit 2003c).

Due to the ongoing political instability and authoritarian regimes, social services have been hindered significantly. As a direct result, limited financial resources were available and the infrastructure remained very poorly developed. This caused very low social standards, even in comparison with Sub-Saharan African standards. Gradually though, progress is being made to improve the infrastructure and health services. It is hoped that the oil revenues will further help poverty reduction and the improvement of social services (Economist Intelligence Unit 2003c). The UN human development index indicators show that the situation is improving: but currently Chad ranks 165th out of 175, clearly indicating that it is one of the least developed countries in the world (in Economist Intelligence Unit 2003c). In 2001, it was estimated that 80% of the population was living below the poverty line (CIA 2003). It has further been estimated that 200,000-400,000 people have died in the past thirty years due to violence and famines. Life expectancy was estimated at 44.5 years in 2001 and this is below the Sub-Saharan African average (46.5). The relatively low life expectancy is due to a poor

medical structure (there were only 290 doctors recorded between 1998-1999), the high infant mortality rate, poor sanitation and the limited access to potable water contributing to diseases such as diarrhea (Economist Intelligence Unit 2003c).

Despite periods of drought impeding the harvests, undernourishment rates have been improving. Between 1990-1992, 3.5 million people were undernourished in comparison to 2.5 million between 1998-2000. This translates to 58% and 32% of the population respectively (FAO 2002). As a result of this drastic percentage decline (26%), the FAO ranks Chad number two on its best performance list (FAO 2001a).

3.4.3 Chad and the Agricultural Sector

Traditionally Chad has been very dependent on agriculture. In 2002, rain-fed subsistence agriculture and animal husbandry accounted for 37% of GDP and employed 72% of the population. Cotton and cattle have formed the bulk of the exports accounting for 80% of all exports in 2002. As a result, economic performance is highly dependent on the variations in agricultural production. The latter in turn, is highly dependent on the weather conditions as such a large proportion of the output demands rainy conditions. As stated, the 1980's saw major food shortages due to the drought. Though the situation improved somewhat during the early 1990's when rainfall was back to normal, more droughts presented itself towards the latter 1990's. Furthermore, Chad was faced with its worst famine in 2000/2001 when cereal output was only 80% of the annual average of the previous five years. Again in 2002/2003, output was 15% less than the year before owing to the late rainfall (Economist Intelligence Unit 2003c). The main agricultural products are cotton, sorghum, millet, peanuts, rice, potatoes, manioc and cattle; sheep, camels and goats (CIA 2003).

Investments in agriculture

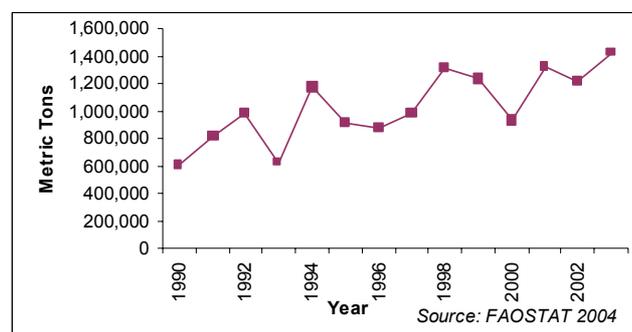
Given the high vulnerability of the agricultural sector due to the weather conditions and the resulting famines, the government has developed medium-term plans to improve food security. The suggested measures include increasing food protection, diversifying food crops, developing small-scale irrigation and the encouragement of co-operative food banks and stocks. The government further intends to use additional financial resources from the Doba oil project in order to modernize the current agricultural sector (Economist Intelligence Unit 2003c). No actual government expenditures on agriculture could be traced possibly owing to the nature of governance and the resulting economic mismanagement. However, given the vast amount of resources spent on the military and the poor social services due to war, it seems reasonable to conclude that investments in agriculture have not been very high at all.

Since the devaluation of the CFA franc in 1994, Chad has engaged in structural adjustment programs with the IMF. The 2003 poverty reduction strategy paper that was approved by international donors and established in close collaboration with Chadian stakeholders surprisingly enough does not specifically address investments in agriculture. A possible explanation is the focus on the Doba oil projects (Economist Intelligence Unit 2003c). However, investments in the infrastructure and the development of human capital will indirectly also imply investments in agriculture.

Agricultural output

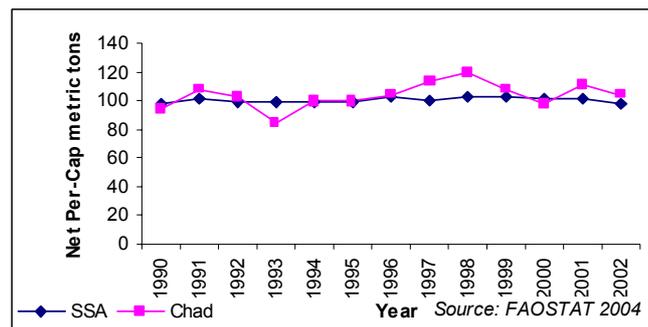
Cotton is the backbone of Chad's rural economy. It accounts for 35-50% of total foreign exchange earnings and is the principal source of income for about 12% of the population in the South. Cotonchad is the corporation organizing the sector. It supplies the farmers with seeds and inputs to the farmers and has a purchasing and marketing cotton monopoly. Attempts are made to privatize especially the corporation to avoid the monopoly power and ensure greater benefits and returns for the farmers. Cotton production has fluctuated heavily between 1997 and 2002. Due to the devaluation of the CFA franc and good

global cotton prices, extensive planting occurred in 1994 and this led to a peak output of more than 262,000 tonnes in 1997/1998. However, in 2001/2002, this had declined to less than 165,000 tonnes. This fall in output was attributed to depressing global cotton prices and the poor, insufficient infrastructure impeding exports. The climate further accounts for fluctuations (Economist Intelligence Unit 2003c). These fluctuations become even more apparent when analyzing the earlier discussed cereal production between 1990-2003 as portrayed in graph 3.6.



Graph 3.6 Total Chadian Cereal Output in Metric tons 1990-2003

The graph clearly indicates the tremendous fluctuations in cereal output and shows how vulnerable production is due to the climatic variations. This also affects general agricultural output. However as graph 3.7 shows, the effects are not as negative as can be expected. In fact, graph 3.6 clearly shows that cereal production significantly declined between 1994-1998. Agricultural production though, shows an increase during this same period. This is presumably due to the fact that cotton production was increasing at this time in order to reach its 1997/1998 peak. Furthermore, livestock production also forms a large section in the agricultural sector and this is not as vulnerable to changing weather conditions. In 2001, livestock production accounted for 13% of GDP and 40% of the labor force (Economist Intelligence Unit 2003c).



Graph 3.7 Agricultural Output for Sub-Sahara Africa and Chad 1990-2002

Furthermore, despite the droughts and resulting fluctuations, in comparison to the average agricultural output for Sub-Sahara Africa, Chad is doing reasonably well and is currently even performing above average. However, due to the fluctuations in agricultural output, actual average annual growth in output between 1990 and 2002 was relatively small at 1.5% (FAOSTAT 2004).

3.4.4 Chad and the Economic Cluster

Years of civil war and economic mismanagement have severely harmed the economy of Chad. Between 1979 and 1982, for example, a significant share of foreign investors left the country (Bureau of African Affairs 2003). The economy had traditionally been very dependent on agriculture and as discussed in section 3.4.3, this has implied high economic vulnerability and fluctuations due to the climate. Economic diversification has failed to progress due to the limited infrastructure, long history of internal conflict, high transport and energy costs and the poor administration (CIA 2003, Economist Intelligence Unit 2003c). The year 1994 further marked a turning point in the economic history. The government introduced structural reforms to stimulate recovery from the devaluation of the CFA franc. The weakened currency in combination with external assistance boosted the economy. Rural

growers were provided with incentives to replace food imports with the production of cash crops (Economist Intelligence Unit 2003c).

Another major turning point in the economy is the Doba oil project that was initiated in 2000. Oil had been detected there already a long time ago, but investors were reluctant to exploit the oilfields due to the geographic isolation of the country, the limited infrastructure and the unstable and uncertain political environment. In 1993 ExxonMobil led a consortium, announced the discovery of major petroleum reserves and in collaboration with the World Bank, built pipelines (Economist Intelligence Unit 2003c). Currently major (foreign) investments are made in oilfield and pipeline projects (CIA 2003, Economist Intelligence Unit 2003c). Oil production started in late 2003 and the export of oil is scheduled in 2004 (CIA 2003) and it is hoped that the exploitation of the oilfields will make a fast and significant contribution to the economy. The oil sector is expected to account for over 40% of GDP in 2004 and already the Doba project has affected government investment and consumption and these have become major sources of growth (Economist Intelligence Unit 2003c). Several sources further indicate the possible positive impact of oil revenues for the whole country (Bureau of African Affairs 2003, CIA 2003, Economist Intelligence 2003c). Revenues should be directed towards poverty reduction and improve social programs such as rural development, environment and resource management and more general improvements in the infrastructure. To monitor oil revenues, the government passed a law to set up a management committee to ensure that oil revenues are directed towards poverty reduction. The oil revenue law states that 80% of revenues will be devoted to social programs (Economist Intelligence Unit 2003c). However, whilst this sounds very plausible in theory, practice has already illustrated the difficulties. The first payment to the country by the big oil investors was US\$25 million and of that US\$4.5 million was secretly spent on weapons without consensus of parliament! Due to pressures from the World Bank and IMF though, the government then

agreed to freeze the rest of the initial payment until a parliamentary committee could monitor the actions (Raeburn 2001).

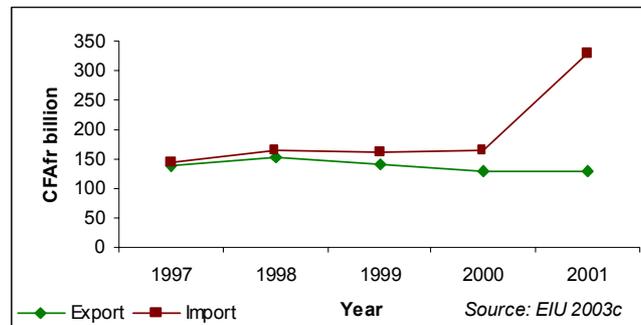
GDP

Between 1998 and 2002, average annual GDP growth was estimated at 4.2%. However, real GDP has increased tremendously since 2001 due to the Doba oil project that resulted in increasing construction activities, which in turn provided more labor and more contracts with local corporations. According to the *Banque des Etats de l'Afrique centrale* (in Economist Intelligence Unit 2003c), real GDP fell by 0.3% in 2000, but then in 2001 increased 8.1%, in 2002 8.5% and is expected to rise to 15% in 2003. In 2004, the first full year of oil production, real GDP growth is estimated at 40% (Economist Intelligence Unit 2003c). The World Bank (2003c) forecasts an average annual growth rate of more than 24% between 2002 and 2006. In 2002, GDP per capita (at purchasing power parity) was estimated at US\$1000 (CIA 2003). However, as the economy will boost and GDP will grow, it is expected that GDP per capita will significantly increase. In fact, the World Bank suggests that the GDP per capita will increase by a factor three between 2002-2006 (World Bank 2003c).

Trade

Traditionally cotton has been the main export commodity. However since 1998 cotton exports have fallen due to declining global prices. Livestock exports continued to marginally increase and became the main export commodity. In 2004, oil will presumably become the main export commodity (Economist Intelligence Unit 2003c). Another main export commodity is gum arabic (CIA 2003). Portugal has been the main export partner owing to the export of cotton. Increasingly Nigeria is becoming an import export partner as much of the livestock is exported to this country (Economist Intelligence Unit 2003c). Other main export partners include Germany and the United States (CIA 2003). The main import commodities are machinery and transportation equipment, textiles, foodstuff, petroleum products and

industrial goods (CIA 2003). Historically France and Nigeria have been the main import partners, however due to the vast amount of US imports in relation to the Doba project, the United States and France have now become the leading import partners (CIA 2003, Economist Intelligence Unit 2003c). Graph 3.8 illustrates the fluctuating trade trends.



Graph 3.8 Export/Import Trends for Chad 1997-2001

The graph clearly depicts a drastic increase in imports (average increase between 1997-2001 is 128%) and steadily decreasing exports. Merchandise imports doubled from 2000 to 2001. This is mainly due to the Doba oil project that required construction materials. As oil production will increase, it is likely that imports (as a percentage of exports) will decrease and exports will increase and that the export/import picture will drastically be altered. For example, in 2001, the trade balance was almost –US\$200 million, but increases in oil exports are likely to narrow this deficit (Economist Intelligence Unit 2003c).

Foreign Aid and Direct Investment

Current multilateral foreign aid is geared towards structural adjustment programs. The IMF has introduced two main programs, the most recent one being the 2002-2003 poverty reduction and growth facility that focuses on strengthening the tax and customs administration and developing the capacity to efficiently handle the oil revenues and direct these towards poverty reduction and other social programs. International donors also approved the poverty reduction strategy paper that Chad presented in June 2003. This paper describes five major strategies for reducing poverty; improving governance, promoting sustainable economic

growth, developing human capital, improving living conditions for vulnerable groups and restoring and safeguarding ecosystems. According to the OECD (in Economist Intelligence Unit 2003c) the main bilateral donors are France, Germany, Switzerland and the United States and in 2001, bilateral aid amounted to almost US\$73 million. Multilateral aid accounted for almost US\$106 in the same year. Between 2000 and 2001 the total official development increased from US\$131 million to US\$179 million. However, in comparison to the total development assistance in 1997 (US\$ 228 million) foreign aid is clearly decreasing. It is expected that the oil revenues will reduce some of the dependency on foreign aid, but in the immediate future, Chad remains dependent on foreign aid especially with respect to the pressing social needs and the funding of the infrastructure (Economist Intelligence Unit 2003c).

Between 1979 and 1982 as a result of the civil war, many foreign investors left the country and have only recently began to regain confidence in the country's economy and political system. Chad transformed from a minor FDI recipient country to one of the top five FDI recipients in Africa in 2002 (UNCTAD 2004c). The Doba oil project is the biggest foreign investment project to date (Bureau for African Affairs 2003). In general the major increases in FDI inflow have created a significant amount of jobs. However, FDI inflows have fluctuated tremendously. In 1997, FDI inflow was US\$ 44m, decreased to US\$26.6m in 1999 and then reached an all time peak in of US\$901m in 2002. The average annual change in FDI inflows between 1997-2002 was an increase of US\$224m equaling a 347% change (UNCTAD 2004d).

3.4.5 Conclusion Chad

After thirty years of upheaval and political instability, Chad appears to be on the road to recovery. The proportion of the population that is undernourished significantly declined

and the population is growing suggesting that living conditions are improving. Currently Chad is still one of the least developed nations in the world and with 80% of the population living below the poverty line, the country is very poor. However, the Doba oil project has the potential to significantly improve the economy and increase the general standards of living, provided the oil revenues are allocated towards poverty reduction strategies. The case of Angola (see section 3.2), for example, clearly illustrates how large the potential benefits could be. Furthermore, the economy was previously mainly dependent on agriculture and history has shown that this sector and its output was extremely vulnerable to weather fluctuations thus negatively affecting the general economy. Oil production is like to boost the economy in general, but will also reduce the dependency on agriculture for economic performance. The government further seems to be more willing to commit to poverty reduction strategies and politics appear more stable, though it must be noted that presently there is uncertainty about the replacement of the president and thus it is unclear if the situation will remain stable. Nevertheless, it is concluded that Chad is on the way to recovery and that if the oil revenues are adequately invested, the entire population could benefit and general welfare would be improved. Table 3.3 summarizes the case study according to the discussed variables.

Table 3.3 Summarizing Variables for Chad

Variable	Description
1. Undernourishment Rate	2.5million = 32% (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Decrease (26%) (1990-92/ 1998-2000)
3. Political Situation	Republic but strong presidential influence in practice.
4. Rank on corruption index	Not ranked
5. Environmental Emergency	Hot, dusty winds resulting in drought. 2000-2001 famine as result.
6. Life expectancy at birth	44.5 years (2001)
7. % of population below poverty line.	80% (2001)
8. Population growth	3.0% (2002)
9. Amount of resources to agriculture	N.a.
10. Agricultural production and changes	1.5% average annual growth 1990-2002
11. GDP Growth %	8.5% (2002) / average annual growth 4.2% (1998-2002)
12. Purchasing Power Parity	US\$ 1000 (2002)
13. Increase in imports	Increase 128% average between 1997-2001. This due to Doba oil project
14. Trade Balance	US\$-199.1 million; due to high merchandise imports.
15. Foreign aid	Decreasing US\$179 million (2001)
16. FDI	Increasing US\$224m (347%) annual average change between 1997-2002
17. Previous period good or bad?	Previous period bad due to civil war.

3.5 Democratic Republic of Congo

3.5.1 Introduction

In the late nineteenth century the area was colonized by the Belgian King Leopold II, who used the land as his private property. The Belgian government stepped in and took over the area in 1908 establishing it as an official Belgian colony. Congo was decolonised on June 30th 1960. Since independence the country has been reigned by two dictators (Mobutu and Kabila) and has been confronted with a civil war since 1997. In 1971 Mobutu changed the name to Zaire, but in 1997 Kabila declared it the Democratic Republic of Congo (DRC). An

all-inclusive peace agreement was signed in 2001 and paved the way for the current transitional government. The complex structure of the conflict and the indirect and direct participation of several other countries inevitably still leads to instability in the country. This is intensified by the fact that violence in the east part of the country has not yet ceased (Economist Intelligence Unit 2003d).

The DRC has the second largest land area in Sub-Saharan Africa (World Bank 2004) with a total of 2,345,410 sq km (CIA 2003). It is located in central Africa, just northeast of Angola (CIA 2003). The country is very rich in natural resources and has the second largest rain forest in the world (World Bank 2004). Other prominent natural resources include cobalt, copper, petroleum, diamonds, gold, silver, iron ore, coals, hydropower and timber. The climate is tropical and is hot and humid in the equatorial river basin, cooler and drier in the south and cooler and wetter in the north (CIA 2003).

3.5.2 Democratic Republic of Congo and the Natural Shock Cluster

The Political Dimension

The Congo Free State was created in 1885 by the Belgian King Leopold II as his ‘personal fief’ (Tordoff 1997: 35). However, his ruthless way of ruling that included the abuse of many human rights caused international protest and as a result gave the Belgian government reason to step in and declare the land a formal colony in 1908. DCR obtained its independence on June 30th 1960. Nonetheless, several days later the army and police joined forces and openly revolted against the authorities again forcing the Belgian government to intervene. Belgian troops were sent to the city of Katanga and this marked the start of the first five year civil war that ended when the army chief Mobutu with the assistance of the United States army took over the by the rebels declared as independent Katanga. Mobutu was to unfold as a very manipulative dictator who ruled and influenced politics for 32 years. In 1971

he changed the name of the country to Zaire (Economist Intelligence Unit 2003d). Whilst he had been accredited for implementing massive education programs, the creation of a solid sense of national unity (World Bank 2004) and more general ‘nation building’ (Economist Intelligence Unit 2003d). He was also responsible for an authoritarian regime causing economic mismanagement and the legitimizing of corruption as a primary measure of rule. Furthermore, the government failed to serve the public adequately and Mobutu neutralized or co-opted almost every influential politician. For example, in 1991 due to domestic opposition, multiparty elections were held and the country had several different governments and corresponding presidents. Regardless, Mobutu still had the real power as the dismissal of the president in 1993 illustrated because Mobutu clearly opposed the transitional constitution but was not stopped by other prominent figures. However, in 1995 the promised organized elections were not held and widespread opposition grew. The displaced Rwandan Tutsi population that was living in the North and South Kivu provinces formed a rebel group and lead by Laurent Kabila opposed Mobutu resulting in the collapse of the Mobutu regime in 1997. Kabila declared himself president in 1997 but his manner of rule was barely an improvement as he too turned out to be a authoritarian ruler who was economically incompetent (Economist Intelligence Unit 2003d). His regime was opposed by rebellion backed by Ugandan and Rwandan forces in August 1998 (CIA 2003). The civil war soon transformed into a full-scale war including six other African countries. Peace attempts were made in Lusaka in July of 1999, but Kabila rejected the settlement and thus little was achieved in the actual implementation of the agreement. On January 16th 2001 Laurent Kabila was assassinated and his son Joseph was appointed president. Unlike his father he was not opposed to UN peace officials entering the country and the UN sent over 3,500 support troops and around 500 military observers to the country. An all-inclusive peace agreement was signed in the beginning of 2002 and this agreement established the transitional

government. That government has achieved some successes and is definitely more stable than previous governments. However, especially due to the RCD rebel group that is backed by Rwanda, there is still no peace in the east. The Mai-Mai militias oppose the presence of Rwanda and the RCD but this group lacks leadership. The challenge for Joseph Kabila is thus whether he can hold the regime together and retain his power whilst at the same time enabling and stimulating the countries political transition (Economist Intelligence Unit 2003d).

The local justice system is weak and corruption is still a very large problem (Economist Intelligence Unit 2003d). Transparency International (TI) does not rank DRC on its corruption index. This is presumably due to the fact that not sufficient reliable information is available as a result of the civil war. TI requires at least three sources and/or surveys (out of fifteen) to be available for any country and corresponding assessment to be considered sufficiently reliable (Transparency International 2002).

Natural and Environmental Emergencies

The main natural hazards are droughts in the South and the seasonal flooding of the Congo River. Furthermore, there are active volcanoes in the Great Rift Valley (CIA 2003). As much as 74% of the country is forested and deforestation is increasingly becoming an issue. In 1980, the World Bank estimated deforestation to be at 0.6% (in Economist Intelligence Unit 2003d). Currently 415 species of mammal, 736 species of bird and 11,000 species of plants are living in the country. Increasing deforestation could pose a significant threat to the current bio-diversity (Economist Intelligence Unit 2003d). Refugees are also believed to cause an increase in deforestation. Poaching further becomes a threat to the wildlife population (AFDB 2003, CIA 2003). Other current environmental issues are water pollution and soil erosion. The mining of minerals is also believed to be causing environmental damage (CIA 2003).

Demographic Variables

Presumably due to the authoritarian regimes, corresponding poor governance structures and civil wars, there is a lack of statistical data on the DRC. For example, the last official population census was in 1985 when the population was estimated at 35 million (Economist Intelligence Unit 2003d). The IMF estimated the population in 2001 to be almost 53 million at an annual growth rate of 3.1% (in Economist Intelligence Unit 2003d). The CIA (2003) estimated a population of 56.6 million in 2003 and a population growth rate of 2.9%. The CIA further claims to take into account in the estimations that there is excess mortality due to the prevalence of HIV/AIDS. The UNAIDS estimates the adult rate of HIV/AIDS infection to be between 4 and 9% in 2001 (in Economist Intelligence Unit 2003d). However, especially given the degree of violence and the amount of deaths, the US-based International Rescue Committee estimated casualties since August 1998 at three million in the rebel areas alone (in Economist Intelligence Unit 2003d), this increase in population is surprising. Despite war, a general decline in living standards and a relatively high HIV/AIDS prevalence rate, the population apparently still grew. Still, it could also be that this is due to the huge displaced Rwandan refugees that are now living in the country.

The United Nations estimated a life expectancy of 51.5 years in 1995. However, life expectancy appears to be declining. It is very likely that the increasing prevalence of HIV/AIDS leads to lower life expectancy and increasing infant mortality and death rates (CIA 2003). The World Bank indicated a life expectancy of 45.3 years in 2002 (World Bank 2003d). However, this decline in life expectancy is not unique to the DRC. In fact, in 1995 the Sub-Saharan African average in life expectancy was 52 years (Economist Intelligence Unit 2003d) but the current average life expectancy is only 46 years (World Bank 2003d). Undernourishment has increased tremendously. In 1990-1992, 12 million were undernourished but by 1998-2000 this number had increased by a factor three to 36 million.

As a proportion of the population, this implied an increase from 34% to 73% of the population being undernourished making the DRC the worst performer in the world (FAO 2001a, 2002).

3.5.3 The Democratic Republic of Congo and the Agricultural Cluster

The country has an abundance of natural resources, the climate is diverse, there is plenty of rain, there are a number of rivers and a large portion of the land is covered with rainforest. Yet despite these favorable conditions, agricultural output remains very low. Actual crop production (both cash crops and food crops) per head has been steadily declining and in fact the country is a net food importer. There are several reasons for the poor agricultural output. Firstly, past governments due to poor governance neglected agriculture. This severely impeded technological development. The third and perhaps most important reason is the poor state of infrastructure again owing to poor government. As a result of this poor infrastructure trade is seriously constrained (Economist Intelligence Unit 2003d). Of course the upheaval due to the civil war not only led to the displacement of many farmers, but also physically destroyed the land and the infrastructure. The DRC is the fifteenth largest producer of coffee on a global scale. However, recently a shift from cash crops to food crops has been noted. The share of agriculture in GDP had been steadily declining to 25% of GDP in 1980. This decline is very common and attributed to the development process. However, in 2001, the share of GDP in agriculture had increased to 54%, which is well above the Sub-Saharan Average of 20% (Economist Intelligence Unit 2003d).

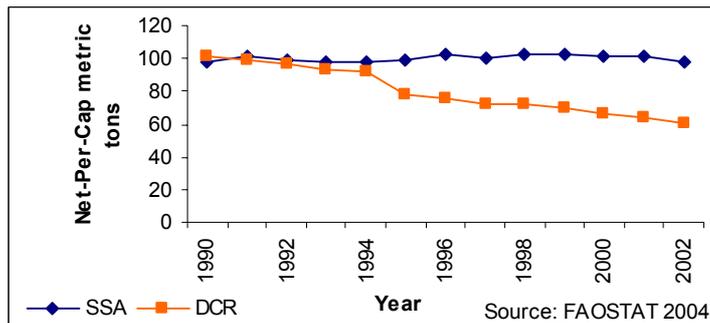
Investments in Agriculture

Owing to the chaotic and economic mismanagement of the government, there are no data available on government budgets and/or expenditures on agriculture. However, seeing as government governance under the reign of both Mobutu and Kabila was geared towards

personal wealth rather than the benefits of the public, it is safe to conclude that investments in agriculture were minimal if they even existed at all. However, the new government has taken some successful measures and achieved macroeconomic stability. This resulted in more support from foreign donors (Economist Intelligence Unit 2003d). Furthermore, the new government liberalized prices and this resulted in an increase in the availability of food, especially in the major cities (World Bank 2004). It is hypothesized that the new transitional government in collaboration with foreign bilateral and multilateral donors will recognize the importance of investing into and re-creating the infrastructure allowing for better distribution of agricultural output, as well as the importance of investing in the agricultural sector in general.

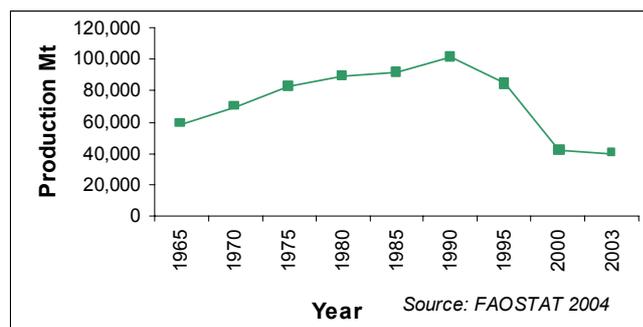
Agricultural Output

As stated agricultural output is minimal despite the wealthy climate and the abundance of sources available. The destruction of the land and the continuance of upheaval in the East further contribute to the weak agricultural production. The economic and political crises facing the country are also apparent in the historical agricultural outputs. The hyper-inflation in the 1990's, and resulting economic collapse, led to decreases in agricultural production (Economist Intelligence Unit 2003d). In 1994 Mobutu violated the transitional constitution and this led to unrest. Furthermore, in early 1995 it became apparent that the promise of elections in July of 1995 was not going to be fulfilled. As graph 3.9 shows, there was a sharp decline in agricultural output between 1994-1995. Prior to this period, agricultural production was comparative to the average Sub-Sahara African output, but after 1995 the declining trend only continued. Currently the DRC's agricultural output is significantly below the Sub-Sahara African average.



Graph 3.9 Agricultural Output for Sub-Sahara Africa and DRC

Coffee is the main cash crop thus it is very likely that changes in coffee production significantly affect the total agricultural output. As graph 3.10 clearly shows the production of coffee steadily increased after independence reaching a peak in 1990. However, as with general agricultural output, coffee production fell steeply between 1990-1995 and continued to decrease even further. Current coffee output is lower than it was in 1965. Nevertheless, studies show that the more recent decrease in production and corresponding decrease in exports are largely due to the rebels in the Equateur province (accounting for 85% production) who control the coffee production.



Graph 3.10 DRC Production of Coffee 1965-2003

Thus the presence of the rebels not only leads to the destruction of the land but also directly causes decreases in agricultural production. Furthermore, it is also suggested in the literature that there may not have been such a dramatic decline in production, but that some of the crop was smuggled to Uganda during the 1990's and this thus resulted in drastic declines in output

figures (Economist Intelligence Unit 2003d). The same source points to the possibility of skewed data, since 1998, as a large share of the production of minerals and agriculture was no longer under government control and was hence excluded from official data sources. Regardless, even when taking this into account, a declining trend in agricultural output cannot be denied. Perhaps in reality the decline is less drastic than portrayed (average annual decline between 1990-2002 was more than 4%) but the fact remains that DCR agricultural output is decreasing.

3.5.4 The Democratic Republic of Congo and the Economic Cluster

Even though the country is potentially very wealthy, the economy has been in severe decline since mid-1980 (CIA 2003). However, even in 1980, per capita GDP was only a third of what it had been in 1992 (World Bank 2004). In fact, GDP per head in 2000 was with US\$85 only a fourth of the GDP per capita at independence, US\$380. Apart from the period between 1960-1974, the economy has been faced with declines and crises (Economist Intelligence Unit 2003d). Especially since the late 1990's, economic performance significantly declined as the country was now not only confronted with economic mismanagement but also with the outbreak of war (CIA 2003, Economist Intelligence Unit 2003d, World Bank 2004). The collapse of the economy in the late 1990's was primarily attributed to the war, incompetent economic policies, a minimal infrastructure and a series of supply shocks such as riots and the effects of looting especially in 1991 and 1993. Furthermore, a large number of expatriates and skilled Congolese elites left the country due to the political instability and the increasing corruption (Economist Intelligence Unit 2003d). However, the new transitional government is far more promising. In May of 2001 this government launched a series of stabilization measures successfully putting a halt to hyperinflation (from 630% in 2000 to only 8.8% in 2001) and also stabilizing exchange rates.

Furthermore, government revenues have already shown increases and efforts are made to centralize expenditures and implement a budget (World Bank 2004). However, the reality is that poverty is so severe that even if the economy were to grow 5% each year, it would still take as many as seventy years before the income per head levels of 1960 can be reached again.

GDP

As stated, GDP per head is only a fourth of the value at independence. The real economic collapse followed the outbreak of war in 1996 after which all formal economic activity came to a halt. In fact, GDP declined on average by more than five percent between 1996 and 2001. The productive sectors of the economy have taken drastic falls. For example, mining contributed 24% to GDP in 1987, but this was reduced to a mere 8.9% in 2001. Furthermore, due to hyperinflation, purchasing power parity declined even further (Economist Intelligence Unit 2003d). In 2002, this GDP per capita was estimated at only \$600 (CIA 2003). This was also due to incredibly low wages. In mid-2001 the lowest-paid civil servants would only be paid US\$4 per month! Even the more senior civil servants did not make more than US\$35. It has been claimed that the only way the urban population survived was through the sustaining of an informal economy. Most of the rural communities attempted to survive through subsistence production (Economist Intelligence Unit 2003d).

However, since 2002 the outlook is better. For the first time in 13 years, the economy expanded as real GDP growth was estimated at 3.5% (CIA 2003). This is primarily attributed to the recovery of the transportation, communication, agriculture, manufacturing and service sectors. Furthermore, the liberalization of exchange rates and the fuel prices stimulated transport and trade in the rural areas. The current economic policy and the collaboration with donors further pave the way for recovery. Restoring the services sector alone is already

expected to boost future real GDP growth to 6-7% for the next few years (Economist Intelligence Unit 2003d).

Trade

The economy is very export-oriented and traditionally the richness of natural resources in the DRC has yielded a trade surplus. In the 1990's though, exports and imports both decreased due to declines in national income and shortages in foreign currency (Economist Intelligence Unit 2003d). The primary export commodities are diamonds, copper, crude oil, coffee and cobalt (CIA 2003). It was especially the production and thus export of cobalt and copper that significantly decreased. Revenues from these two minerals were US\$1.2 billion in 1990 but decreased to US\$144 million in 2000. However, due to an increase in diamond mining and trade in the same period (from US\$240 in 1990 to US\$716 in 2000) the declines in total exports were not as sharp. Exports declined between 1997 and 2001 but have begun to increase again largely owing to the termination of diamond monopolies. In fact, in 2001, diamonds accounted for 53% of total exports. Oil has become the second largest export commodity. According to the government data, agricultural exports have declined so drastically that they are no longer significant. However, as stated before coffee is the main cash crop and its production is now largely controlled by rebels and thus no longer shows up in government accounts (Economist Intelligence Unit 2003d). The main export partners are Belgium (more than 60%) and the United States (more than 13%) (CIA 2003). In fact 92% of all exports are to industrialized countries. Belgium and South Africa are the largest sources of import (each almost 15%) (CIA 2003). South Africa is increasingly becoming a more important source of imports and is currently the supplier of manufactured and consumer goods (Economist Intelligence Unit 2003d). Other main import commodities include mining and machinery, transportation equipment and fuels (CIA 2003). Government data do not account for trade with immediate neighbors, but informal trade is known to exist with Congo,

Central African Republic and Angola. Congo imports a vast amount of foodstuff and is also known to facilitate diamond smuggling. Uganda, Rwanda and Burundi also heavily engage in informal trade with DRC. This is based especially on gold, timber, ivory, columbo-tantalite and agricultural products from the informal sector. Total export data are thus not available. Imports have gradually been increasing. In 1997 imports were almost US\$700 million and this had increased to just over US\$800 in 2001. The average annual growth in imports between 1997 and 2002 is 109.5% (Economist Intelligence Unit 2003d).

Foreign Aid and Direct Investment

According to the OECD (in Economist Intelligence Unit 2003d), foreign aid significantly decreased between 1990 and 2000 due to poor governance. The only real remaining aid was through the UN in the form of humanitarian aid. Since the introduction of the transitional government in 2001, however, government policies have improved and donors have been more eager to provide aid. For example, the World Bank and IMF approved projects of US\$450m and US\$750m respectively, primarily geared at alleviating debt. Also bilateral donors have increased their support. Total bilateral aid increased from just over US\$100m in 2000 to over US\$140m in 2001. The main bilateral donors are Belgium, the United Kingdom, the United States, Germany, the Netherlands and France. Total foreign aid increased from US\$184m in 2000 to US\$251m in 2001. The funds are to be used for rebuilding the infrastructure, restructuring the mining and forestry sectors and more general for budget support (Economist Intelligence Unit 2003d).

Most of the foreign investors that had remained in the country during the authoritarian regimes fled the country when the war broke out. Furthermore, given the immense amount of corruption, the DRC is not very attractive to foreign investors. Nevertheless, an average annual increase in FDI inflow could be noted of US\$38m between 1997-2001. In 2001, FDI inflow amounted to US\$32m (UNCTAD 2004d). However, it is speculated that given the

significant economic improvements made by the transitional government and the increasing donor support, the DRC will become a more attractive investment climate for foreign investors too.

3.5.5 Conclusion Democratic Republic of Congo

This case study clearly illustrates that the DRC has not been doing well over the past decade. In all three variables, performance is very bad. The main reason appears to be poor governance under the reign of first Mr. Mobutu and then Mr. Laurent Kabila. The authoritarian regimes pursuing private over public interests resulted in severe deterioration and finally led to the total collapse of the economy in the late 1990's. Poor economic management has had effects on many variables in the analysis and has led to a general decline in living standards and public welfare. Furthermore, the actual outbreak of war and the corresponding upheaval has destroyed much of the land and infrastructure and drastically impeded trade. It is not surprising that the DRC was the worst performer on a global scale with respect to undernourishment. However, the outlook is brighter. The new transitional government has already made some important steps in achieving economic stability and restructuring the country. Donor support has increased and this will most certainly speed up the recovery process. Still, rebels still continue to fight in the east and this is expected to pose a challenge to the general recovery process. Furthermore, the country is in such a state that it will require a long period of collaborative national and international efforts before significant improvements in general welfare can be noted. The variables are summarized in the following table.

Table 3.4 Summarizing variables for Democratic Republic of Congo

Variable	Description
1. Undernourishment Rate	73% =36 million people (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Increase (41%) (1990-92/ 1998-2000)
3. Political Situation	Transitional Government
4. Rank on corruption index	Not ranked
5. Environmental Emergency	Droughts in South, seasonal flooding of Congo river, deforestation
6. Life expectancy at birth	45.3 years (2002)
7. % of population below poverty line.	n.a.
8. Population growth	2.64% (1997-2001)
9. Amount of resources to agriculture	N.a.
10. Agricultural production and changes	-4.1% average annual growth 1990-2002
11. GDP Growth %	-5.2 between 1996-2001, 3.5% in 2002
12. Purchasing Power Parity	US\$ 600 (2002)
13. Increase in imports	Fluctuating but average annual increase of 109.5% between 1997-2001.
14. Trade Balance	No export data available
15. Foreign aid	Increasing: US\$251 (2001)
16. FDI	Increasing: average annual incr US\$37.7 between 1997-2001
17. Previous period good or bad?	Previous period bad due to civil war.

3.6 Ghana

3.6.1 Introduction

The British invaded the Ashanti Kingdom in 1874 during the scramble for Africa and controlled it by 1901, officially declaring it the British colony of the Gold Coast. On March 6th 1957, Ghana became the first country in colonial Africa to gain its independence. Ghana is located in Western Africa between Togo and Côte d'Ivoire and borders the Gulf of Guinea. The total area is 239,460 sq km. Ghana's climate is very tropical; it is warm and dry especially along the southeast coast. It is more hot and humid in the southwest and primarily

hot and dry in the north. The main natural resources include gold, timber, industrial diamonds, bauxite, manganese, fish, rubber and hydropower.

3.6.2 Ghana and the National Shock Cluster

The Political Dimension

The radical Convention People's Party lead by Kwame Nkrumah, who is even today still known as the "Father of the Nation," achieved the independence of Ghana in 1957. The CPP government was socialist in nature and is responsible for the basis of the current infrastructure. Since 1957, Ghana has experienced nine changes of government and four military coups. The last two coups (in June and September 1979) were led by the junior army officer Jerry John Rawlings and his Armed Forces Revolutionary Council. The New Provisional National Defense Council government led by Rawlings, was formed. This military technocratic regime focused on domestic security and fighting corruption. The regime was socialist and very radical. Attempts were made for a party-less democracy but bilateral donors were able to prevent this. Following a new constitution, November 1993 marked the first multiparty elections since 1980. Mr Rawlings- representing his new political party, the National Democratic Congress,- became president and ruled until 2000. The New Patriotic Party lead by Mr Kufuor won the 2000 elections and the peaceful, democratic transfer of power makes Ghana a role model for many developing countries. The party's main goals are achieving macroeconomic stability, accelerating real GDP growth and improving the current infrastructure (Economist Intelligence 2003e).

The present constitution, established in 1992, is based on the US system in which the president has executive power and is to be elected every four years through universal suffrage. The unicameral parliament has 200 seats and its members are elected by direct, popular vote to serve for a period of four years. The chief of justice is appointed by the president and

approved by the parliament. He heads the well-respected judiciary that is viewed as independent of political influence. The supreme courts are used for civil, business and criminal cases (Economist Intelligence 2003e).

Transparency International ranks Ghana 50th (out of 102) on their Corruption Perception Index (Transparency International 2002). This index is constructed based on surveys and indicates the degree of corruption as perceived by business people and risk analysts. The CPI value is 3.9 on a scale of 1-10 where 10 is highly clean and 1 is highly corrupt. However, there is a relatively large standard deviation in the values given by the various sources indicating that some sources do not perceive Ghana as being that corrupt (5.9) whereas some perceive Ghana as being more corrupt (2.7). Regardless, the rank '50' indicates that corruption is not perceived as being a huge problem.

Natural and Environmental Emergencies

Natural hazards include the dry, dusty northeastern winds that are especially prevalent from January to March and potentially lead to droughts. The recurrent drought in the north severely affects agricultural activities. Other natural hazards that cause damage to food crops are soil erosion, bush fires, line squalls and floods (FAO 2003) Parts of the Central region and especially Accra are especially prone to flooding. In Accra this is due to improper disposal of waste. This results in choking of the main drains. Furthermore, Accra is built on a faultline, which means that from time to time the city is confronted with earth tremors (Economist Intelligence 2003e). Information on the actual impact of these hazards is limited. However, the most widespread hazards are drought, soil erosion and bush fires. The most recent occurrences of drought have been in 1970, 1975, 1977 and 1983/84. Especially the northern Savanna areas are at a greater risk. Due to the increasing deforestation, soil erosion is becoming more widespread. Bush fires occur on a yearly basis in the dryer areas of the country. However, these are caused more by human and cultural factors (FAO 2003).

Other environmental problems include ‘overgrazing, water pollution, inadequate supplies of water’. Intensive poaching and habitat destruction further endangers wildlife populations (AFDB 2003, CIA 2003). The government views the deterioration of urban environment, degradation of urban land, bio-diversity of endangered species and water pollution as serious concerns (AFDB 2003).

Demographic Variables

Currently Ghana has a population of 18.9 million, of which 9.4 million are male and 9.5 million are female. The urban population accounts for 8.2 million and the rural population for 10.6 million. The 2000 population census and housing report showed an average annual population growth rate of 2.7% over the period 1984-2000. This rate is lower than the average 2.9% for West Africa, but is still relatively high in comparison to the 2% average for developing countries (Economist Intelligence 2003e). However, population growth is predicted to be slowing due to declines in fertility and stable mortality rates. Data from the past three years support this. Population growth declined from 2.2% in 1998, to 1.8% in 2001 and 1.6% in 2002 (World Bank 2003d). The CIA (2003) estimates a population growth rate of 1.45% in 2003. Life expectancy is improving and was estimated at 54.9 years in 2002 (World Bank 2003). Ghana has shown a declining trend in undernourishment rates. Between 1979-81, 64% of the population was undernourished; between 1999-92 this had declined to 35% and between 1998-2000 this was only 12% (2.2 million people) (FAO 2000).

The statistical service data further showed that general poverty declined during the 1990’s. The poverty line was set at an income of US\$110 per year and in 1991-1992. Based on this definition, 52% of the population was viewed as poor. However, in 1998-1999, the percentage of the population that is defined as poor was reduced to below 40%. It must be noted that this decline was not evenly distributed geographically. In fact, the decline is attributed to reductions in the Accra and forest regions. Rural income per head is 90% of the national average (Economist Intelligence 2003e).

3.6.3 Ghana and the Agricultural Cluster

Agriculture forms the backbone of the Ghanaian economy. It employs around 60% of the labor force (mainly small landholders) and accounts for 30-40% of GDP (CIA 2003, Economist Intelligence 2003). The major export crop is cocoa. Other export crops include timber and less traditional products such as horticulture, pineapple and fish/sea foods. Due to fluctuations in the world commodity prices, diseases and national hazards, the agricultural sector is extremely vulnerable (Economist Intelligence 2003e).

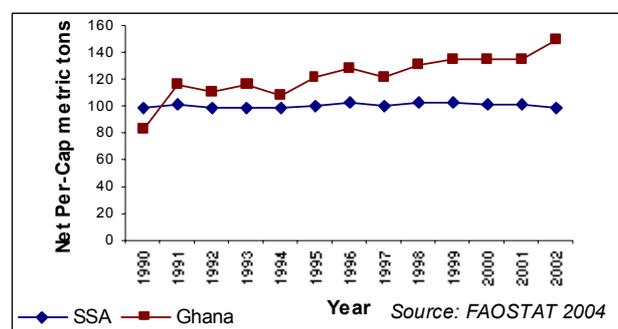
Investments in agriculture

Apart from cassava and rice, food crop yields have not improved very much during the last decade. The main reason for this appears to be poor technology and poor quality of land. The removal of subsidies on agricultural inputs and fertilizers presumably also had an effect. Regardless, the government has included US\$50m in the 2003 budget to be directed towards modernizing agriculture. In this way food security is to be improved whilst import can be reduced. In order to achieve this, the government has established a fourfold strategy. First of all tractor pools are to be created. In this way small landholders can borrow the tractors as needed. Second, the government wishes to promote farm mechanization and intends to achieve this by further developing crop-processing machines. The third element addresses the desired increase of food crop production by restoring broken-down facilities, dams and boreholes. Finally, the government plans to increase the availability of improved seeds and planting materials to farmers (Economist Intelligence 2003e).

Agricultural output

Agricultural output is highly vulnerable and especially reliant on rainfall. Annual outputs are significantly related to weather trends. Nevertheless, on the long-term improvements in agricultural output can be noted. The annual average increase is about 5.6%

(FAO STAT 2004) and this is mainly due to expansions in cocoa and forestry sub-sectors. Government policy is a big contributing factor to this success. Recent public policy removed food price controls, paid the cocoa producers higher prices and improved extension services (Economist Intelligence 2003). The following graph shows the agricultural output (Agriculture (PIN) Net Per-Cap PIN 89-91) for Sub-Saharan Africa and Ghana since 1990. As the graph clearly indicates, Ghana's agricultural output has significantly increased, especially in comparison with the average agricultural output for other Sub-Sahara African countries.



Graph 3.11 Agricultural Output for Sub-Sahara Africa and Ghana

Ghana thus appears to be well on track. Not only is agricultural output significantly increasing, but the government also appears to have recognized the importance of agricultural production and output and is taking the necessary measures to ensure continuing increases in agricultural production and output.

3.6.4 Ghana and the Economic Cluster

At independence, Ghana had the highest per capita income in the region but during the 1970's the economy progressed into a downward spiral and as a result per capita income fell by a third and inflation ran at 100% in 1980 (World Bank 2003b). To reverse this economic decline, a series of policies and programs were introduced to change economic management and boost the economy. The IMF and World Bank aided the

government and the main goals were reducing macroeconomic imbalances and carrying out structural reform of the economy. As a result, the financial sector was liberalized and increased competition among banks actually lead to innovation and economic reforms in the sector (Economist Intelligence Unit 2003e, World Bank 2003b). The latest IMF agreement, “the Poverty Reduction and Growth Facility,” was approved in 2003 and requires the government to tighten its present control on public expenditure as well as keeping the energy prices at full cost-recovery levels (IMF 2004). Regardless, through these programs, successful macro-economic management and growth across several sectors are very likely. A strengthening of the Ghanaian economy is thus well possible (Ford 2003).

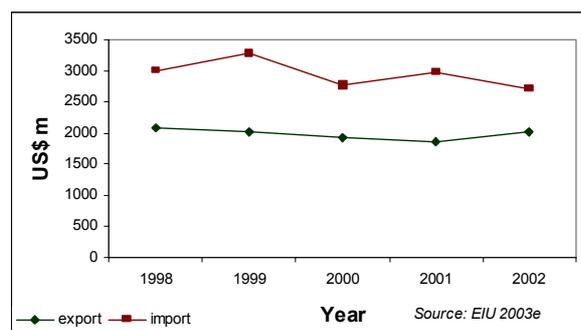
GDP

As a result of these reforms, GDP has grown significantly over the past two decades. Between 1995 and 1999, GDP growth averaged as much as 4.4% per year. However, due to the collapse of the national currency (cedi) and corresponding macroeconomic instabilities, GDP growth slowed to only 3.7% in 2000. It did rise to 4.2% in 2001, but this is still below the target of 5% annual GDP growth. In 2001 the highest GDP growth was noted in the services sector (5.1%) (Economist Intelligence Unit 2003e). The Ghana Statistical Service estimated real GDP growth of 4.5%. Especially promising was the 4.4% GDP growth in the agricultural sector herewith exceeding the target of 4.1%. The suggested explanation is an increase in crop and livestock output partly due to effective crop-spraying programs. Annual average GDP growth between 1998-2002 is thus 4.3% (Economist Intelligence Unit 2003e). GDP per capita at purchasing power parity per capita in 2002 was estimated at \$2000 (CIA 2003).

Trade

With respect to trade Ghana is very typical of African nations. It historically has had a large trade deficit and is dependent on a few primary products, notably gold, cocoa and

timber. The extent of this dependency becomes very apparent when comparing the export earnings with the output of these primary products and the international price fluctuations. In 1983, cocoa was responsible for 53% of the export earnings, but in 2001 this was only 17.1%. This implies that the country is now far less vulnerable to weather extremes that could potentially reduce the harvest yields. Gold, on the other hand, increased from 15% in the mid 1980's to as much as 34% in 2001. Non-traditional exports have also significantly increased, now accounting for 23% of total export earnings. The main export trading partners are the Netherlands (cocoa), United Kingdom and the United States. Import levels are primarily set by domestic demand. Import values are determined by a number of trends including international prices for manufactured items, exchange-rate policy and foreign-exchange reserves. Ghana's import levels are not very sensitive to changes in oil prices, for the import of oil only accounts for 10% of total imports. Nigeria is the main trading partner, from where Ghana imports its oil. Since 1995 Ghana has had a trade deficit and the current trade balance in 2002 was –US\$ 690. The following graph illustrates the trade trends over the past five years.



Graph 3.12 Export / Import Trends for Ghana 1998-2002

With respect to annual averages, a slightly declining trend was noted in imports between 1998-2002 of 98.6% which translates into an average annual value change of –US\$71.6m.

Foreign Aid and Foreign Direct Investment

The successful and peaceful transition of power following the 2000 elections was a motivation for donors to increase the amount of development assistance from US\$ 494 in 1997, to US\$609m in 2000, to US\$651m in 2001. History has shown that the donors have also responded well to economic reform programs being on track and that the actual amount of foreign aid is highly dependent on government policies in general. Bilateral aid is received primarily from the Netherlands, US, UK and Denmark. Multilateral aid is received from IDA, ADF and EC. Official development assistance as well as grants have been increasing significantly since 1997 (Economist Intelligence Unit 2003e).

Foreign Direct Investment increased significantly in 1993. During that year the inflow of US\$125m was five times the annual amount of the previous years. The year after, FDI almost doubled to US\$233m and reached a peak of US\$244m in 1999 (Economist Intelligence Unit 2003e). In 2000, FDI inflow declined to US\$115m and in 2002, FDI inflow was only US\$50m. On average between 1997 and 2002, the annual average change in absolute value terms was US\$47m (UNCTAD 2004d). These big changes are attributed to irregular investments in mining projects and the effects of privatization-linked investments (Economist Intelligence Unit 2003e).

3.6.5 Ghana Conclusion

Overall, Ghana seems to be improving in all three clusters of variables. The proportion of the population that is undernourished as well as the proportion of the population living below the poverty line is significantly decreasing. Population growth appears to be slowing and there have not been any major environmental emergencies in the last two decades. Furthermore, the government appears to be on the right track with public and economic

policies. Except for the significant decrease in FDI, the Ghanaian economy seems to be well on the road to recovery as all the other indicators show significant improvements.

The descriptions of variables are summarized in table 3.5.

Table 3.5 Summarizing Variables for Ghana

Variable	Description
1. Undernourishment Rate	12% (2.2 million people) (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Decrease (23%) (1990-1992 / 1998-2000)
3. Political Situation	Constitutional democracy.
4. Rank on corruption index	50 (2002)
5. Environmental Emergency	Most significant hazard is drought. Last drought was 1983/84
6. Life expectancy at birth	54.9 years (in 2002)
7. % of population below poverty line.	Decreasing: 52% in 1991-92 to below 40% in 1998-1999
8. Population growth	1.87% between 1998-2002. Rate is slowing though, 1.6% in 2002
9. Amount of resources to agriculture	Government budget US\$ 50m (2003)
10. Agricultural production and changes	Increasing agricultural output. Annual average 5.6% from 1990-2002.
11. GDP Growth %	4.5% in 2002, average 1998-2002 = 4.3%
12. Purchasing Power Parity	\$2000 (2002)
13. Increase in imports	Decrease: 98.1% (average 1997-2001)
14. Trade Balance	-US\$ 690 (2002)
15. Foreign aid	Increasing: US\$651m in 2001
16. FDI	Reached peak in 1999 of US\$244m, but fell to US\$50m in 2002. Average annual value change is US\$47m (1997-2002)
17. Previous period good or bad?	Previous economic period bad, recovery due to policies and programs.

3.7 Liberia

3.7.1 Introduction

Liberia is one of the few countries in Africa that was never officially a colony. However, strong ties with the United States have always existed. This dates back to the early nineteenth century when US philanthropic organizations bought the land and used it as a place to

**"What's this I continue to see
All ov'r the place in the bloodbath race
Rocket shells, no place to dwell
The masses are injured or dead
Thousands are displaced while others lie on sick beds
My land has turned bloodily red
Through the work of unrelieved hate
And we face a very pitiable fate
We need America's Bush
To lend us a redemptive push
And save our nation's life
From utterly diminishing prey to established strife
That cause us to prematurely rush
Here and there, only to our untimely graves."
(Gonkerwon 2003)**

send black citizens who were believed to be a threat to slavery. These 'free slaves' came to Liberia as early as 1821 and established the republic of Liberia in 1847 (Economist Intelligence Unit 2003f). Liberia, like Angola, Chad and the DRC was also faced with a civil war and this came to an end in 1997 with the establishment of free and open legislative presidential elections ending the authoritarian regime of Mr. Doe (Economist Intelligence Unit 2003f). Eight years of civil war killed over 150,000 people and significantly harmed the iron-ore and rubber based economy (Tordoff 1997). The situation is still pressing. On August 11th 2003 the then reigning president Charles Taylor was forced to resign by regional and international institutions for he was believed to have aided war criminals in neighboring Sierra Leone. Taylor went into exile in Nigeria. The country is currently led by the vice-president Moses Blah and a two-year transitional parliament (Economist Intelligence Unit 2003f).

Liberia is located on the West Coast of Africa bordering Cote d'Ivoire, Sierra Leone and Guinea. The total land area is 111,370 sq km. Liberia also has a tropical climate implying hot, humid and dry winters and wet, rainy summers. Due to the geographical location on the

North Atlantic Ocean, the country has a coastline with lagoons, swamps and sandbars. The most significant natural resources include iron ore, diamonds, gold, timber and hydropower.

3.7.2 Liberia and the National Shock Cluster

The Political Dimension

Liberia is an exception not merely because the country was officially never colonized, but also because it was the only country in Africa that had a political party prior to 1945 (Tordoff 1997). In fact, the True Whig Party formed by Americo-Liberians, ruled for almost 130 years but came to an end in 1980 when a group of indigenous soldiers led by Master-Sergeant Samuel Doe assassinated the president and established a fifteen-member military People's Redemption council. The regime was brutal and authoritarian, leading to opposition and attempted coups. However, the latter only led to executions and detentions. Doe won the supposedly multiparty democratic elections in 1985 with a tiny majority, but it was believed that the elections were a fraud. On December 24th a small group of rebels led by Mr. Taylor formed the National Patriotic Front of Liberia (NPFL) and a civil war was inevitable. Despite peace attempts by members of the Economic Community of West African States (ECOWAS), the rebels were able to capture Mr. Doe and torture him to death in late 1990. Several peace talks followed and in 1997 the United Nations declared the disarmament processes completed.

However, in 1999, a new rebel front, Liberians United for Reconciliation and Democracy (LURD) entered Liberia leading to more instability and resulting in fighting with the government. In 2001, fighting intensified, and the civil war erupted again in 2002. Despite attempted peace talks, fighting had spread to eleven out of thirteen counties by March of 2003. Furthermore, a new rebel group, Model, emerged. This group was backed by Cote D'Ivoire whilst LURD gained the support of Guinea. Both governments of these countries opposed Mr. Taylor because they felt that his regime caused the conflicts in their countries.

Mr. Taylor furthermore received opposition from the United Nations who accused him of aiding war criminals in Sierra Leone as well as failing to comply with the imposed weapon sanctions. These internal and external pressures led to the downfall of Mr. Taylor and on August 11th 2003 he handed power over to his vice president and went into exile in Nigeria. A week later peace talks were held in Accra between the government, LURD and Model and an interim administration was established. A Monrovia businessman, Mr. Bryant, was elected as head of the two-year transitional government that also includes consists of representatives from all three parties. The Accra peace agreement amongst other things calls for elections in 2005, the distribution of humanitarian aid, the promotion of electoral reform and the use of multilateral force to secure the cease-fire. The UN formed a targeted mission in September 2003 consisting of a 15,000 man peacekeeping force (Economist Intelligence Unit 2003f).

Transparency International (TI) does not rank Liberia on its corruption index. This is presumably due to the fact that insufficient reliable information is available as a result of the civil war. TI requires at least three sources and/or surveys (out of fifteen) to be available for any country and corresponding assessment to be considered sufficiently reliable (Transparency International 2002).

Natural and Environmental Emergencies

The main natural hazard is the dusty winds that blow from the Sahara especially between December and March. However, especially compared to the devastating effects of the fighting, the actual noted harmful effects of these winds over the past decade are minimal. Other current environmental issues include soil erosion, the loss of biodiversity and the pollution of especially coastal waters as a result of oil residues and sewage (AFDB 2003, CIA 2003). Tropical deforestation due to the intensifying timber industry is increasingly becoming an environmental concern. If logging is not done in a more sustainable matter, serious

problems are likely during the next fifteen years as forestry reserves will be more and more exploited (CIA 2003, Economist Intelligence Unit 2003f).

Demographic Variables

The war has had significant negative effects on the humanitarian conditions in Liberia. Prior to the war the nutrition and health care levels were above the Sub-Saharan African average, but currently this is no longer the case. For example, before the war, it was estimated that there was one doctor per 9000 people and one nurse per 1400 people. However, after the war this had changed to only 0.2 doctor per 10,000 people (World Bank 2003). The war also impacted population growth. Pre-war annual growth between 1980-1987 was estimated at 3.3%, but between 1990 and 2000 the annual growth percentage had decreased to 2.5%. Average population growth between 1998-2002 was 2.8%. This decrease was attributed to lowering birth-rates and increasing mortality rates. In fact it was estimated that 5% of the population was killed during the civil war conflict. Furthermore, due to the civil war urbanization increased and refugees increasingly fled the country (Economist Intelligence Unit 2003f). In 2003 the population was estimated at 3.3m (CIA 2003).

The trends in life expectancy also mirror the effects of the civil war. In 1960, life expectancy was 41 years, and this gradually increased to 54 years by 1985-1990. During the war period, life expectancy was only 39 years (Economist Intelligence Unit 2003f). However, life expectancy has been steadily increasing and was estimated at 48 years in 2003, which equals the Sub-Saharan African average life expectancy (CIA 2003, Economist Intelligence Unit 2003f). The war devastated the economy. As a result, as much as 80% of the population currently lives below the poverty line (CIA 2003). Between 1998 and 2000, one million people were undernourished, equaling 39% of the population. In comparison to the 33% in 1990-1992, undernourishment rates have thus increased (FAO 2002).

3.7.3 Liberia and the Agricultural Cluster

Prior to the war, agriculture was not only the backbone of the Liberian economy but also the key to food security and poverty eradication. Eighty percent of the population depended on farming prior to the conflict (United Nations and World Bank 2004). Agriculture still forms a large part of the Liberian economy and accounted for 51% of GDP in 2002. Even though this was a decline from 64% of GDP in 1998, agriculture clearly plays a dominant role in the Liberian economy (Economist Intelligence Unit 2003f). In 2000 it was estimated that the agricultural sector employed 70% of the labor force (CIA 2003). Given the vast amount of natural and especially mineral resources available, Liberia has a very good agricultural climate. Prior to the war, Liberia was a producer of several raw materials and cash crops, of which timber and rubber were most significant (CIA 2003). Rubber remains the most important cash crop but is closely followed by cocoa, coffee and palm oil. However, the war has had adverse effects on agricultural production as it forced many farmers off their land.

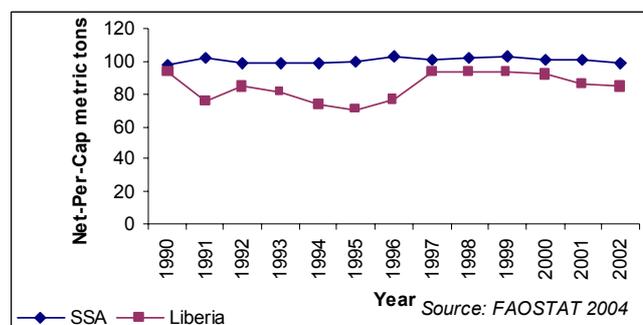
Investments in Agriculture

Given the fact that Liberia currently has a transitional government and has only recently begun to construct some form of policy, reliable government documents with respect to budget and investments in agriculture could not be obtained. However, a report written by the United Nations, World Bank, IMF and the National Transitional Government of Liberia, does give insight into the intended policy. The report was written in preparation for a February 2004 conference debating the best strategy for the transitional Liberia. Inputs were taken from the four parties as well as line ministries, NGO's and other stakeholders. The report addressed thirteen key areas that demanded improvement, one of them being food security and agriculture. The main cause of low post-war agricultural production was the lack of seeds and tools available. The report thus calls for a strategy to decrease the free food distribution and instead the stimulation of self-reliance by providing the necessary inputs,

supplies and capacity building. Seeds and tools are to be provided to 70,000 families, breeding livestock is to be distributed and supporting government capacity for coordination and policy formulation is to be created. The committee budgeted US\$25.5 million to achieve these needs for the years 2004-2005. It is hypothesized that, if this strategy is successfully implemented, food aid can be significantly reduced by the year 2005 (United Nations and World Bank 2004). The government itself has limited funding as military spending by the Taylor government during the civil war has emptied out the reserves (Economist Intelligence Unit 2003f).

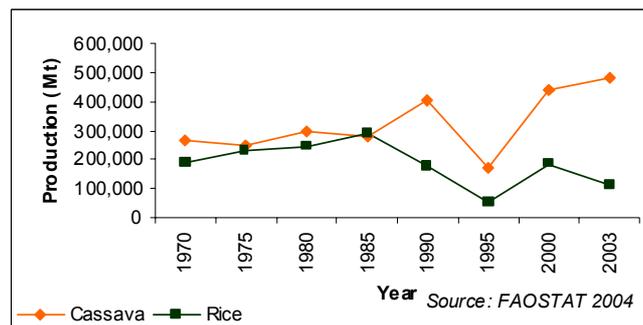
Agricultural Output

The civil war conflict has severely constrained agricultural production. For example, currently only 10% of the 4.6 million hectares of arable land is cultivated. Low agricultural production is not due to there being insufficient land available but rather to the fact that the war not only devastated many farms but also forced farmers off their land. Many rubber, cocoa and coffee plants have been abandoned. Small-scale farmers now have to re-establish their farms and livelihoods. However, in 2003 for example, many farmers were not able to cultivate due to loss of seeds, tools and livestock. Fishers no longer have the equipment to fish (United Nations and World Bank 2004). In comparison with other Sub-Saharan African countries, actual agricultural output is below average. Between 1990 and 2002 there was no average annual growth, the growth peaks balanced out the declines (FAOSTAT 2004).



Graph 3.13 Agricultural Output for Sub-Sahara Africa and Liberia 1990-2002

The graph further clearly shows how the trends in agricultural production follow the civil war. Between 1997 and 2000 agricultural production was close to the Sub-Saharan African average. This was precisely the period between two conflicts. A closer look at the production output of cassava and rice over the past thirty years also confirms the tremendous decline in agricultural production during the latter parts of the ‘first’ civil war.



Graph 3.14 Liberian Production of Cassava and Rice 1970-2003

Rice is supposed to be the country’s main staple crop, but as the graph indicates, yields have been low. Whereas cassava outputs show an overall-increasing trend (with the exception of the 1995 dip), rice production has been fluctuating and has not yet reached its pre-war output. In fact, most of the food imports are rice and the three main importers supply 90% of the country with rice.

As the report by the United Nations and World Bank (2004) in collaboration with the National Transitional Government of Liberia (NTGL) thus concluded, supplying farmers with the necessary inputs to rebuild the farms and allow crop yields is essential. If farmers are able to plant seeds in 2004 and harvest some crops, food security can be significantly improved in 2005. The country clearly shows how devastating war can be, not only with respect to government policies but especially with an eye to actual damage to the land and displacement of farmers. Thus, in order to reduce undernourishment rates and improve food security,

resources must be directed towards supplying the necessary inputs and establishing adequate supporting government policies.

3.7.4 Liberia and the Economic Cluster

The economy is based on agriculture, rubber, mining and timber. Nonetheless, the civil war left little of the economy. Not only did the fighting physically destroy large parts of the infra-structure, but Liberia was also faced with several trade embargo's when President Taylor was still in power (IMF 2004). For example, in May 2003 the UN posed timber production and export sanctions on the country because the government failed to comply with weapon sanctions (Economist Intelligence Unit 2003f). At a time when economic activity was already minimal, these sanctions had severe impacts. Furthermore, during the civil war many elites had fled the country taking with them capital and expertise. It is suggested that the restoration of the infra-structure is essential in rebuilding the war-torn economy. Furthermore, robust macro-and micro- economic policies must be established. These should include the encouragement of FDI and the continuing support from donor countries (CIA 2003, IMF 2004). The NTGL has taken some steps in order to improve the current economic situation. Efforts have been made to strengthen revenue collection and resume some form of budgeting process. Also, the import of rice has been liberalized (IMF 2004). Prior to liberalization, the three main rice importers constructed rice monopolies by increasing the margin between domestic and international rice prices between 1999-2001 (Economist Intelligence Unit 2003f).

GDP

In the 1960's and 1970's the Liberian economy was heavily dependent on iron ore and rubber exports. Annual GDP growth was almost 9% during this period. However, during the late 1970's, global demand for iron ore and rubber declined drastically and annual GDP growth decreased to 1% (Economist Intelligence Unit 2003f). According to data published by

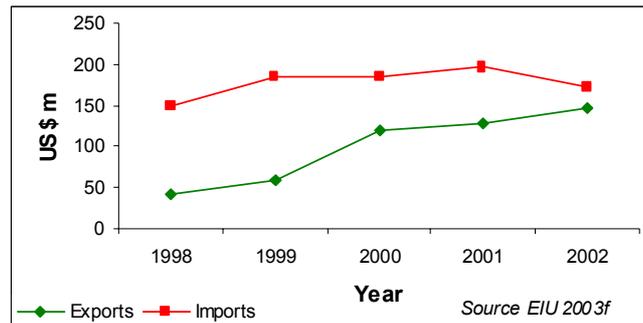
the IMF and the Liberian government, though domestic production has increased following the end of the conflict, it remains at only one-third of pre-war levels. Similarly, during the ‘peaceful’ years between 1997 and 2000, real average annual GDP growth was 22%. However, following the outbreak of more conflict in late 2001 and 2002, GDP growth fell to 4.9% in 2001 and 3.3% in 2002 (Economist Intelligence Unit 2003f). Real GDP growth is estimated at 2% for 2003 (CIA 2003). Furthermore, the GDP growth in 2001 and 2002 was not widespread throughout the economy at all. In 2001 growth was due to increases in agricultural output (especially cash crops), whereas in 2002 the growth was largely owing to a 21% real growth in timber outputs. The mining sector, for example, recorded a –75% annual GDP growth rate for these two years. GDP per capita at purchasing power parity was estimated at \$1000 during 2002 (CIA 2003).

Trade

Liberia has traditionally had an open economy with trade accounting for as much as 80% of GDP. As a result of such an open economy, the economy is very vulnerable to external factors. It must be noted that caution is in order when analyzing trade data as exact data were hard to determine, especially towards the end of the civil war. This was primarily due to the nature of the Taylor regime that enabled smuggling. Furthermore, militias engaged in the un-official export of iron, diamonds, rubber, coffee and timber. Before the war, iron ore was the largest export commodity, however in 2001 and 2002 timber and rubber together accounted for 96% of the exports (Economist Intelligence Unit 2003f). Other export commodities include coffee, cocoa, diamonds and iron (CIA 2003). Accounting for 55% of all exports, Germany is the largest export partner². Smaller export partners include Poland, France, China, Italy and the United States (CIA 2003, Economist Intelligence Unit 2003f). Food and fuel remain the largest import commodities accounting for respectively 33% and

² It must be noted that this is based on IMF data. Caution is in order as these data were based on the recording of shipping registrations as exports to Liberia from the country of origin. The Liberian government indicates that the United States remains the largest exporter with 54%

20% of all imports both in 2001 and 2002 (Economist Intelligence Unit 2003f). Other imports include machinery, chemicals, transportation equipment and manufactured goods (CIA 2003). The main import partners are South Korea, Japan, Germany, France and Singapore (CIA 2003, Economist Intelligence Unit 2003f). The following graph shows the trade trends over the past five years.



Graph 3.15 Export/Import Trends for Liberia 1998-2002

The graph shows how the civil war also impacted trade. Between 1997 and 2001 exports increased and this was presumably due to the temporary halt of violence. Data for 2003 are not available but given the imposed UN sanctions on exports, a decreasing trend line is expected. Surprisingly the graph indicates that imports are also declining. In the long-term this is expected as aid agencies have argued that the country needs to be made more agriculturally self-sufficient. Thus food imports are like to decrease causing overall imports to decrease. However, it is also likely that between 2001 and 2002 imports decreased because this is when fighting erupted, presumably impeding trade. On average between 1997-2002, imports did increase slightly (4.7%) (Economist Intelligence Unit 2003f).

Foreign Aid and Direct Investment

In the 1980's, during the Doe regime, many donors briefly suspended aid due to the debatable human rights situation. Donors have also been reluctant to provide foreign aid during the Taylor regime for a number of reasons; the donors strongly disapproved of the

(2001) and 42% (2002) of exports. However, given the state of the country, the government data are not likely to be reliable either. Since the

human rights abuse as well as the involvement of the Liberian government with rebels in Sierra Leone. The donors were furthermore concerned with the revenues from timber that appeared to go directly to Mr. Taylor's pocket. Finally the donors were discomforted by poor government policy, and general lack of transparency arguing instead that the government was largely to blame for a lack of economic growth. During the civil war bilateral aid, mainly by the US, Netherlands and Germany, stagnated. Following the conclusion of the war, the United Nations' emergency relief and multilateral aid became more prominent. However, despite the obvious need for aid, donors have been very selective and limited in providing assistance favoring specific humanitarian relief and reconstruction projects under their own control. The data are consistent with this: in 1996 overseas development aid was US\$171m, compared to only a mere US\$37 m in 2001. Nonetheless, now that the new transitional government has been formed, it is very likely that aid funds will also increase. In any case the government will need to put efforts into building reliable relationships with international financial institutions and donors so that more aid can be obtained. If this is targeted at rebuilding the economy and infra-structure, this could significantly alleviate poverty and thus reduce undernourishment rates (Economist Intelligence Unit 2003f).

Since 1997 foreign direct investment has increased significantly in the timber sector where now twenty-five logging corporations are active (Economist Intelligence Unit 2003f). FDI inflow increased reaching a peak of US\$256 in 1999; however, since then FDI inflows have been negative. In fact, in 2002 FDI inflow was -US\$65m. As a result, the average annual change in absolute value terms between 1997 and 2002 was -US\$4.5m (UNCTAD 2004d).

3.7.5 Conclusion Liberia

This case study has shown that in all three clusters of variables, Liberia scores very poorly. Especially alarming is the fact that there is no growth in agricultural output.

Furthermore, annual GDP growth is a low 2.2%. This is even below the Sub-Saharan average of 2.9% (World Bank 2003d). Decreasing foreign aid, despite an obvious need for assistance is also troublesome. However, this case study analyzes the period prior to the formation of the transitional government. It is hypothesized that this formation of the NTGL will yield significant improvements in all three clusters. Not only will foreign donors be more eager to provide assistance, but robust government policies are likely to rebuild the infra-structure and more general the economy. Targeted policies will further presumably significantly increase agricultural production and thus improve food security and reduce undernourishment rates.

Table 3.6 Summarizing Variables for Liberia

Variable	Description
1. Undernourishment Rate	39% =1 million people (1998-2000)
2. Decrease / Increase in Undernourishment Rate	Increase (7%) (1990-92/ 1998-2000)
3. Political Situation	Transitional Government
4. Rank on corruption index	Not ranked
5. Environmental Emergency	Most significant hazard is dusty winds. Destruction due to violence biggest emergency.
6. Life expectancy at birth	48 years (2002)
7. % of population below poverty line.	80% (2002)
8. Population growth	2.5% between 1998-2002
9. Amount of resources to agriculture	N.a.
10. Agricultural production and changes	-0.3% growth. (1990-2002)
11. GDP Growth %	22% between 1997-2002, 3.3% in 2002
12. Purchasing Power Parity	\$1000 (2002)
13. Increase in imports	Slight increase 104.6% (1998-2002)
14. Trade Balance	-US\$ 25.6m (2002)
15. Foreign aid	Decreasing: US\$ 36.9m (2001)
16. FDI	Decreasing: -US\$4.5m (av 1997-2002)
17. Previous period good or bad?	Previous period bad due to civil war.

Chapter 4 – Analysis of the Case Studies

4.1 Introduction

The previous chapter has presented six case studies of African countries. The variables studied for each country were based on the hypothetical framework that was developed following the review of the literature in chapter one. This chapter will now seek to analyze the obtained results and determine whether any generalized statements with respect to these variables and their effects on undernourishment rates can be made. Are there for example variables that are more influential factors than other variables? Are there any variables that based on the literature were expected to be significant, but that based on the empirical research were less significant? A brief summary of each country will be presented in the next section, relating each case study and its results more specifically to undernourishment rates. Section 4.3 will discuss the case study results based on Ragin's qualitative case study methodology. These results will then be discussed in light of the hypothetical theoretical framework in section 4.4, finally the main conclusions will be addressed.

4.2 Country Summary

4.2.1 Angola

Despite 50% of the population being undernourished, Angola is ranked as a best performer according to the FAO (2001a). The country has made progress in that a decrease of 9% was recorded. However, this decrease was calculated based on the rate in 1990-1992, a time when the country was still confronted with its civil war. During any civil war, it is likely that the general welfare in the country declines. Given that the country had been fighting a civil war for almost twenty-five years, it seems valid to conclude that the general welfare was low and that undernourishment rates as a result were higher. Furthermore, this case study also

illustrated the importance of good governance in that foreign aid for example was declining because the donor countries felt that the government was not adequately executing its policies and could obtain far more structural reform if the oil revenues were used more effectively. The government functions poorly leading to corruption and poor budgeting resulting in the lack of, for example, investments in agriculture. Striking nonetheless is that Angola scores very high in the economic cluster of variables. The economy is growing and GDP per head is comparatively high and the amount of FDI inflow is increasing. As the analysis of the economy showed, this economic boost is due to the oil sector that presently accounts for 61% of GDP but owing to governmental mismanagement, minimal benefits are generated for the whole country. In sum, this case study shows how one commodity (oil) can significantly boost the economy, but without effective government governance, these improvements will not benefit the general population. This case also showed the disastrous effects of civil war on all three clusters of variables.

4.2.2 Botswana

Botswana is considered the African miracle despite showing an increase in undernourishment rates. However, with only 25% of the population being categorized as undernourished, this percentage is far lower than that of the 'best' performers Angola (50%) and Chad (32%). It appears as though the 'miracle' is mainly attributed to the economy in that Botswana transformed from one of the most impoverished countries in the world to a dynamic middle-income economy owing to adequate government policy and the diamond exports. Botswana shows that a valuable commodity in combination with a purposive and effective state can lead to economic growth and development. Nonetheless, despite the economic success, there are some significant problem areas. Life expectancy is extremely low and this is also due to the extremely high HIV/AIDS prevalence. Furthermore, the boost in the economy is not distributed evenly as almost half the population lives below the poverty line.

Furthermore, despite government investments, domestic food production can only provide one-third of the total consumption needed. In sum this case study thus shows how important good governance is. It is hypothesized, for example, that without the current government policies and investments in HIV/AIDS and agricultural production, the situation would be far worse. Still, the case of Botswana clearly indicates that economic success does not necessarily imply general welfare.

4.2.3 Chad

Chad is ranked number two on the 'best' performer list with respect to undernourishment rates as these declined by as much as 26% leaving 32% of the population undernourished. Nevertheless, thirty years of civil war and economic mismanagement have made Chad one of the least developed and poorest countries in the world. The political instability has limited progress in the social services resulting in extremely low social standards and a very poor infrastructure. The economy has traditionally been very dependent on agriculture and as owing to fluctuating weather conditions, the economy has been very vulnerable and has shown only minimal growth. Similar to Angola, it is thus speculated that the decreasing undernourishment rates classifying Chad as a best performer are mainly due to the previous period being so bad due to the violent upheaval. However, on the other hand the general trend of improvement is likely to continue due to the Doba oil project that commenced in 2000. This not only resulted in drastic FDI inflows, but also created jobs and has the potential to boost GDP growth to 40% in 2004. Furthermore, the dependency on agriculture can be reduced and thus the general economy will be less vulnerable. Whilst oil revenues certainly have the potential to make the economy, it will depend on government policies to determine whether this will be the case. If oil revenues are spent on poverty reduction and social service programs rather than on weapons, general welfare can be improved. This case study thus also shows the importance of good governance and the

harmful effects of civil war. It also shows that in this case the decline in undernourishment rates cannot really be attributed to improvements in any one cluster of variables or one specific variable. For example, imports and FDI inflow have increased significantly, but this does not explain decreasing undernourishment rates as these were both related to the Doba oil project. Nevertheless, they may indirectly affect future undernourishment rates if they lead to economic growth and improvements in social welfare. In sum, this case study illustrates the importance of analyzing all three clusters of variables when attempting to explain changes in undernourishment rates.

4.2.4 Democratic Republic of Congo

The DRC is the ‘worst’ performer on a global scale showing an increase of 39% resulting in an undernourished population of 73%. Again the importance of governance is illustrated. Since independence, DRC was faced with two authoritarian leaders who let private interests prevail over public interests. The significance of this can be derived from the agricultural cluster. Despite an abundance of natural resources and a good climate with plenty of rain, agricultural output is very poor and shows a decreasing trend. The study has indicated that there are three main reasons for this poor performance notably the neglect of the government, the failure to invest in technological development and the poor infrastructure. All these three reasons can be traced back to poor governance. The civil war also impeded agricultural production. Especially the production of coffee suffered as rebels controlled the coffee production in the East. A similar conclusion can be drawn when examining the economic cluster. The economy collapsed in the 1990’s and this was due to incompetent economic policies and the civil war. Foreign aid significantly decreased due to the poor governance. However, the newly introduced transitional government in 2001 paints a rosier picture. It has taken stabilizing measures and in 2002, GDP growth and increases in FDI inflow and foreign aid could be noted suggesting external partners have more confidence in

the government and the economy. It will be interesting to see if this new transitional government yields improvements in the three clusters of variables. Regardless, in sum this case study also points to the importance of good stable governance and the harmful effects of civil wars. Furthermore, DRC scores poorly in the agricultural sector, but shows mixed results in the other two clusters thus suggesting a possible correlation between increasing undernourishment rates and poor agricultural performance.

4.2.5 Ghana

Ghana is another African country that is high on the ‘best performer’ list (rank 3) as undernourishment rates decreased by 23% leaving 12% of the population undernourished, one of the lowest proportions in Africa. Like Botswana, Ghana also has the strength of a good functioning and in theory a democratic government. However, this case study shows that good governance does not equal economic growth by definition. Even though Ghana scores well on virtually all the variables, the country is recovering from a poor economic period. The new government is now actively working towards recreating the economy and is becoming more successful. Agriculture is the backbone of the Ghanaian economy and despite having an increasing agricultural production growth rate that far exceeds the Sub-Saharan African average, its potential has not yet been reached. This is primarily the result of poor technology and poor quality of the land. The government has allocated more resources towards modernizing resources to ensure future food security and food spraying, for example, has certainly increased agricultural output. Thus it is expected that the declining trend in undernourishment rates will continue in the future. The peaceful transfer of power in 2000 will further add to this as it stimulated more donor countries to become involved again. FDI inflows are fluctuating due to changing mining demands but are also likely to increase again. In conclusion, despite its economic crisis, Ghana performs well in all three clusters of

variables. It seems reasonable to conclude that this is due to the fact that the country did not have to fight a long civil war and had relatively good governance.

4.2.6 Liberia

The case study of Liberia again shows how devastating a civil war can be and how these harmful effects can continue if no adequate (governmental) policies are followed. Liberia showed an increase of 7% in undernourishment rates resulting in 39% of the population to be undernourished. Despite being the only country studied that was never a colony and thus not having to fight wars of independence, Liberia was also faced with a civil war in 1985 and this lasted until 1997. However, the situation remains pressing and the reigning president Taylor was forced to resign and was replaced by a two-year transitional government. Prior to the war general nutrition and health care levels were far above the Sub-Saharan African average but current conditions are very poor. Furthermore, before the conflict, agriculture was not only the backbone to the economy, but was the key to food security and poverty eradication. However, post-war only 10% of the arable land is cultivated due to the war devastating farms as well as forcing farmers to leave. Similar devastating effects were noted with respect to the general economy. The physical infrastructure was damaged, elites fled the country with expertise and capital and owing to poor governance, trade embargoes were enforced. However, now that the transitional government is in power donors have become more eager to contribute and FDI inflows are gradually improving. In sum, the country generally scored poorly across the three clusters but especially in the agricultural cluster. Again the poor performance has its roots in more than a decade of civil war and the absence of a good functioning government to minimize the harmful effects and rebuild the country.

4.3 Analysis of Results

4.3.1 Allocation of the variables

In order to transform the results of the case studies into the suggested format for Ragin his qualitative case-oriented research strategy (see chapter 2.3) a ‘0-1’ is necessary to facilitate the methods of agreement and indirect measures of disagreement. Bearing in mind the hypothesized effects of the variables on undernourishment rates, a (1) was allocated if a positive effect was expected and a (0) was allocation if a negative effect was predicted. For the variables: **agricultural production**, **average imports**, **foreign aid** and **average FDI**, a (1) was allocated if an increase was noted and a (0) was allocated in the case of a decreasing value. For the variables: **proportion of the population that is undernourished** and **average population growth**, the results were ranked and the lowest three percentages were allocated a (1) and the highest three percentages were allocated a (0). For the variables **GDP growth**, and **GDP per capita** the same ranking methodology was used, only in this case the highest three values were assigned a (1) and the lowest three values were allocated a (0). For the variable **political crisis** a (1) was allocated in the case of a peaceful decade between 1990-2000 and a (0) in the case of a civil war. Similarly in for the variable **environmental crisis** a (0) was allocated if there was no significant environmental crisis since 1990 and a (1) to the countries that did have a significant crisis. If **resources were allocated to agriculture** a (1) was assigned and if no resources were allocated a (0) was given. Finally if the previous period had been ‘bad’ a (0) was allocated and if it was good (1). (See appendix 1 for a complete overview).

This section will discuss the results based on two comparisons. The research showed that best performer countries not always have the smallest undernourished proportions of the population. Therefore in order to make accurate statements about the effects of the variables on undernourishment in general, it is necessary to analyze the results according to two

separate classifications. First the different effects of the variables will be analyzed based on similarities and differences according to the best and worst performer classification. It is thus examined whether the research confirms the hypothesized theoretical effects. The second comparison will follow the same approach but will examine the differences in results based on the actual proportions of the population that is undernourished. The distinction will be based on a rank of the lowest and highest three undernourished proportions of the populations. This will allow a more accurate discussion of the results and will also indicate which of the two classifications, the dynamic or static approach, is more adequate in explaining undernourishment.

4.3.2. Discussion of the Results According to Best-Worst Performer Comparison

As discussed, the FAO in its State of the World Food Security reports (FAO 2001a, 2002), ranks countries based on the changes in undernourishment rates. This section will thus focus on this more dynamic classification and draw conclusions with respect to the effect of each cluster of variables on actual undernourishment rates.

The Natural Shock Cluster

Based on these results, the variable **political crisis** would not suggest to be very significant in that both in the best and worst performing group there are two countries who have been faced with a war and one country that has not been faced with a war. Of the four countries in the sample that have been involved in a civil war, two have been able to improve their undernourishment rates, whereas two have significantly worsened the situation. In fact, one is the global leading worst performer (DRC) and one is the second ranked best performer (Chad). Hence it appears to be valid to conclude that a past civil war does not determine the recent directions of change in undernourishment rates. As the cases of Chad and Angola

show, despite having fought civil wars, improvements can be noted. Furthermore, the case studies have illustrated how a civil war affects all three clusters of variables but that it depends on other elements such as good governance to determine how lasting and harmful these effects will be. Therefore it is concluded that the presence of a civil war does have an effect on changes in undernourishment rates.

Table 4.1 Best/Worst Performers and Natural Shock Cluster

Country	Decr/ Incr Undernourishment Rates	Political Crisis (Civil War) **	Environmental Crisis ***	Life Expectancy***	Population Growth ***
Angola	1	0	0	0	0
Chad	1	0	0	0	0
Ghana	1	1	1	1	1
Botswana	0	1	0	0	1
DCR	0	0	1	1	0
Liberia	0	0	1	1	1

** = One inconsistency with hypothesis
*** = Inconsistent with hypothesis

The presence of an **environmental crisis** does not seem to have a significant effect on undernourishment rates. In fact, two out of three best performers and only one worst performer were confronted with severe drought. The case studies have shown how drought can result in famine, but as the results indicate the actual effect on undernourishment rates is minimal. Similar conclusions can be drawn when analyzing the **life expectancy** variable. Only the best performer Ghana has a higher life expectancy owing to the general state of welfare in the country. The other two best performers have a comparatively lower life expectancy. Life expectancy as such does not appear to have an effect on undernourishment rates.

The literature suggests that **population growth** increases the demand for food and challenges the supply and distribution systems, thus resulting in a possible increase in undernourishment rates. Again this sample seems to show the opposite, as the two highest population growth rates (Angola and Chad) are best performers. However, it must be taken into account that the lowest population growth rates were in the two countries that did not have a civil war. It seems reasonable to conclude that after a period of war in which there are many casualties, the average population growth rate will increase. Given that the general situation in any country after a war is likely to improve, increases in population growth rates do not imply significant challenges to the supply and distribution systems. Therefore when analyzing population growth it is very important that the country specific context is taken into account. Future research including more countries that have not been faced with a civil war should be more accurate in predicting a correlation between population growth and undernourishment rates.

It is thus concluded that the variables discussed in the national shock cluster only minimally contribute to explaining changes in undernourishment rates in that the best and worst performer distinction did not confirm the expected hypothesis. For example, based on the hypothesis it was likely that all worst performers would have been confronted with some form of an environmental crisis. However, the research showed the opposite, namely most best performers were faced with an environmental crisis.

The Agricultural Production Cluster

Agricultural output is the only variable showing a clear distinct correlation with undernourishment rates as all the best performers score a (1) and all the worst performers score a (0). This variable is thus the very influential with respect to changes in undernourishment rates. The **resource allocated to agriculture variable** does not appear to

have a significant effect as one best and one worst performer indicate a significant amount of government resources allocated to agriculture. However, it must be noted that limited data on this variable were available. Only Botswana and Ghana reported government expenditures. This is possible due to the chaotic nature of governance in the other four countries (most have transitional governments).

Table 4.2 Best/Worst Performers and the Agricultural Shock Cluster

Country	Decr/Incr Undernourishment Rates	Government Resources to Agriculture **	Incr/ Decr agricultural output *
Angola	1	0	1
Chad	1	0	1
Ghana	1	1	1
Botswana	0	1	0
DRC	0	0	0
Liberia	0	0	0

* = Consistent with hypothesis

** = One inconsistency with hypothesis

This cluster thus illustrates the importance of agricultural output in explaining undernourishment rates because the results were completely consistent with the hypothesis. Agricultural output is hence very influential. Only limited data on government expenditures is available impeding generalized statement making. However, the qualitative case studies of Botswana and Ghana did illustrate how government investments in agriculture significantly improved agricultural output. Therefore it is still reasonable to conclude that government investments in agriculture will have positive effects on reductions in undernourishment rates.

The Economic Cluster

The economic cluster yields mixed results. It was expected based on the theory that a high **GDP growth** would also lead to development and thus a decrease in undernourishment rates. Nevertheless, the results do not truly confirm this. Whilst the global worst performer (DRC) is the only country with a negative GDP growth the other two worst performers do show an increase in GDP. Worst performer Liberia even shows an outstanding increase of 22%. However, when looking at the **GDP per capita** variable, it becomes apparent that the countries that show GDP growth do not necessarily show the highest GDP per capita. In fact, Liberia has one of the lower GDP per capita values. This suggests that the wealth due to economic growth is not distributed equally and benefits only a select amount of elites. Furthermore, Chad and Ghana are ranked numbers two and three respectively on the FAO global best performer list and both these countries show comparatively low GDP growths of 4.2% and 4.3%. Nevertheless, it must be noted that whilst the growth rates are low in comparison to the rest of the sample, they are well above the average Sub-Saharan African growth rate of 2.9%. Taking this into account and bearing in mind that the global worst performer has a negative GDP growth, it is thus valid to conclude that there is a relationship between economic growth and improvements in undernourishment rates. Best performing countries have an above average GDP growth. Since two worst performers also show GDP growth but did not show corresponding changes in undernourishment rates, it is concluded that GDP growth can positively effect undernourishment rates. However this is not by definition the case and depends on other factors. For example, are the revenues resulting from economic growth invested into general social welfare? This again depends on good governance. With respect to GDP per capita, the results indicate that with the exception of Botswana, the worst performers score lower. Botswana is considered the economic African miracle and this must be taken into consideration. Analyzing the other countries however,

shows that there is a direct relationship between the best performing countries and higher GDP per capita rates.

Table 4.3 Best/Worst Performer and the Economic Cluster

Country	GDP Growth ***	PPP **	Incr/Decr Imports	Incr/Decr Foreign Aid	Incr/ Decr FDI **
Angola	1	1	1	0	1
Chad	0	0	1	0	1
Ghana	0	1	0	1	0
Botswana	1	1	0	0	0
DRC	0	0	1	1	1
Liberia	1	0	1	0	0

** = One inconsistency with hypothesis

*** = Inconsistent with hypothesis

Four out of the six countries showed an average increase in **imports**. Two of these were classified as best performers and two as worst performers. Furthermore, it must be noted that the countries that did not show an increase, only showed a minimal decrease of 1-2%. When looking at the ranked numbers two and three best performers, Chad and Ghana the results indicate that Chad significantly increased its imports and Ghana showed the largest decrease. This discrepancy shows that an increase in imports is not necessary for improvements in undernourishment rates. However, a critical side note is in order. The import data is not specified per sector. Thus, Chad shows a large increase in imports but this will not directly have an effect on food supplies and thus undernourishment rates because these imports were related to the construction of the Doba oil field project. Angola also shows large increases in imports but again this is due to the oil projects. Therefore, in order to make accurate predictions regarding the direct relationship between imports and undernourishment rates, import data specifically for food are crucial. Given the chaotic economic management of several countries in this sample, such data were simply not available.

In this sample, **foreign aid** showed a declining trend for four countries. Again one best performer (Ghana) and the global worst performer (DRC) showed an increase in foreign aid suggesting there is no significant correlation between aid and undernourishment rates. In fact, as the case studies showed, foreign aid fluctuates significantly and tends to be more correlated with governance. If the donors have faith in the government and its policies, they are obviously more like to supply aid. If on the other hand the donors feel that the monetary aid is not invested properly because (as was the case in Liberia), money is put in the pocket of the leaders, then aid is likely to decrease. Therefore it is concluded based on this study that increases in foreign aid do not affect undernourishment rates but that foreign aid is related to good governance.

Two out of the three best performing countries also showed an increase in **FDI inflow**. However, the case studies showed that FDI inflow also fluctuated significantly and was very dependent on the fluctuating investments in the main industry. In the case of for example Chad and Angola this was oil and in the case of Botswana this was the mining sector (diamonds). According to the theory, FDI was expected to result in economic growth as well as improvements in technology. FDI inflow can hence affect undernourishment rates through general economic growth. One country (Angola) showed both economic GDP growth and increases in FDI inflow. FDI inflow can significantly affect undernourishment rates if these inflows are in the food sector. Nonetheless, the case studies showed that FDI inflows were mainly in the mining sector (oil and diamonds) and a direct relationship can thus be excluded in this sample.

The economic cluster hence contains two variables that show only one inconsistency with the hypothesis as two out of the three countries show the expected result. In the case of PPP the case studies have shown that Botswana is an exception to the ‘worst’ performer classification because the country has a very strong economy owing to the ‘African miracle

and therefore has a very high PPP. Similarly, an increase in FDI was noted in DRC but this is presumably due to the fact that prior to this period (during the civil war) FDI was virtually non-existent. Therefore it is plausible to include that both these variables do contribute to explaining undernourishment rates. The discussion further suggests that even though the findings with respect to GDP growth appear to be inconsistent with the hypothesis, GDP growth can in fact contribute to positively affect undernourishment rates. Imports only affect undernourishment rates if these imports are directly related to food. More research investigating the true nature of imports is hence vital before any conclusions with respect to undernourishment rates can be drawn.

Conclusion Best/Worst Performer Classification

Splitting the sample into best and worst performers in order to draw conclusions about the effects of the three clusters of variables on undernourishment rates thus only yields minimal results. Only one variable, agricultural output, showed a complete consistency with the hypothesis. Four variables: Political crisis, government resources, PPP and FDI inflow, showed one inconsistency with the hypothesis. Three variables showed two inconsistencies with the hypothesis (environmental crisis, population growth and GDP growth). Furthermore, further research is needed to assess the effects of government expenditures and imports. The analysis indicates that agricultural output is the most influential variable affecting undernourishment rates. Interestingly enough, overall the economic cluster contributed most, as three out of the five variables affect undernourishment rates.

4.3.3 Discussion of Variables According to Proportion Classification

The analysis based on the best-worst performer distinction only minimally confirms the hypothesis and the model developed in chapter 1.7. The qualitative case studies showed

that the countries that are classified as best performers not necessarily have the lowest undernourished proportions of the population. This section will therefore examine the sample split according to the actual undernourished proportions of the population. In this way it is also possible to determine which classification is more accurate in analyzing general undernourishment.

The Natural Shock Cluster

Out of the three countries with the lowest undernourished proportion of the population, only Chad has been involved in a civil war. In fact, the lowest two percentages can be found in Ghana and Botswana, the countries that did not have a civil war. It is therefore plausible to conclude that there is a correlation between undernourished proportions of the population and the presence of a **political crisis**. A similar conclusion can be drawn when analyzing the **population growth** variable. Again the countries that were not confronted with a civil war have the smallest population growth rates. Given the fact that a civil war causes many casualties, it appears logic that in a post-war situation, population growth rates are very high. Therefore even though the results show only one inconsistency with the hypothesis, it is more likely that this is due to the fact that that one country (Chad) did fight a civil war. Thus it appears that there is a relationship between population growth and undernourished proportions, but it is very likely that this is rather due to the presence of a political crisis. Rather, the relationship is expected to be between population growth and the presence of a political crisis.

The variables **environmental crisis** and **life expectancy** indicate contradictions to the hypothesis. It was expected that countries with low undernourished populations did not have an environmental crisis, but in fact two out of these three countries did have an environmental

crisis. Similarly the life expectancy is higher in two out of the three countries that have a higher undernourished proportion of the population.

Table 4.4 Undernourished Proportion and the Natural Shock Cluster

Country	Proportion Undernourished	Political Crisis**	Environmental Crisis ***	Life Expectancy***	Population Growth**
Botswana	1	1	0	0	1
Chad	1	0	0	0	0
Ghana	1	1	1	1	1
Angola	0	0	0	0	0
DRC	0	0	1	1	0
Liberia	0	0	1	1	1

**= One inconsistency with hypothesis
***= Inconsistent with hypothesis

The natural shock cluster indicates mixed results. Two out of the four variables display only one inconsistency with the hypothesis suggesting some effect on undernourishment rates. The other two variables however, show the opposite effect. The most influential variable is the political crisis variable. Especially bearing in mind the qualitative case study results, this is a valid conclusion.

The Agricultural Production Cluster

The **agricultural output** variable shows one inconsistency with the hypothesis in that two out of the three least undernourished proportions of the population countries indicate an increase in agricultural output. The countries that **allocate resources to agriculture** (Botswana and Ghana) are the two countries with the lowest proportions of the population being undernourished. Again, however a critical side note is in order as only minimal data was available. As the case studies of these two countries showed, good governance was the main reason for the investments. Nevertheless, based on the qualitative case study results in

this sample the amount of resources allocated seems to be correlated with the proportion of the population that is undernourished.

Table 4.5 Undernourished Proportion and the Agricultural Shock Cluster

Country	Undernourished Proportion	Government Resources to Agriculture **	Incr/Decr in agricultural output **
Botswana	1	1	0
Chad	1	0	1
Ghana	1	1	1
Angola	0	0	1
DRC	0	0	0
Liberia	0	0	0

** = One inconsistency with hypothesis

The agricultural shock cluster variables thus show only one inconsistency with the hypothesis. However, as discussed conclusions with respect to government expenditures are not as reliable, as the data was incomplete.

The Economic Cluster

The economic cluster in this classification also shows mixed results. **PPP** or GDP per capita seems to be the only significant variable in that it only shows one inconsistency with the hypothesis. Furthermore, two variables (**GDP growth** and **FDI inflow**) show two inconsistencies with the hypothesis and are therefore considered inconsistent with the hypothesis. Four countries in the sample showed an **increase in imports** and three of these are the countries with the highest undernourished proportions. Therefore rather than an increase in imports leading to lower undernourished proportions, the results indicate the opposite effect. However, as stated, caution is in order as the nature of the imports is not specified.

Table 4.6 Undernourished Proportion and the Economic Cluster

Country	Undernourished Proportion	GDP Growth ***	PPP **	Incr/Decr Imports ***	Incr/Decr Foreign Aid	Incr/ Decr FDI Inflow ***
Botswana	1	1	1	0	0	0
Chad	1	0	0	1	0	1
Ghana	1	0	1	0	1	0
Angola	0	1	1	1	0	1
DCR	0	0	0	1	1	1
Liberia	0	1	0	1	0	0

** = One inconsistency with hypothesis
***= Inconsistent with hypothesis

When analyzing the sample based on the undernourished proportion classification, the economic cluster is not very influential as only one variable (PPP) is somewhat consistent with the hypothetical model and three variables show effects that are contradictory to the hypothesis.

Undernourished Proportion Conclusion

Analyzing the sample based on the undernourished proportion of the population does not indicate any variable that is consistent with the hypothesis. Five variables showed one inconsistency with the hypothesis: political crisis, population growth, resources to agriculture, agricultural output and PPP. Five variables showed more than one inconsistency with the hypothesis: environmental crisis, life expectancy, GDP growth, FDI inflow and imports. The agricultural production cluster is most influential in determining the undernourished proportion of the population

4.3.4. Comparing the Two Classifications

Splitting the sample into two different classifications leads to different conclusions with respect to the effects of the variables on undernourishment. Analyzing the sample based

on the best/worst performer classification results in one variable, agricultural production that is consistent with the hypothesis. Four variables: political crisis, government resources, PPP and FDI, indicated one inconsistency with the hypothesis. Three variables, population growth, environmental crisis and GDP growth, contradicted the hypothesized effects. In order to determine whether more significant results could be obtained by analyzing a more static measure of undernourishment (proportion of the population that is undernourished) rather than a change measure (undernourishment rates), the sample was also analyzed in light of the undernourished proportion. The results however were not more significant. No variable was completely consistent with the hypothesis, five variables showed one inconsistency with the hypothesis: political crisis, population growth, resources to agriculture, agricultural output and PPP. Five variables showed more than one inconsistency with the hypothesis: environmental crisis, life expectancy, GDP growth, FDI inflow and imports.

Table 4.7 Overview of Consistencies With Hypothesis for Two Classifications

Classification	# of Variables consistent with hypothesis	# of Variables showing 1 inconsistency	# of Variables showing >.1 inconsistency
Best/Worst Performer	1	4	3
Undernourished Proportion	0	5	5

Based on the table it is concluded that the best/worst performer classification results in the most significant results as the three clusters of variables more adequately explain undernourishment rates. Both classifications have a total of five variables that show an effect in that they have one or less than one inconsistency. However, the undernourished proportion classification shows five variables that contradict the hypothesis, whereas the best/worst

performer only shows three. Therefore it is concluded that the change measure is more adequate for analyzing undernourishment in light of the three clusters of variables. It is further interesting to note that in this case the economic cluster appears to have the highest contributing value. The static measurement of actual undernourished proportions however, indicated the agricultural production cluster to be more important.

4.4 The Empirical Model

Based on the above discussion of the results related to the variables, a new model of variables affecting undernourishment rates needs to be constructed based on the change measurement of undernourishment, that is undernourishment rates. The original hypothetical model is not entirely supported by the research in this sample. The variable environmental emergency can be excluded from the model, as it did not prove to have significant effects. Population growth did not yield significant results in this sample and will thus also be excluded from the model. Future research however, should take population growth into account. More research is also needed to assess the effects of government expenditures on agriculture and the nature of imports.

The variable agricultural output proved to be most significant and influential in determining undernourishment rates as it was the only variable that showed a complete consistency with the hypothesis. Four variables showed only one inconsistency with the variable and are thus also considered to have a significant effect on undernourishment rates; political crisis, government resources to agriculture, PPP and FDI inflow. Again it must be noted that complete data for the government resources variable to agriculture were not available. However, based on the qualitative information presented it is plausible to assume that there is an effect. Further research should confirm this assumption. The GDP growth variable appeared to contradict the hypothesis but further analysis of the variable based on the

qualitative case studies lead to the conclusion that the variable has a positive effect on the reduction of undernourishment rates.

Furthermore, the research showed the importance of good governance. This translates not only in the absence of a civil war but more importantly in adequate government policies and social and humanitarian improvement programs. Even though in the case of Botswana, good governance did not lead to improvements in undernourishment rates (presumably due to the high HIV/AIDS prevalence) it did lead to general improvements across all three clusters. Good governance further affects foreign aid and FDI inflow, which in turn have an effect on undernourishment rates. It is essential to realize that good governance is a precondition for these variables to have an effect on undernourishment rates.

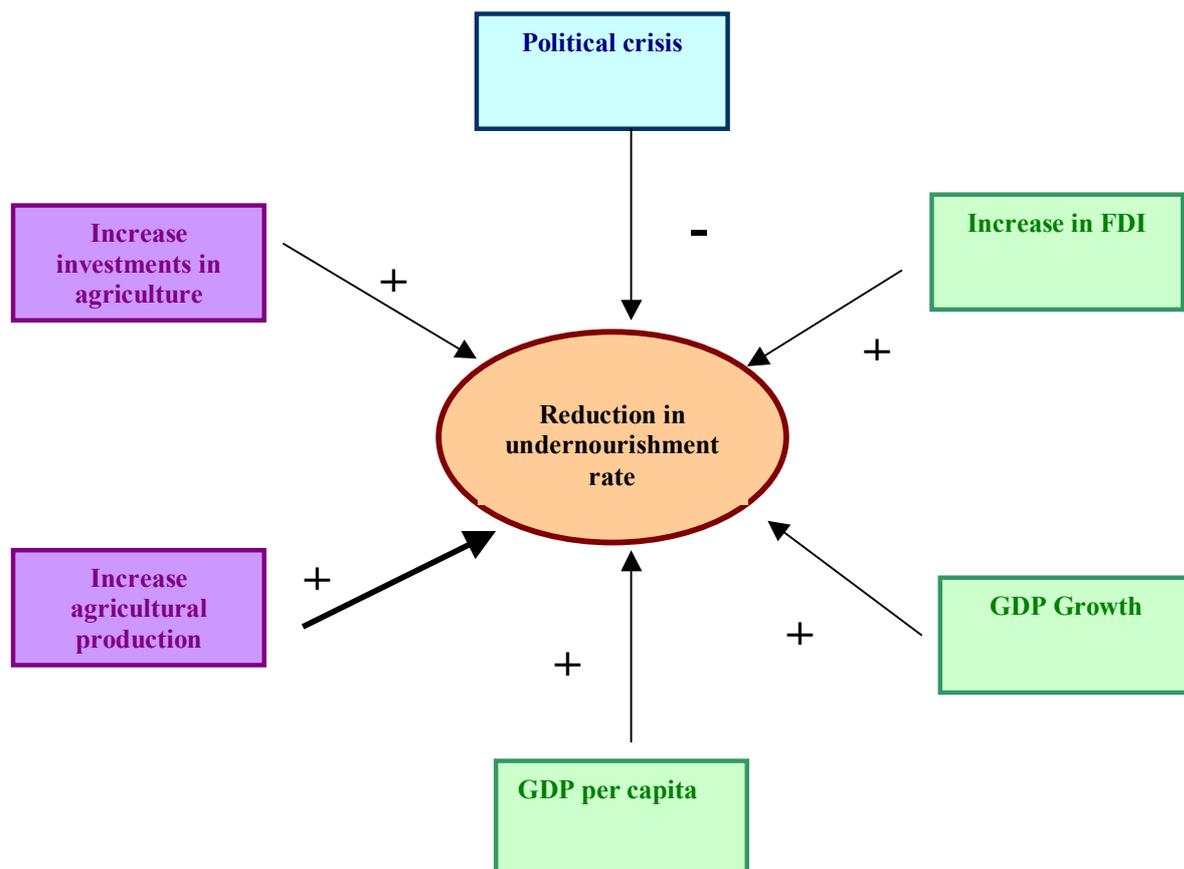


Figure 4.1 Empirical model of the variables influencing undernourishment rates

4.5 Conclusion

The results were analyzed based on a dynamic and static measure of undernourishment. Based on this analysis, six main conclusions are suggested. Firstly, the sample indicated that the most adequate method of analyzing undernourishment in light of the three clusters of variables was the dynamic change measure of undernourishment rates. Second, the dynamic change measure analysis suggested that the only significant strong correlation was between agricultural production and undernourishment rates as all best performers showed an average increase in production and all worst performers showed a decline. Third, overall the economic cluster appeared to contribute most to the explanation of changes in undernourishment rates. Fourth, as the case study of Botswana suggests, economic growth does not necessarily lead to development in terms of improvements in social and humanitarian conditions. Good governance is a critical factor in this equation but even if this is present does not always lead to such developments. The importance of good governance appeared to be a key underlying issue and this is the fifth main conclusion. Countries in the sample that had a reasonably stable and pro-active government (Botswana and Ghana) generally performed better. The other underlying issue was the presence of a civil war. The research suggests that countries that had been faced with a civil war generally were a step behind. Again good governance in this sample proved to minimize the long-term effects but effects could nevertheless be traced in all three clusters of variables.

In sum, the answer to the research question addressing which variable is most influential in addressing undernourishment rates is thus that agricultural production is the most significant contributing factor. Furthermore, even though Botswana appeared to be an exception, in general economic growth especially when accompanied with good governance

will positively affect undernourishment rates. If there is good governance, this is likely to stimulate aid and FDI inflow and these can affect undernourishment rates. As the case studies in chapter three have illustrated, good governance and the presence of a civil war affect almost all the variables in the research. As a result, the undernourishment problem becomes far more complex and intertwined. Due to this complexity it is unclear whether the cases studied are exceptions or whether this in fact the general trend. In order to draw more generalized conclusions about undernourishment rates, more countries should be studied thus facilitating a larger scale statistical research.

Chapter 5 - Conclusion

5.1 Summary of the Research

The starting point of the research was the *State of the World Food Security* report published annually by the FAO (2001a). In this report a list of the top ten best and worst performers were identified. It was striking to note that seven out of the ten best performers and four of the worst performers were located in the same geographical region, Sub-Saharan Africa. The purpose of this study was to explain the variance in reducing undernourishment rates in six Sub-Saharan African countries by studying three clusters of variables. The central question was hence to identify the most important variables influencing undernourishment rates in Sub-Saharan Africa. Ragin's case-oriented research strategy was applied in order to be able to draw conclusions about these more or less qualitative case studies. The final objective was to develop a model illustrating the most influential variables and their respective effects on undernourishment rates.

The three clusters of variables were defined based on the literature. In the report, the FAO identified two main clusters of variables, the national shock cluster and the agricultural cluster. Other literature sources discussed the link between economic growth and development. Development also implies a reduction of undernourishment rates. Therefore, the economic cluster was introduced as the third cluster of variables. The literature showed that especially trade, foreign aid and foreign direct investments were hotly debated issues. The variables GDP and GDP per capita at PPP were also included in the cluster in order to assess economic growth. A framework was developed including nine variables, and based on the discussion of these variables, a hypothesized positive or negative effect on undernourishment rates was included. This framework functioned as a guide in the analysis of the six case studies.

The six countries for the case studies were selected based on their respective increase or decrease in undernourishment rates as well as their geographic location. In this way the research could control for fluctuations due to for example different climates and soils. Three main regions were identified (south, west and central) and the two countries that respectively reduced and increased their undernourishment rates in each region were selected for the sample and analyzed based on the framework. Three main sources were used; the Central Intelligence Unit, the Economist Intelligence Unit and the World Bank. These sources were supplemented with specific country sources and databases from the FAO and UNCTAD. The variables were coded as dichotomies (0 and 1) as suggested by the Ragin research strategy and generalized statements and conclusions were formulated. Finally the original hypothetical framework was modified based on the results of the research.

The case studies yielded interesting results. The case study of **Angola** showed how one commodity (oil) can significantly boost the economy and if combined with adequate governance can raise general welfare standards. Despite a high record of corruption, the government was able to achieve significant improvements. Furthermore, the case study showed that the FAO best performer classification can be misleading. The country was a best performer in that it reduced undernourishment rates, but in terms of the actual proportion of the population that was undernourished, Angola scored relatively high with 50%. In addition, the country showed how devastating the effects of a civil war can be on all three clusters of variables. **Liberia** was another country in which the latter was very obvious. Prior to the conflict, health and nutrition levels were above average and agricultural production promoted food security. However, as a result of the war only 10% of the arable land is cultivated and social living standards are very low. It was further interesting to note that despite being the only country in the study that was never colonized, Liberia was also confronted with a civil war. **Chad** is another country that has been devastated by civil war and it is one of the least

developed and poorest countries in the world. Undernourishment rates were improved but this is possibly due to an even worse situation during the actual civil war. This case study also showed the importance of good governance in that the country could also receive a significant boost, like Angola, from oil revenues if the government invested these revenues accordingly. The fourth country in the sample faced with a civil war is the **Democratic Republic of Congo (DRC)**. This country is the global worst performer and the case study showed that a large part of this can be attributed to two periods of authoritarian rule in which the dictators let private interests prevail over public interests. The present situation is complicated by continuing fighting in the East and rebels still controlling part of the coffee production resulting in low official agricultural output. However, a new transitional government is in place and GDP growth was noted for the first time in thirteen years in 2003. Again this shows the importance of good governance.

Ghana is one of the two countries that was not involved in a civil war conflict and is ranked third on the global best performer list. Despite recovering from a poor economic period, the country scores very well across all three clusters of variables. Furthermore, the democratic transfer of power in 2000 makes it a role model for many African countries. The case study suggested that much of the recent economic success was owing to government policies and economic reform programs. The other country that did not fight a civil war is **Botswana** and this is considered in the literature as the ‘African Miracle’ because its economy transformed from a poor impoverished to a middle-income economy. However, this case study also showed that economic growth not necessarily implies development as Botswana is one of the countries that showed increasing undernourishment rates. Nonetheless, an analysis of the country indicated that this could well be due to the high HIV/AIDS prevalence rates. Despite good governance, the humanitarian situation was thus alarming, still without adequate government policies the conditions were expected to be much more.

5.2 Six Generalizations

Based on the case studies, six main conclusions were drawn. The analysis of the results has pointed to some significant conclusions. First of all the only strongly correlated variable in this sample was agricultural production. This implies that agricultural production is the most influential variable in determining undernourishment rates. Considering that countries that domestically produce more food are thus able to domestically supply more food, this is a plausible conclusion.

Second, the change measure of undernourishment (undernourishment rates) appeared to be more suited to analyzing undernourishment as opposed to the more static measure of actual undernourished populations.

Thirdly, in this sample, the economic cluster appeared to contribute most significantly in explaining changes in undernourishment rates.

Fourth, economic growth does not necessarily result in development. The case study of Botswana suggests that despite transforming from a poor economy to a middle-income economy, social living standards are comparatively poor; undernourishment rates increased; and life expectancy is the lowest in the sample. Agricultural production also decreased, quite likely in connection with the government's emphasis on the mining sector (diamonds). Indeed, the case studies of Angola and Chad also showed the significant influence one commodity can potentially have on the economy. In the cases of Botswana and Angola this has resulted in significant economic growth already, and in the case of Chad a similar economic boost is expected. The studies suggest that the government is the deciding factor and can either make or break such an economy. If the revenues are invested wisely, the whole economy and population can prosper.

In fact, the importance of good governance is the fifth main conclusion. Good governance seems to affect every studied variable in one way or the other; to the extent that

these variables influence undernourishment – effects that, it must be noted, the present research does not clearly demonstrate except for the agricultural output variable – good governance indirectly influences undernourishment levels through them. The case studies of, for example, Angola, DRC and Liberia, showed how foreign aid and FDI inflow were declining due to poor governance. On the contrary, aid and FDI inflow were increasing in Botswana, Chad and Ghana because the foreign parties has confidence in the government. Therefore the case studies in this sample suggest that good governance is especially crucial in determining actual FDI inflow and the amount of received foreign aid. If a country experiences economic growth and this is combined with good governance, then this is expected to have a positive effect on general development and thus also on undernourishment rates. Adequate governance will further result in investments in agriculture, which will directly affect undernourishment rates.

Finally, the political crisis or civil war variable, like good governance, also appears to affect most of the variables in the study, thus indirectly affecting undernourishment levels to the extent that these other variables are linked to that outcome. The two countries that did not face a civil war scored significantly better in all three clusters of variables. Countries that were confronted with a civil war did not necessarily score poorly; indeed, two of these countries were making drastic improvements and especially in undernourishment rates. However, this again depended on other factors such as the government structure and aid received. Still, the fifth conclusion is that the impacts of a civil war are very complex and the long-lasting effects depend on other factors.

The answer to the research question was thus that agricultural production appears to be the most influential variable effecting undernourishment rates. However, the most important summarizing conclusion based on this research is that undernourishment is a very complex and intertwined problem. Six qualitative case studies have illustrated this complexity and

have allowed some deeper understanding of the problem. The research showed that the variables combined to influence undernourishment rates in ways unique to each country. For example, two out of the four countries that had a civil war reduced undernourishment rates but the other two countries increased undernourishment rates. Thus making generalizations becomes difficult. The main conclusions are summarized in box 5.1.

Main Conclusions

1. Agricultural production is the most influential variable in determining undernourishment rates.
2. In this sample, the change measurement of undernourishment (undernourishment rates) was more adequate in analyzing the effects of three clusters of variables on undernourishment.
3. The economic cluster of variables contributed most to explaining changes in undernourishment rates.
4. Economic growth does not necessarily imply social and humanitarian development.
5. Good governance is very important in achieving success in all three clusters of variables.
6. A civil war has harmful effects on all three clusters of variables

 **Undernourishment is a very complex and intertwined problem!**

Box 5.1 Main conclusions

5.3 Implications for Future Research

Based on these conclusions, three main suggestions are proposed for further research. First of all, Ragin's case-oriented analytical strategy proved to be adequate for the research. The developed hypothetical framework of three clusters of variables facilitated a solid insight into the problem. This framework is hence recommended for usage in further studies. One side note is in order though. The research showed that in several countries the government structure was poor resulting in high levels of corruption. This also leads to uneven income distributions. Therefore rather than using the GDP per capita variable, a variable taking this

unequal income distribution into account would be more valuable. Therefore it is suggested to use the Gini-coefficient rather than the PPP value in further research.

Second, the case studies provided insight but are nevertheless limited. The case studies allowed sufficient basic understanding, but the complex, intertwined nature of the problem indicates that more detail would be beneficial. It is thus suggested that a future study include only one best performer and one worst performer, but analyze these countries in far more detail. In this way the nature of imports and government expenditures, for example, can be specified in more detail. Furthermore such analysis would facilitate insight into the correlation of variables and the respective forward and backward linkages.

Finally, related to this is the suggestion to obtain more accurate insight by repeating the analysis on a larger scale. Only one of the hypothesized effects was clearly confirmed by the research. Studying more cases allows the application of statistical methods such as regression analysis that can better adjust for general patterns of correlations among independent variables. A more quantitative approach could even use the same variables used in the present study. It would be very interesting to see if such research would still yield the same results and lead to similar modifications of the theoretical framework. It might also be of interest to include developed countries to see how the results may vary. The main recommendations for further research are summarized in Box 5.2

Main Recommendations for Further Research

1. Use the research strategy and developed theoretical framework that proved to be useful and adequate in the present study.
2. Research one best performer and one worst performer in more detail to confirm conclusions and allow more insight into the complexity of the problem.
3. Repeat the analysis with a larger sample and use regression analysis.

Box 5.2 Main Recommendations for Further Research

Appendix 1 Complete Overview of Results

Country	Undernourishment Decr/Incr in undernourishment rates	Undernourishment proportion of population	Political Crisis (civil war)	Environmenta l crisis (in last decade)	Resources to agriculture	Incr/decr agricultural output	GDP growth at ppp	Incr/decr imports	Incr/decr in foreign aid (value)	Incr/decr FDI (value change)	Population Growth Rate	Previous period bad or good?
	Rank: lowest 3 (%) = (1) highest 3 (%) = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Resources = (1) No = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Rank: highest 3 = (1) lowest 3 = (0)	Rank: lowest 3 (%) = (1) highest 3 (%) = (0)	Rank: lowest 3 (%) = (1) highest 3 (%) = (0)		
(1) / (0) allocation												
Angola												
	Decr 9%	50%	civil war	drought 2002-03	n.a. (minimal)	Incr 7.5%	4.40%	119%	Decr US\$268m	Incr US\$67.4m	2.85%	Bad: civil war
Botswana												
	Decr 1	0	0	0	0	1	1	1	0	1	0	0
Chad												
	Incr 8%	25%	good governance	drought 2000	US\$ 47.6	Decr 2%	5.90%	99%	Decr US\$30.7m	Decr US\$5.4m	2.30%	Good African Miracle
	0	1	0	0	1	0	1	0	0	0	1	1
DRC												
	Decr 26%	32%	civil war	drought 2000-01	n.a. (minimal)	Incr 1.5%	4.20%	128%	Decr US\$179m	Incr US\$23.5m	3.10%	Bad: civil war
	1	1	0	0	0	1	0	1	0	1	0	0
Ghana												
	Incr 39%	73%	civil war	deforestation	n.a. (minimal)	Decr 4%	-2.40%	109%	Incr US\$251m	Incr US\$37.7m	2.64%	Bad: war
	0	0	0	1	0	0	0	1	1	1	0	0
Liberia												
	Decr 23%	12%	democracy	drought 1983-84	US\$50	Incr 5.6%	4.30%	98%	Incr US\$651m	Decr US\$47m	1.87%	Recovery from bad economy
	1	1	1	1	1	1	0	0	1	0	1	0
	Incr 7%	39%	civil war	dusty winds	n.a. (trans gvrnt)	Decr -0.3%	22.00%	105%	Decr US\$36.9m	Decr US\$4.5m	2.50%	Bad: war
	0	0	0	1	0	0	1	1	0	0	1	0

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1. PERSONAL INFORMATION



Surname : Overbeeke
Name : Marlies
Date and Place of birth : June 25th 1980 - Amsterdam
Nationality : Dutch
Gender : Female
Address : 1720 Patrick Henry Drive Apartment 10
Postal code and town : Blacksburg, Virginia, 24060
Telephone number : + (540) 961 5350 / + (540) 230 3660
E-mail address : moverbee@vt.edu

Address in the Netherlands: *Vijverweg 13*
3062 JN Rotterdam
Tel: (010)- 4045293 / 06-29454218

2. SECONDARY SCHOOL EDUCATION

School: : American International School of Hamburg (Germany)
Diploma: : International Baccalaureate (I.B.):
Biology (7), Chemistry (6), English (Native Level, 6), German
(Second Language, 7), History (7) and Mathematics Methods (7).
Plus one extra subject; Dutch (Native Level, 5)

Grade Point Average : 6,5 (scale 1-7)

Awards in Senior year : Biology, German, Physical Education and special senior “Brett Walker” award for ‘qualities of determination, dedication and sportsmanship’.

Extra Curricular Activities: Director of Yearbook & Newspaper, Head of Prom Committee, Student Council, Varsity Basketball, Swimming, Track and Field and Captain of Varsity Volleyball

3. UNIVERSITY EDUCATION

University : Erasmus University Rotterdam, the Netherlands
: Exchange with University of Michigan (MBA), Ann Arbor
August-December 2001

Year of enrollment : 1998

Field of study : M.Sc. Business Administration

Major : Business-Society Management

Thesis Subject : The thesis investigates the bottom of the pyramid consumer in Sub-Saharan Africa and analyzes how multinational food corporations should internally be organized to reach these consumers. Bearing in mind that these consumers have less than one US\$ to spend daily, such an approach deviates radically from traditional business and strategy models.

Date of Graduation : June 2002, Graduated Cum Laude

Extra Curricular Activities: Head of student council newspaper, track and field
(see hobbies)

University : University of Virginia Tech

Year of enrollment : 2002

Field of study : M. Sc. Sociology

Major : Work and Technology

GPA : 3.8 (Scale 1-4)

Research Interests : Currently working on a publication with alumni distinguished Professor Bill Snizek on corporate culture differences between European and US corporations as communicated externally through corporate websites

Extra Curricular Activities: Student Athlete Speaking Committee (I visit local elementary schools and talk to the children about the importance of, for example, good sportsmanship, fairness and honesty)
Member of Cross Country (Co-Captain) and Track and Field Team.

GRE Scores (Jan. 2002): Verbal (510), Quantitative (670) and Analytical (630).

4. PERSONAL SKILLS

- Computer Skills** : Microsoft Word, Power Point, Excel, Access, Delphi Programming, Microsoft Frontpage Website Design
- Debating Skills** : Model United Nations Program (New York 1996, The Hague 1996)
- Language Skills** : Fluent in English, Dutch and German
Four years of French classes; capable of understanding and speaking the language to a large extend.

5. WORKING EXPERIENCE

Most relevant working experience

- Company / institution : Erasmus University Rotterdam
- Place - From – Until : Rotterdam – March 2000 – July 2001
- Job description : Personal Assistant to Prof. Dr. Rob van Tulder. I assisted the Professor in his research, publications, teaching and lecturing. Responsibilities included finishing a world trade database and assisting with the interactive innovation report.

Summer / evening jobs

- Company / institution : Track and Field Club P.A.C. Rotterdam
- Place - From – Until : Rotterdam – October 1999 – July 2002
- Job description : Coach: At the club I was responsible for coaching the smallest children, age six/seven. I planned the structure of their Saturday morning sessions and accompanied them to meets.

Internship

- Company/ Institution : Unilever Research Vlaardingen
- Place / From/ Until : Vlaardingen - April 1st – July 1st 2002
- Job Description : During my exchange with the University of Michigan, I followed a course on reaching the Bottom of the Pyramid consumer with Professor Ramaswamy, who is a co-publisher of C.K. Prahalad in this subject area. Based on this course and further literature I developed a theoretical framework for best practice corporate capabilities in reaching the bottom of the pyramid. I then contacted Unilever so that I could evaluate and test my model.
Research was thus conducted on possibilities for innovation and research and development in developing countries. Using my framework, I identified key areas in which Unilever should improve. I discussed these in a written report and presented them at a meeting with the director of the Unilever Health Institute.

6. HOBBIES

- Sports** : Member of the Dutch National Track and Field Team. Started running at age 18 and won three national medals as a junior. In 2002 ranked fourth at National Cross Country and National 1500m Indoor championships. Currently competing for the University of Virginia Tech and training approximately 20 hours each week. Was awarded Rookie of the year for Cross-Country and Most Valuable Player for Track and Field at the annual Virginia Tech Sports Banquet.
- Other Hobbies** : Reading mystery novels, listening to (classical) music, enjoying nature (hiking, biking).