On the Economic Consequences of Civil Conflict

The Case of Sierra Leone

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Abstract:

Civil war has become the predominant form of armed conflict since the end of WW II. Civil conflict kills people and destroys countries and their economies, research on the economic consequences of civil conflict however is scarce and often contradicting. Major theories on the development of conflict economies range from the Benoit hypothesis, which predicts a positive effect of conflict on economy through increased government expenditure to the notion that conflict is always devastating for a country because of destruction and erosion of investors' trust. The most dominant theory in recent years however is that economies are eroded during the conflict but can profit afterwards through high returns on investment and a "piece dividend". The development of GDP in Sierra Leone between 1961 and 2009 shows this pattern. Closer evaluation however, reveals that other factors might be responsible for this pattern and that none of the discussed theories can completely explain the development of Sierra Leone in the aftermath of the civil conflict (1991-1999), because theories based on cross-country evidence cannot account for the complexity of economic development. Although GDP has grown the analysis shows that little improvement has been achieved in equality and welfare.

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1. Introduction

This thesis examines the macroeconomic effects of the civil conflict in Sierra Leone. Research in this field is important for several reasons. First, intrastate wars have increased compared to interstate wars since the Second World War and are now the predominant form of conflict. According to the Peace Research Institute in Oslo (PRIO) there have been 42 armed interstate conflicts in the period of 1946-2003 as compared to 165 intrastate conflicts (PRIO, 2004). In recent years, a lot of research has been done to understand economic causes of war. Sambanis (2001) categorized these efforts into two generations of economic theories on civil conflict. The first is the so called modernization theory, which argues that modernization leads to rapid growth as well as socio-economic redistribution which could cause enhanced competition for scarce resources and lead to conflict. The second generation on the other hand is more concerned with "*rational choice theory and economic theories of criminal behaviour*" (Sambanis, 2001, p. 221).

Research on the economic consequences of civil war on the other hand has not been at the focus of the scientific community and only in recent years there have been publications concerning this question. But these have so far been incomprehensive and often contradict each other. At the same time this field should become more important because the occurrence of civil war around the world has increased since WWII until peaking in 1994. Although the onsets of civil wars have sharply declined since then, many of the civil wars which started before 1994 are still on-going or have ended very recently. (Sambanis, 2001) Murshed (2002) states: "*The part played by civil wars in lowering economic growth, particularly in sub-Saharan Africa, where per capita growth rates have been negative in many countries for much of the last two decades, cannot be overestimated"* (p.388), thereby further emphasizing the importance of this field from a development economics point of view.

In recent years, some research has been done in the field of social capital and local collective action in post conflict regions (see e.g. Bellows and Miguel 2009). But also macroeconomic research should be in the center of post-conflict research because not only can macroeconomic growth help to improve the standard of life for broad portions of a society, numerous researchers have found that high rates of economic growth can also reduce the risk of re-entering a state of conflict substantially (see e.g. Flores and Nooruddin 2006). But the question is also if there is a macro-economic effect in the long run. If a basic economic production function is considered, e.g. a Solow production function where domestic product is dependent on labor and capital (Y=K*L), with diminishing returns to capital and labor, the destruction of capital through conflict would lead to an increase in the productivity of capital, causing investments to be very profitable. There can thus be a sharp increase in capital investments after a conflict until it is as effective as in other countries causing an economy to return to its normal growth path. This notion has proven evident in some cases, Miguel and Roland (2004) e.g. compared different regions in Vietnam to relate the intenseness of bombing during the war to their respective economic performance 25 years later and did not find any relation. Still this does not always have to be the case. If the production function is extended by another variable to Y=T*K*L, with T being a number of possible other factors, like e.g. technology or

investment trust conflict could erode an economy in such a way that capital does not become more productive in the aftermath, leading to possible long-run effects of conflict.

This thesis is not to be understood as a study on civil war, more accurately it aims to review contemporary literature on macroeconomic development succeeding conflicts and test these on a specific case. Therefore a case study about the development and present situation of post-conflict Sierra Leone is conducted.

The Sierra Leonean civil war lasted from 1991 until 1999 (cease fire)/2002 (official declaration of a state of peace) and cost an estimated 50.000 lives, displaced over half of the population and left the country in a devastating state (Bellows and Miguel 2009). It started when a group of rebels known as Revolutionary United Front (RUF) entered the country from Liberia in 1991. In 1999 a cease fire agreement was reached after the rebels had been driven out of the capital Freetown, shortly after, UN troops entered the country and in January 2002 the state officially declared a state of peace. Since then the Sierra Leonean economy has averaged a growth in GDP of about 10%, although with high fluctuations (min 3.8%/ max 27.5%) it thereby succeeds growth rates of the region by far. (IDA 2009) A case study about this matter will show whether general theories on post-conflict economies – usually based on quantitative cross country analysis - are applicable to specific cases and will help to understand which factors are most important in post-conflict recovery.

In order to understand development of post-war Sierra Leone in terms of macroeconomic recovery, this thesis tries to answer the question:

How has the Civil war (1991-1999) affected the Sierra Leonean economy during the post-war decade and how can this effect be explained?

To answer this question I formulate a number of sub-questions which enable me to not only answer my main research question but also to clarify the scope of my research, i.e. eliminate factors that exceed this scope and include all which are required to answer the main question from an economic perspective:

1. *Is there evidence for supra-natural growth after the civil war in Sierra Leone?*
2. I*s the economy exceeding pre-war levels?*
3. *Has the economy really grown or is GDP growth a result of shifting export from illegal (and undocumented) to legal?*
4. *Has this growth improved equality (financial, regional, gender) in Sierra Leone?*
5. *Has welfare in terms of human development index and poverty of the population increased since the end of the war?*
6. *Can post-conflict growth in Sierra Leone be explained using existing post-war economic theories?*
7. *Which factors spurred economic growth in Sierra Leone?*
8. Is there *evidence for a substantial peace-dividend in post-war Sierra Leone ?*

Since an increase in welfare for large fractions of the population cannot be assumed based on GDP growth alone, I will additionally examine whether inequality has decreased or not. This will not only

give me insight into the wealth distribution and possible welfare gains for the population but will, considering a grievance argument for civil war, as suggested by Paul Richards, also indicate a risk reduction for re-entering a conflict (Richards 2005).

In the following I will describe the methodology (section 2), including the sources of applied theories and data sets as well as hypothesis to be tested. In section three I will give a comprehensive overview on theories and published research about the relationship between conflict and macroeconomic development. This section will be structured according to three main hypothesizes, which I identified from different scientific notions and publications namely: economies grow faster during war, economies grow slower during post-conflict period and economies grow faster in the post-conflict period. Afterwards the case of Sierra Leone is described (section 4), first a historical background, describing the war, its causes and immediate consequences, than in more detail the economic performance during the decade proceeding the war. These results will be linked to the theories, compared to findings in other published research described before and discussed in section five.

2. Methodology

To conduct the case study on post-conflict economy and economic recovery in Sierra Leone, this thesis reviews and applies relevant literature and theories and combines those with data on basic economic indicators including GDP growth, GDP per capita growth, military expenditure, foreign direct investment, rents from mineral exports and number of armed forces for the years 1960/80-2009 (as far as available) from official datasets of the World Bank. To control for general economic trends of the region, I also include control data from the region, namely averages of the Sub-Saharan region (developing countries only). This gives a good combination of qualitative data gathered and published by different researches and quantitative data to provide statistical evidence for those theories. To categorize periods into conflict, pre-conflict and post-conflict years I rely on categorizations by the Peace Research Institute in Oslo (PRIO) as well as from the Uppsala University datasets. Although, the government declared peace in 2002, I consider the cease of fire agreement from 1999 as the end of the conflict because this is when the progress of recovery began.

3. Literature Review

In this section theories on the economic effect of conflicts are presented and explained, with the purpose of giving a comprehensive overview on assumption to be made for the economic development during, and especially following, a conflict in any country but more focused on Sierra Leone and economically and politically similar countries. The theories and studies are clustered into three major statements, which are in part contradicting but nonetheless claimed to be validated by empirical research and present in contemporary publications on this issue. The first cluster is the statement that “Economies grow faster during war”, the second is: “Conflict decreases economic growth” and the last one, which is probably the most dominant in contemporary research and is therefore explained in more detail, states: “Post-Conflict economies grow faster”.

3.1 Economies grow faster during war

Some scholars have used basic Keynesian economic theory to claim that periods of conflict increase economic growth (Murdoch et al. 1997). Their hypothesis is constructed on a very simple and often realistic fact, namely: conflict will lead to increased military spending and increased military spending leads to an increase in overall government expenditure. The Keynesian Cross then predicts that increased government spending increases GDP growth by more than the increase in spending, through higher national income which leads to a higher aggregate demand as well as an increase in industrial production and improved infrastructure (e.g. Murdoch et al. 1997). To understand this claim we have to take a closer look at the aforementioned Keynesian cross. The Keynesian cross originally developed by Samulson (1948) to explain Keynesian economic theory, explains an economic equilibrium in which a country´s planned expenditure equals its actual expenditure. The cross implies that an increase in government expenditure increases planned expenditure, leading to a new equilibrium where new planned expenditure equals actual expenditure. This equilibrium is then above the old one and therefore implies that income/GDP and expenditure have risen (see Figure 1) (Mankiw 2007).

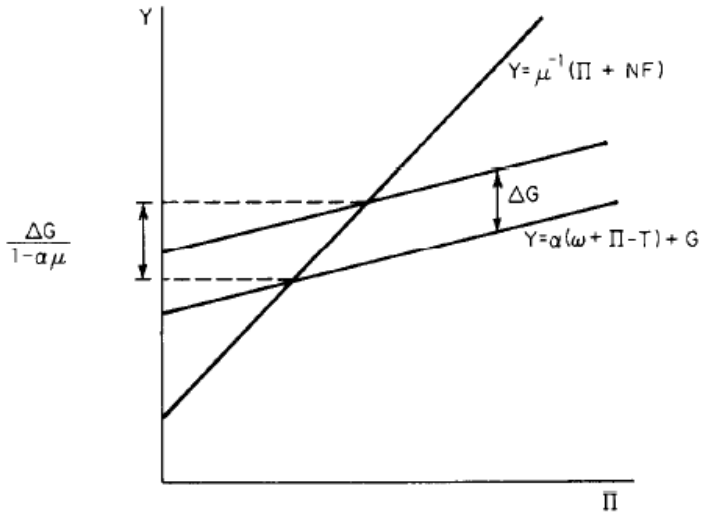

Figure 1: Keynesian Cross
Source: (Mankiw 2007)

Furthermore, this theory states that an increase in government expenditure raises income by more than the amount of increased expenditure. This is because there is a so called multiplier effect in which an increased income leads to increased consumption, which than again leads to an increase in income and so forth. (Mankiw 2007) Understanding this, a conflict should lead to a sharp increase in national income, if in times of conflict it can be suspected that governments increase expenditure through military expenses. Collier and Hoeffler (2004) show that military spending as share of GDP rises about 1.8 percentage points during civil war. Of course, the Keynes cross is a very simple theoretical model, which in such a form only works for the notion of a hypothetical, closed economy, yet the assumption made from this, i.e. that government expenditure can stimulate economic growth, is commonly accepted and widely spread in economic politics (Mankiw 2007).

But also the aspect of military expenditure is not just a theoretical concept, instead there is empirical evidence that increased military expenditure fertilizes economic growth, the underlying assumption

has become known as the "Benoit hypothesis", Benoit made extensive empirical research on 44 less developed countries in between 1950 and 1965 in which he linked military expenditure to economic growth, he states that: *''countries with a heavy defense burden generally had the most rapid rate of growth, and those with the lowest defense burdens tended to show the lowest growth rates''* (Benoit 1973).

Of course, this theory does not always hold up and several reasons for that can be identified. Some scholars have pointed to the fact that destruction from war might very well exceed benefits of increased government expenditure. Grobar and Gnanaselvam (1993) claim that increased military spending does not lead to overall increased government expenditure, but rather to a decline in non-military spending, which would render the aforementioned assumption redundant. An even more important and influential criticism to this theory was among others formulated by Wijeweera and Webb (2010) who claim that government expenditure and especially military spending is not an optimal allocation of recourses and that otherwise crowded out private investment might be more productive and have a higher multiplier effect. This statement leads to the assumption of a peace dividend which will be discussed later (see 3.3).

Other authors have pointed to the fact that conflicts can lead to economic growth through new technological innovations. This notion is based on examples of technological innovations that have originally been made for military purposes in times of conflict and increased investment in military related industries, which afterwards became economically beneficial for the private sector. But as e.g. Macartan Humphreys (2002) has pointed out, there are certain conditions that have to apply for this theory to uphold. First, a demand for military technology must lead to investment in research and second, the new technologies have to be applicable in non-military sectors (Humphreys 2002). The weakness of this assumption could be that it can only be applied to countries in conflict that are already at frontier of global technical innovations, because poorer countries most likely will not invest in research for new technology but rather purchase conventional equipment, because they lack the necessary financial and human capital (Humphreys 2002)(Sambanis 2002).

In conclusion it can be stated that conflict could lead to an increase in government expenditure, which according to Keynesian economists should lead to a higher increase in national production, thus economic growth through a multiplier effect. This then leads to two hypothesis to be tested in section 4.:

1. *"Government expenditure increases in times of conflict"*
2. *"Growth rates are higher during times of conflict"*

3.2 Conflict decreases economic growth at the time and during the aftermath

Empirical data also supports the assumption that conflicts decrease economic growth, while some claim that this is only true during the conflict, others state that conflict also erodes economic growth in the post-war phase. That conflict may erode economic growth at the time seems logic and there are several reasons why this is often true. Although some people claim a spur in economic growth through conflict (e.g. Benoit 1973) (see above), most scholars from this field see a negative effect on the economy during a conflict, they claim different factors to be responsible for this relation. The two main factors are the destruction of capital (human as well as physical) and the shifting of resources from productive sectors to combat related (less- or non-productive) sectors. In addition, there is the

assumption that, due to increased risk, trust in the country declines and therefore private investment - domestic as well as foreign – declines. Also: increased government spending (see above) could crowd out private investments.

Collier (1999) states that economies grow an average of 2.2% slower during conflict than their past grow path would predict. The most obvious reason for this is: *"Civil conflict destroys physical and human capital, as well as depressing investment that might regenerate both. Civil conflict immediately reduces the physical capital stock through the destruction of public infrastructure (e.g., roads) and productive capital…"* (Flores and Noorduin 2006, p.4). Humphreys (2002) expands this argument and claims that in addition to the destruction there is also a reduced investment in capital by private as well as public actors. He states that conflicts often triggers a capital flight resulting in a decreased investment in physical capital by private actors. But according to him the investment in human capital declines sharply due to a conflict because: *"During war, schools close and are destroyed and students and often teachers join rebellions and armies. These effects reduce investment in human capital"* (Humphreys 2002, p.10).

While most contemporary researchers agree on this statement that conflict causes economic decline at the time they are divided in respect to the economic effects succeeding the war. Some authors claim that post-war situations bear the potential for supra-natural growth (see paragraph below), while others claim that the negative effects of war are long lasting and erode economic development long after the conflict has ended (see e.g. Flores and Noorduin 2006). Again there are two main factors responsible for this phenomenon. First, as mentioned above, the destruction of human as well as physical capital and second the eradication of trust. While some researchers see a chance for growth in the reduced amount of capital other claim that the capital stock of a country after a war is so small that a there is little chance for an economy to build on.

Collier (1999) puts a different perspective on the capital stock debate; he argues that a conflict lowers the level of desired capital in a country, because the declined rate of return on capital lowered through unstable conditions creates a new optimum capital stock. Whereas the desired amount of capital declines very quickly, the actual capital stock declines slower. While some capital can be removed from an economy very quickly some is less mobile and it takes time for it to adjust to the new optimum level. Collier than argues, that the succeeding the war the optimal level still remains below its pre-war levels, this infers that when the capital stock could not adjust during the conflict, e.g. due to the short duration, it has to continue to adjust during the post-war period. Implying that there is a "war overhang" leading to an economic decline even after the war has ended. (Collier 1999)

Investment trust is essential for any economy, but especially this might be very eroded by conflicts. First, the country has proven that it inherits some level of political instability which could lead investors to suspect another outbreak of capital and thereby an annihilation of their investment. Collier states that statistically the probability of renewed conflict within the first five post-conflict years is 39% (Collier 2004). Paradoxically investment, domestic and foreign, should be at the center of reconstruction efforts, Flores and Noorduddin argue: *"The mere potential for violations of the peace may slow the process of reconstruction and intensify the odds of slipping back into conflict, which frightens potential investors and stifles recovery. Yet, […] stimulating investment is exactly what*

postconflict governments must do to rebuild their wartorn economies" (Flores and Nooruddin 2006, p.6). The absence of investors can be devastating for any economy can be even worse for conflict torn countries, as mentioned above conflicts often go hand in hand with capital flight, implying a low capital stock in the immediate post-conflict period, if countries fail to attract investments in this period it becomes increasingly difficult to rebuild the production capabilities, i.e. to redevelop their physical and human capital (Flores and Nooruddin 2006).

This paragraph presented different notions on why a conflict can lead to a decline in economic growth. Not only is capital destroyed during a war, but the conflict also erodes investment trust in a country. It is further assumed that the decline in capital exceeds the positive effects of increased government expenditure (as described in paragraph 3.1.) and that the investment trust can eradicate profitability of capital investment proceeding the war. Forthcoming are the following hypotheses:

1. *"Destruction during the war exceeds gains from increased government expenditure during the war."*
2. *"Destruction and decrease in trust and security negatively affect economic growth in the post-conflict period."*

3.3 Post-Conflict economies grow faster

There is a lot of evidence that post-conflict countries grow faster than comparable non-conflict countries. Different theories claim different factors to be responsible for this phenomenon. There are several pre-conditions for this growth that many researchers agree on first and probably most important is a credible commitment for peace, Collier states: *"It is imperative to bring down this initially high risk of further conflict, both as an objective in itself and because perceptions of high risk will be deeply damaging to economic recovery. Hence, all policies have to be assessed in terms of whether they will reduce or worsen this risk*" (Collier 2006, p.1)This commitment can take different forms, but in any case it is the first condition to be met in order to attract investments and be able to shift government expenditure from military to non-military sectors. While some argue that a peace agreement naturally inhibits a potential for renewed conflict and that an outright victory is the most promising form of peace commitment, others argue that good institutions for fighting inequality are most important. Yet others claim that the presence of capable international forces sends a good signal. Second, as mentioned above many scholars state that a shift in government expenditure from military to non-military and a quick demobilization of ex-combats must be achieved to secure post-conflict growth (Collier and Hoeffler 2004b). In addition, researchers agree that countries must be able to re-attract investments and international aid to channel their economic potential into growth and welfare gains. The following paragraph will take a closer look at major factors that have been identified to be responsible for supra-natural growth in post-conflict countries by different authors.

3.3.1 Peace Dividend

During times of conflict, the usual response of a country is to shift capital (financial as well as human) from productive sectors towards non-productive military sectors, thereby raising the amount of GDP spend on the military and raising government expenditure as a whole. While some see this as a chance to grow and economically develop (see above) others claim this spending to be sub-optimal. Wijeweera and Webb (2010) for example, argue that in the case of the Sri Lankan civil war the

multiplier effect of government expenditure on military was only 0.3, meaning that any dollar spent only raises national income by 30 cents. Other researchers too claim military spending to be suboptimal, even researchers claiming positive effects of military spending see potential in shifting towards non-military expenditures, Murdoch et al (1997) e.g. state that in the case of Latin American countries a trade-off exists, and argue that shifting to non-defense spending could bring a net benefit for a country. Given the assumptions that military spending is suboptimal and that military spending increases during periods of conflict, i.e. that it decreases after a conflict, there is reason to believe that a shift of expenditures could earn a country a substantial "peace dividend". Thus a peace dividend is an economic profit made from crowding in investments otherwise used for military purposes. In other words capital shifted from the defense sector into non-defense public goods or private sector can have a higher multiplier effect. Wijeweera and Webb (2010) argue that the short run effect of non-military spending can be as much as four times higher than that of military spending.

Even if statistical data of a country does not show signs of decreased military spending after the conflict, e.g. because of fear of renewed conflict, there can still be a large peace dividend, because in the case of civil war public spending on defense is only one part, the other, which might be as substantial is the expenditure of the rebels or other non-state military forces, which do not appear in a countries defense spending statistic. Although there is generally no data available on the military expenditure of the non-public sector, it can be assumed that it drops to zero shortly after the conflict. Collier and Hoeffler (2004) argue for public armies a state of peace is normal, for a non-public army on the other hand it is vital to fight in order to sustain, they state that no rebel army has ever sustained longer periods of peace as a *"financially and military […] combat ready force*" (Collier and Hoeffler 2004 b, p.5) unfortunately the effect of a non-public peace dividend is difficult to examine, because although it can be assumed that post-conflict expenditure of rebel groups approaches zero it is difficult to estimate the level during the conflict.

In addition to the fiscal peace dividend mentioned above, there is also a dividend from demobilization. Succeeding the end the war, ex-combatants can theoretically be demobilized and can become active in the productive sector again. This bears a huge potential for reutilizing the productive capacity and secure economic growth, on the other hand this often turns out to be a difficult challenge for many countries (Collier and Hoeffler 2004 b).

Collier (1999), as stated above, claims the adjustment of actual capital stock to desired capital stock as responsible for post-conflict economic development. He states that a peace dividend can only occur if, during the war the actual capital stock adjusted well enough to its new, conflict created optimal, i.e. when the duration of the war was long enough. (Collier 1999)

In contrast it is also argued that military spending will not drop after a war because it might be essential to security, Collier (2006) states: *"During the conflict skills, organizations and investments build up that are only of use through violence. Peace is costly for these interests and so they will look for opportunities to revert to conflict"* (Collier 2006, p.2), inferring that many states see a necessity to keep a large military presence to counter any renewed rebellion.

So in conclusion it can be stated that a peace dividend can occur in post-war countries for two reasons either the state shifts its resources from the military sector into other more productive sectors and/or the capital formerly used to finance the non-public armies declines and is reinserted in the economy. This brings forth the hypothesis:

1. *"There is evidence for a substantial peace-dividend (public or private)"*

3.3.2. Capital Stock

Another approach is that declined or unutilized capital is responsible for post-conflict growth. The former potentially gives way for increased returns on assets, the latter gives explanation for supra-natural growth up to pre-war levels.

Some scholars argue that increased economic growth can be observed after a conflict, but argue that this growth only continues until the economy reaches pre-war levels and that returns to its natural course. This assumption is based on the idea that capital is not only destroyed and/or moved from the country during the conflict but that the capital still available is not fully utilized. It is argued that human capital is tied up in the conflict as such or is hindered through the conflict and that physical capital is not utilized because of a lack of human and financial capital. But this unutilized capital is not vanished; rather it can be reutilized very quickly after the war, leading to a sharp increase in utilized capital rather than an increase in the capital stock as such. Still this could lead to sharp observable increases in GDP growth, but this increased growth can only continue until the existing capital is fully employed, i.e. at pre-war levels, after this the economy will, according to the theory, re-enter its normal path and grow only as the capital stock growth or productivity is enhanced (Davis and Weinstein (2002) according to Chen et al. 2008).

Others have argued that it is not so much a decline in employed capital, but that conflicts destroy capital unevenly, i.e. that some forms of capital or certain sectors of the economy are more prawn to destruction and decline more significantly during the war, leading to higher returns on capital after the war and a potential comparative advantage over other sectors and/ or countries (Baro and Sala-i-Martin (1995) according to Chen et al. 2008).

We see thus that a decline of capital through conflict can trigger unusually high rates of growth after the conflict. Unclear remains the question whether this growth can lead to GDP levels exceeding the pre-war level of economic activity. Therefore this thesis tries to test the following hypothesis:

1. *"Post-conflict economy will not exceed pre-war levels"*

3.3.3 Aid

Another theory that could explain potential supra-natural growth in a post-conflict period was developed by mainly Collier and Hoeffler (2004), but is often cited in other literature as well. They state that a country has a certain potential to absorb international aid, that there is a saturation point for aid, inferring that if this point is passed aid quickly becomes less effective. They start their argument with the assumption that this point can differ between countries and times and depends on the economic state, the institutions and the policies of a country; they use the world banks data

on country policy and institutional assessment (CPIA) to define this environment. It is further argued that this score will be different in peaceful nation and those just exiting a conflict. In addition, they argue, there is an environment in post-conflict countries which is not reflected in the CPIA score but could be very promoting for aid efficiency, they state: *"The need to restore infrastructure, juxtaposed against the collapse of revenue, tend to make aid unusually productive"* (Collier and Hoeffler 2004, p. 1126). In contrast it is also suggested that through violent conflict institutions could erode in such a way that aid might disappear in civil administration and render it inefficient.

Their analysis then shows that the average country's aid absorption capacity is at around 2.5 times its CPIA score as share of their GDP, i.e. a country with the middle score of 3 points on CPIA saturates for aid at around 7.5% of GDP measured in PPP (Collier and Hoeffler 2004). In their test group - i.e. post-conflict countries - however this capacity seems to be much higher, the results suggest that the saturation point for aid in the first period of complete peace (4-7 years after peace onset) is much higher at 5.59 times the CPIA score. This however exaggerates the capacity if not accounted for the usually very low score of CPIA characteristic for post-war countries. Still a spurt in growth of about 2 percentage points above the natural rate can be observed during this period and the authors claim that: *"This growth spurt is largely, or indeed entirely, if our analysis is taken literally, dependent upon aid: for given policies aid is more than twice as productive in post-conflict circumstances, and so at normal levels of aid, growth is higher. In the absence of aid there would be little or no growth spurt"* (Collier and Hoeffler 2004, p. 1135). (Collier and Hoeffler 2004)

In conclusion their studies show that post conflict recovery usually takes the form of an inverted U, inferring a peak between the 4 and 7 year after peace onset and a resumption to natural growth about a decade after the end of the war. (Collier and Hoeffler 2004)

4. The case of Sierra Leone

In the previous section numerous notions on how conflict can affect an economy in its aftermath. This section examines whether evidence for these can be found the case of a single country. To do so the economic development of Sierra Leone is presented and linked to the afore mentioned theoretical notions. The case of Sierra Leone is interesting for several reasons, first, it represents a conflict that is relatively modern, yet there is a decade of post-war developments to be examined.
Sierra Leone is a country of about 6 million people located on the west coast of Africa in between Liberia in the south and Guinea in the north and east (CIA 2011).

Sierra Leone was first settled by ex-service men who fought for the British in the American independence war and afterwards wanted re-settle in Africa. Since than the country has served as a refuge for many freed slaves. This led the development of a divers intellectualism combining ideas from all over western Africa in Freetown but also to a strong divergence between the "new" urban and the native rural population. Because of this the country has a long history of violence among the different groups in the country the 1890s. the divergence between the groups increased as the state developed a growing patrimony to secure profits from mineral exports especially diamonds for the political elite. (Richards 1996)

At the end of the 1970s rents from minerals declined sharply as some of the best mine were worked out and the country became heavily reliant on foreign aid, this aid however is often bound to structural programs which contradict the patrimonial idea many government officials head to support in order to keep their own jobs. (Richards 1996)

Because it was missing the essential rents from mineral exports and international aid the economy stagnated and inequalities became an increasingly pressing concern. So when the RUF, a very small group of rebels, entered the country in 1990 they quickly found wide support among the rural youth and what started as a small insurgence of rebels from Liberia grow out to be a civil war that lasted a decade and displaced almost half of the population. (Richards 1996)

In 1990 Sierra Leone already was one of the poorest nations in the world and much of its economy was destroyed during the conflict before it ended in 1999, so economic recovery was very important in the aftermath of the war (HDI 2010). The previous section explained different theories on what happens with in economy in the aftermath of a conflict, but as stated different authors predict very contradicting outcomes and see different factors responsible for these outcomes. It becomes thus essential to examine the actual development of Sierra Leone's economy in the aftermath and identify possible reasons for the observed development. This is done in the following paragraphs, I start by examining the economic development throughout the years using data on GDP growth, welfare and inequality and later examining different factors which could be responsible for these developments including military expenditure, aid received and investments.

4.1 GDP growth:

The first indicator I will investigate is GDP growth, as mentioned above this indicator is not a direct measurement of welfare as it neglects distributional affects, it is purely an aggregated, or in the case of per capita measurement, an averaged variable describing the income or more correctly the overall productivity of a country or an average citizen. But still it can be seen as a basic indicator for a country´s wellbeing as well as a pre-condition for welfare gains. For those reasons I will start with GDP growth during the period between 1960 and 2009, this will provide pre-conflict data as well as almost a decade of conflict and post-conflict years respectively. This data is also compared to that of the developing countries of Sub-Saharan Africa (Starting 1965) to control for regional effects as well as to explain some general trends (n=49 years, Pre-war: 1961-1990, War: 1991-1999, Post-war: 2000-2009).

During the whole period (1961-2009) GDP growth in Sierra Leone averaged 2.6% but most of that can probably be trailed to an increase in population since GDP per capita has only grown by 0.6% (Based on: World Bank 2011). In comparison, Sub-Saharan Africa grew with an average of 3.3% p.a. as in the case of Sierra Leone most of it can be explained an increase in population, for Sub-Saharan Africa GDP per capita increased by only 0.5% per year (see Figure 2) (Based on: World Bank 2011).

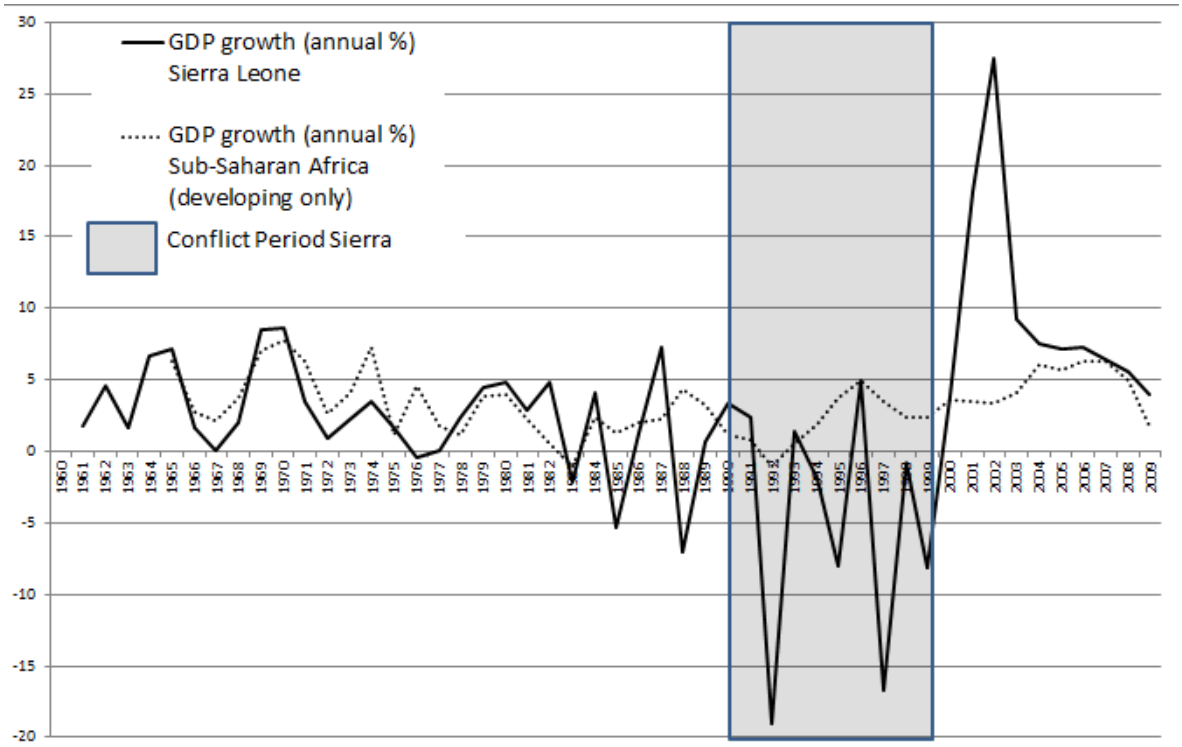

Figure 2: GDP growth Sub-Saharan Africa (developing only) and Sierra Leone 1960-2009
Based on: World Bank (2011)

More important than comparing the whole 49 years is to compare economic performances grouped according to war and peace periods. As mentioned above I define the first year of war 1991 and the last 1999. This **gives three samples of 30, 9 and 10** years for pre-war, war and post war period respectively. The following report shows how much the Sierra Leonean economy grew in the aforementioned periods and compares those with the growth rates of Sub-Saharan Africa for the same periods. Here we see significant differences not only between Sierra Leone and Sub-Saharan Africa but also between the periods (see Table 1). GDP growth in Sierra Leone is difficult to describe in a pattern, it can however be stated that there was an increase in growth until 1970 and that growth rates generally declined afterwards, reaching negative values for the first time at the end of the 1970s, where as stated above the best mines were closed due to being worked out (Richards 1996). It can further be stated that the economy in the decade leading up to the war was very unstable with growth rates fluctuating between 7% and -7% p.a.. During the war the economy remained unstable but with generally negative growth rates, only with the end of the war growth rates increased significantly until peaking at around 27% p.a. in 2001 and thereafter stabilizing a little around 7% p.a..

Table 1 shows regression estimates for GDP growth rates in Sierra Leone and Sub-Saharan Africa for the three periods. Here we see again significant differences between the two cases and in the case of Sierra Leone also between the periods. As stated before fluctuations in growth have been strong since the 1980s leading to high standard deviation numbers in war and post-war data for the case of Sierra Leone (see table 1).

Table 1: GDP/GDP per capita growth p.a. per period Sierra Leone and Sub-Saharan Africa (developing only) 1961-2009
Based on: World Bank (2011)

Period		**Sierra Leone** GDP Growth	**Sub-Saharan Africa (Developing only)** GDP Growth	**Sierra Leone** GDP per Capita Growth	**Sub-Saharan Africa (Developing only)** GDP per Capita Growth
Pre-War Sierra Leon: 1961-1990	**Mean**	**2,5**	**3,3**	**0,5**	**0,4**
	n	30	26	30	25
	Std. Dev	3,6	2,2	3,7	2,2
War Sierra Leon: 1991-1999	**Mean**	**-5,1**	**2,1**	**-5,2**	**-0,6**
	n	10	10	10	10
	Std. Dev	8,4	1,8	8,4	1,8
Post- War Sierra Leon: 2000-2009	**Mean**	**9,7**	**4,6**	**6,2**	**2,0**
	n	10	10	10	10
	Std. Dev	7,4	1,5	6,9	1,5

Table 2: Linear regression for GDP growth of Sierra Leone 1961-1990
Based on World Bank 2011

Equa-tion	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	,953	581,973	1	29	,000	4,898E8	1,917E7

If the pre-war period is considered a period of natural growth, it can be used to estimate economic growth for the following years for the case that no war would have occurred, neglecting other possible effects such as other shocks to the economy and global trends (see table 2). Table 2 shows the estimation of this regression using the GDP levels for the years 1961-1990 to create a line representing a potential natural growth rate. This gives the regression of:

*GDP in year Y= 489mio $ + 19mio * X,*

which is significant at a 99% level (see table 2). If X is the number of years after 1960 and this curve is estimated to the year of Y (for this purpose 2009) we can observe whether post-conflict GDP passes the point of pre-war levels, not only as a stable state of the 1990 but also as the natural trend of the economy. With X equal to 49 this gives an estimated GDP at natural growth of 1.429mio (constant 2000 US $), the actual GDP of Sierra Leone however is 1.511mio (constant 2000 US $) implying that by now the country not only has passed the stable pre-war level of 1991 which was 1.038mio (constant 2000 US $) but also its pre-war levels accounting for the natural rate of growth.

The same procedure can be done to check the levels at war termination to examine whether the conflict has retarded GDP growth in the progress or if conflict has spurt economic growth at the time.

In the year 2000 GDP of Sierra Leone was 635mio (constant 2000 US $), thus far below pre-war levels and even further below pre-war levels accounting for a natural growth.
But as mentioned above GDP per Capita might be a more important indicator for the wellbeing of a country. We use the same method as before and create a linear regression of GDP per Capita development starting 1960 and ending 1990. Although this regression is not as closely related to the observed data as in the case of GDP it is still significant at a 99% confidence level (see table 3). Using this we can forecast estimates of GDP per Capita at the natural growth rates.

GDP per Capita for year Y = 239 + 1.4 * X

Table 3: Linear regression for GDP growth per capita of Sierra Leone 1961-1990
Based on World Bank 2011

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	,293	12,014	1	29	,002	239,846	1,373

We can estimate the levels for the years 2000 and 2009 in the case that the development had continued its natural course. Using this regression we find for 2000: 295$ and for 2009: 307$ which are both well above the actual numbers of 150$ and 265$ respectively.

This shows that if examining GDP for the whole economy, conflict has retarded economic development but has created potential for supra-natural growth which exceeds pre-war levels in the period following peace onset. If, on the other hand GDP per Capita is examined the civil war has stunted growth at the time and that although supra-natural growth can be observed it has not caught up to pre-war levels if accounted for normal growth. If however the absolute number of 1990 is counted as pre-war level, GDP per Capita has also exceeded pre-war levels.

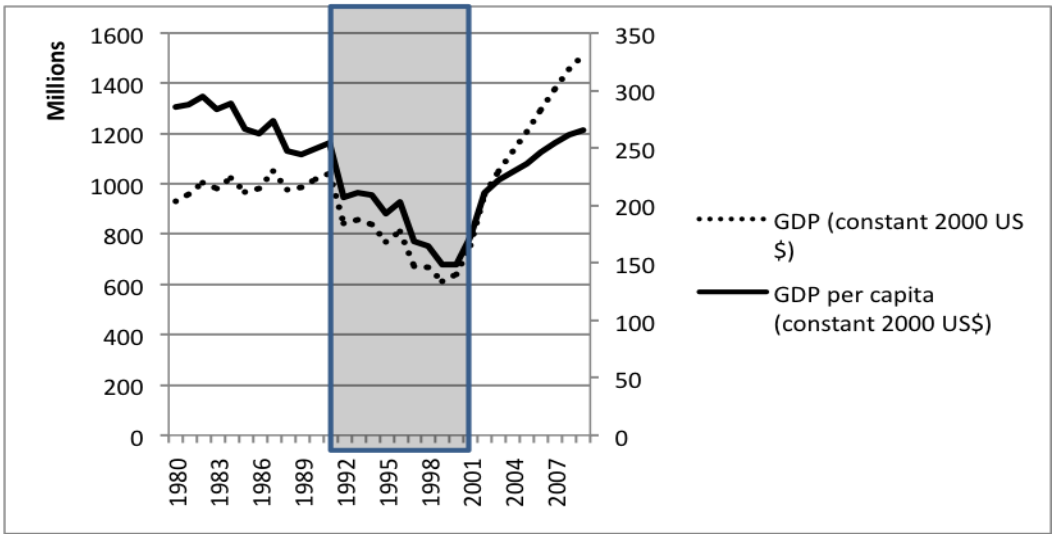

Figure 3: GDP/GDP per Capita p.a. in Sierra Leone 1980-2009
Based on: World Bank (2011)

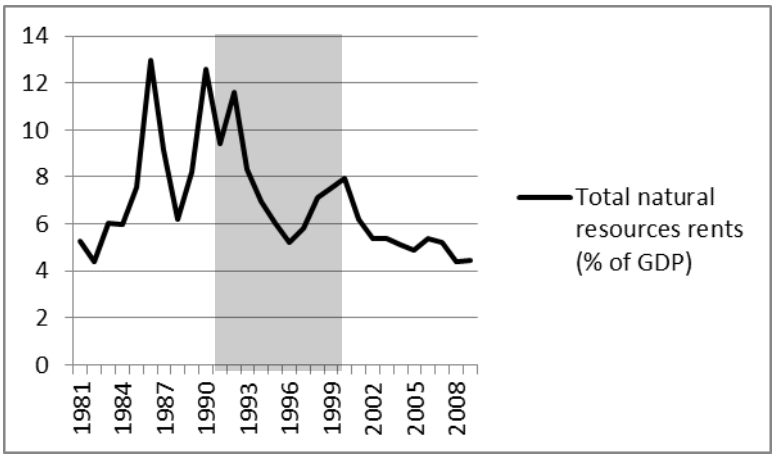

Figure 4: Total natural Resource rents (% of GDP) Leone 1980-2009
Based on: World Bank (2011)

But this growth has to be examined with caution, it is the common understanding that some of the rebels financing was earned through the smuggling of diamonds into neighboring states, especially Liberia. This could imply that there has been no growth in the economy but rather that the data only shows an increase in legally earned income, i.e. national production did not decline during the war nor grow significantly after the war, because parts of the diamond production are not represented in the data for the war years. As stated above I will therefore try to eliminate this possibility by examining the development of resource rents earned. In this graph we can see that this possibility can be eliminated, because the share of resource rents of the nation´s GPD has declined since the end of the conflict. This implies that one can assume a real growth in the economy succeeding the war in Sierra Leone.

The pattern of GDP development observed here could point towards the theories described in paragraphs 3.2 and 3.3, namely that economies will shrink or at least grow slower during a conflict but can have the ability for supra-natural growth and recovery in the period succeeding the conflict (Collier 1999). There is, however no evidence for economy fertilizing factors during the war as described in paragraph 3.1, in which is stated that economies might benefit from war through increased military expenditure and improved infrastructure (e.g. Benoit 1973). Unclear remains the question on why this pattern has occurred. In section three I state, that the retarding of the economy during the conflict could be the result from the destruction of capital as well as displacement of people, but could also be the result of a crowding out of private investment and inefficient government expenditures or a decrease in investments. In paragraph 3.3 several possible factors that might enable economies to grow faster after a conflict have been identified, most notably the peace dividend (see e.g. Wijeweera and Webb 2010) and the decreased capital stock that enables high returns on investment and the capacity to absorb aid (Collier and Hoeffler 2004). The following paragraphs examine the case of Sierra Leone in more detail to investigate the effects on welfare and equality by the conflict and its aftermath as well as identify the factors for the above seen pattern of economic development.

4.2 Welfare

We have thus seen in the last paragraphs that succeeding the war, the national economy grew at an unusual rate, but a growing economy, even if calculated down to a grow in per capi-

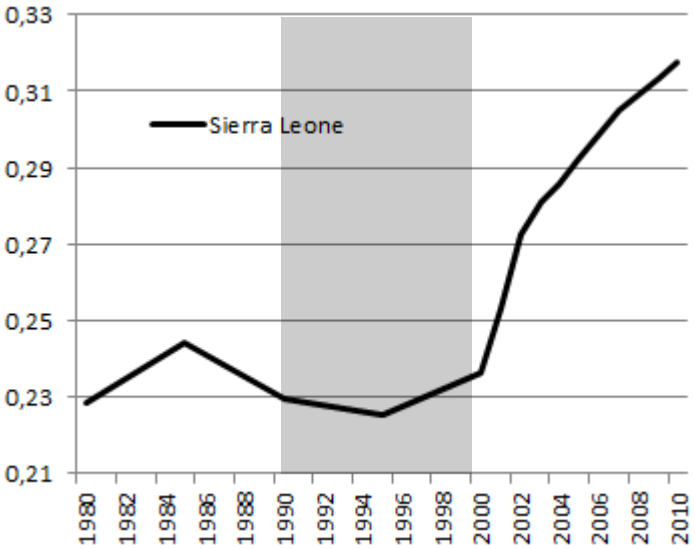

Figure 5: HDI score Sierra Leone by year 1980-2010
Based on: HDI 2010

ta income does not necessarily imply an increase in welfare for broad parts of the population it can rather be seen as a pre-condition. This paragraph will investigate to what extent the grown economy has improved the welfare of the population by examining the development of the country's HDI score. The HDI is a broad indicator used to describe the general welfare in a country it is composed of three main indicators: life expectancy, literacy and income. Sierra Leone has a history of extreme low welfare with the fifth lowest score on the Human Development index for the year 1990(HDI 2010).It is important how the welfare in the country responded to, first the breakdown of the economy and later to the recovery of the economy since 2000.

This paragraph first looks at the development of the HDI score as a broad measurement of welfare and later on the different indicators separately. As stated above in 1990 Sierra Leone had one of the lowest scores of HDI in the world, with a value of 0.23 (0 being the lowest, 1 the highest possible score) (HDI 2010). Figure 5 shows that the HDI score started to drop in 1985 and slowly started to recover towards the middle of the civil conflict until the end of the conflict in 1999 after which it rose more quickly and passed pre-war levels before the year 2001. Of course part of the HDI score is GDP per capita and we have seen a similar pattern of growth when examining GDP per capita (see 4.1), however unlike GDP per capita the HDI passed pre-war levels by far. Unfortunately the HDI does not show, in what way the welfare changed. It is therefore crucial to look at the different indicators separately. Since income (in form of GDP per capita) is already discussed above (see 4.1), this paragraph will concentrate on life expectancy at birth and education rates, obviously there are more measurements to investigate the welfare of a country but for the purpose of this thesis these three will give a good overview on the situation and its development.

Due to a lack of data I will not investigate literacy as such but rather use mean years of schooling as a substitute. Life expectancy shows a very similar picture as the HDI, it shows a sharp decline which starts before the war and starts to increase again in the middle of the nineties. Since the decline started years before the war, the development might be exogenous to the war and more likely to be related to other factors typical for the region. As many countries in Sub-Saharan Africa, Sierra Leone has immense problems with HIV/AIDS, which started to occur in the late eighties and is believed to be responsible for a decline in life expectancies in many countries of the region (Piot et al. 2001). The mean years of schooling (years of formal schooling received by all people 25 and older) on the other hand show a very

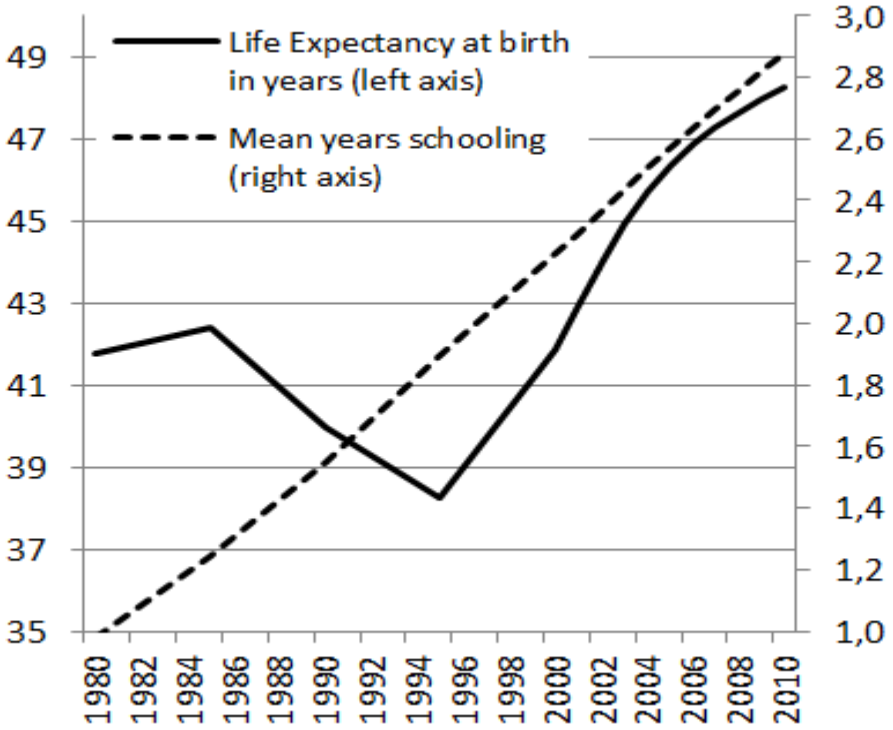

Figure 6: Life expectancy (left) and mean years of schooling (right) Sierra Leone by year 1980-2010
Based on: HDI (2010)

different pattern, this indicator has grown continuously since 1980 without declining during the war. This pattern like the case of life expectancy seems to be unrelated to the war and caused by other factors (see Figure 6). Although it has continuously risen for almost 30 years it is still very low at just about 3 years, this can probably be explained by many children not receiving schooling at all as expected years of schooling at (primary enrolment) has been at around 7 years since the end of the war (HDI 2010).

We have thus seen that there has been a positive trend in all above discussed indicators since 2000 or even before, which however might be exogenous to the war. Nevertheless it can be stated that the welfare situation in Sierra Leone has improved since the peace onset in 1999. This result seems very positive at first, if however examined in the comparison to other countries it shows that Sierra Leone still belongs to the least developed countries in the world. By the year 2010 Sierra Leone reached a HDI score of 0.317, compared to an average of 0.69 for developing countries in the year 2005 this is still a very low score (Ribbeck 2011). and also the absolute values of an average of 3 years of schooling and a life expectancy are lower than those of neighboring countries (Liberia: Mean years of schooling 3.9/ Life expectancy at birth: 59)(HDI 2010). Another important indicator for welfare is the poverty headcount, this however will be discussed as part of the next paragraph: 4.3 Inequality.

4.3 Inequality

Another important indicator for a country's wellbeing is inequality. The following paragraph therefore investigates whether there is evidence that inequality has decreased since the end of war. This is not only important because of its inherent value but can if one assumes a rational choice for violent conflict reduce the risk of re-engaging in armed conflict, because if the gap between the richest and the poorest shrinks, the opportunity costs of engaging in conflict rises for the poorest (Hartzell et al 2010).

The most conventional method for income equality measurements is the GINI index; unfortunately this index is only available for 2 years, 1990 and 2003. Although fortunately this gives a pre-war and a post-war year it is insufficient data to examine a trend. However it can be stated that there has been an improvement in between those dates, according to the World Bank the GINI score was 63 in 1990 and improved to 43 by the year of 2003 (World Bank 2011). For the same years data is available on the income distribution within the country, the following figure shows how much of the nation´s income was earned by the different quintals.

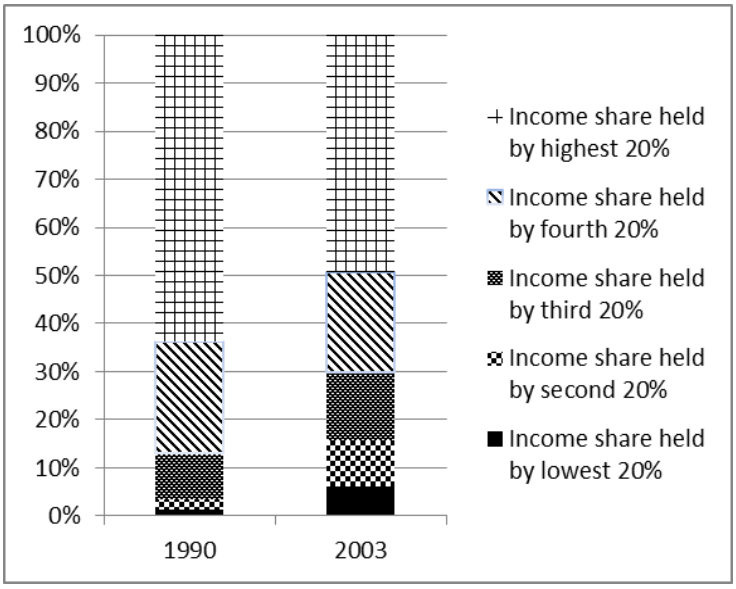

Figure 7: Income Distribution Sierra Leone 1990 and 2003
Based on: World Bank (2011)

This however does not show who has been the winner of this shift in income distribution because it cannot be evident whether persons remained within their original quintal or if due to e.g. a political transition during or after the war people have changed their economic position.

Due to this lack of data it becomes important to examine the development of inequality in Sierra Leone in terms other than income and in more detail regarding the different clusters of the population. For this analysis the most important clusters will be the urban and the rural population, because unlike many other civil wars, the sierra Leonean war was not predominantly fought among different ethnicities but according to Richards (2005) emerged out of a strong divergence between the rural and the urban population in terms of income and opportunities in employment and education. Until today there are substantial differences between the different regions/districts of the country, while "only" two percent of the population live in poverty in and around Freetown (Western Urban District), in other districts up to 63% live in extreme poverty (SL-NHDR 2007) (see table 4).

Table 4: Poverty by District 2004 (Total poor < 2 US$ per day, Food poor < 1 US$ per day)
Source: SL-NHDR (2007)

District	Total Poor (%)	Food Poor (%)	District	Total Poor (%)	Food Poor (%)
National Average	70.0	26.0			
Bo	64.0	25.0	Bombali	89.0	63.0
Bonthe	85.0	35.0	Kambia	69.0	9.0
Moyamba	68.0	16.0	Koinadugu	77.0	29.0
Pujehun	59.0	14.0	Port Loko	82.0	20.0
Kailahun	92.0	45.0	Tonkolili	84.0	32.0
Kenema	88.0	38.0	Western Urban	15.0	2.0
Kono	66.0	22.0	Western Rural	45.0	15.0

This is also reflected in the access to improved water sources, as one of the basic needs of the population. Data from 1995 onwards shows that the gap between the rural and urban population in terms of access to clean water has continuously widened since the middle of the armed conflict (see figure 9).

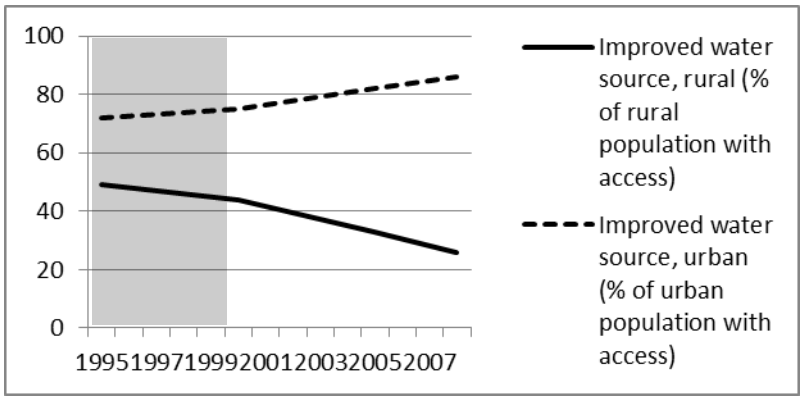

Figure 8: Access to improved water % of rural/urban population Sierra Leone 1995-2009
Based on: World Bank (2011)

Another form is inequality in terms of gender; here Sierra Leone has been struggling as well and is still far from reaching gender equality. Sierra Leone is listed as the *"second-least developed country for women"* (SL-NHDR 2007, p. xiii), because it shows high rates of female illiteracy, malnutrition, maternal mortality and domestic violence. However, the human development report of 2007 (SL-NHDR 2007) states that in recent years there have been substantial improvements in regard to this issue. It is stated that enrolment in primary education is almost equal between male and female and enrolment of women in higher education is increasing as well, which

will lead to higher female literacy and employment rates in the future. Also other indicators point towards an improvement for women in the future, the human development report describes a political willingness to tackle the issue of gender inequality and states that *"the Local Government Act requires at least 50% female representation in District and Ward Committees"* (SL-NHDR 2007, p. xiii). (SL-NHDR 2007)

In sum it seems that although general financial inequality has gone down inequality between rural and urban population is still very high and in the terms of access to water is still increasing. It remains thus unclear if the conflict or its aftermath had an effect on inequality and if so whether this effect is negative or positive. It was further stated that gender inequality is very high in Sierra Leone but has been improving over the last few years, this however is likely to be a result of the general zeitgeist rather than of the war termination as gender inequality has become of increasing interest all over the world (Malhotra et al. 2002).

4.4 Peace Dividend

As mentioned above some researchers claim that a country can – in the aftermath of a conflict – profit from a so called peace dividend (e.g. Wijeweera and Webb 2010). "*The term 'peace dividend' refers to the economic effects of the reallocation of government spending from military to peacetime purposes following the cessation of hostilities*" (, p.1), a gain occurs if the allocation is to an economically more productive sector. Those resources can be of different nature. First, there is the formal government military expenditure which if lowered succeeding the war can either be shifted to non-military government expenditure or could lower total government expenditure. Second, there is the remobilization of ex-combatants into the productive sector. And third, there is an eradication of private expenditure on military since non-governmental armies are usually not designed to be a standing army in times of peace.

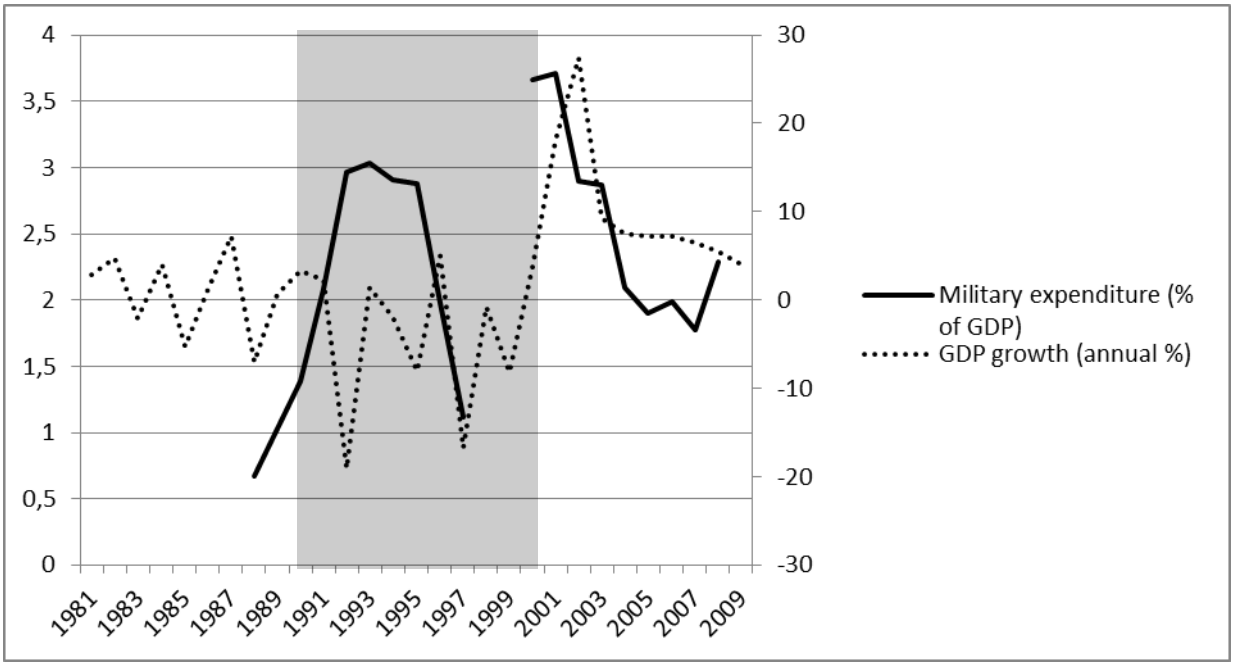

Figure 9: Military expenditure (% of GDP) (left) and GDP growth (% p.a.) (right) Sierra Leone 1980-2009
Based on: World Bank (2011)

I will start here with examining the development of formal military expenditure and its effect on economic growth in terms of GDP. Unfortunately there is no data on Sierra Leone´s military spending available for the years 1998 and 1999 as well as before 1988, I will therefore only consider the time succeeding 1988 and will assume a linear development between the values for 1997 and 2000. Unfortunately the limited amount of available observations make it impossible to define a significant correlation.

Even if not statistical significant the relation between the two variables for the years 1995-2007 could point towards a confirmation of the Benoit hypothesis and away from a substantial peace dividend. But as mentioned above a peace dividend could also arise from a shift in other resources, most notably freeing human capital to engage in the economic progress. This can take the form of demobilization of ex combatants as well as enabling previously hindered persons to reengage in their profession. According to the UNDDR (2010) (the United Nations Disarmament, Demobilisation and Reintegration Resource Centre) the demobilization program in Sierra Leone has been very successful with more than 160% of originally expected combatants reintegrated in the society and economy, when the program ended in January 2002 (UNDDR 2011).

Table 5: Target Ex-combatant Beneficiary Groups and Actual Program Participation at Disarmament stage

Target Beneficiary Group	Original Estimated Population	Acutual Numbers	Percentage
Revolutionary United Front	**15,000**	**24,352**	**162%**
Civil Defense Forces	**15,000**	**37,377**	**249%**
AFRC/ex-SLA	**13,000**	**8,527**	**66%**
Other Paramilitary Groups	**2,000**	**2,234**	**112%**
Program Total	**45,000**	**72,490**	**161%**

Source: http://www.unddr.org/countryprogrammes.php?c=60 (23.6.2011)

To analyze whether the growth subsequent to the war can be explained with the reutilization of human capital in form of reintegrated economic actors that previously have been hindered by the war, being unable to follow their profession due to displacement or the destruction/closure of their workplace, I will correlate Sierra Leone's total working force to the development in GDP using ordinary least squares method (table 6). To account for possible directions of causality I included time lags of one year in my analysis.

Table 6: GDP (constant 2000 US$) to total Labor Force 1981-2009 (including GDP -1 year/total Labor Force – 1 year)
Based on: World Bank 2011

	coefficient	**std. error**	**t-ratio**	**p-value**
GDP (constant 2000 US$) to total Labor Force 1981-2009	632,4	148	4,3	0,0002
GDP lagged one Year	0.0006	0.0002	3,4	0,0022
Total Labor Force lagged one year	702,8	164,7	4,3	**0,0002**

The test reveals a strong correlation between the two variables, with and without a lag of one year in either direction, the effect of labor force on GDP however seems to be even more significant with a time lag, we can thus assume that labor force is the independent variable in this estimation. This implies that an increase in the labor force through a state of peace and demobilization could have been responsible for the observed growth pattern.

4.5 Investment

Investment of course is fundamental for any economy, but in the case of a post-conflict situation it renders special importance. Wars erode economic growth, destroy capital and cripple investments. During a civil war the most obvious reason for a decline in the capital stock is the direct destruction of physical capital through combat actions, but in addition there are other factors that lead to a decline in capital stock. First, as stated above investment in human capital declines because government resources are shifted to war related assets and second because the population can be hindered from attending education or productive employment either directly through their involvement in the combat or because the conflict does not allow them to reach their employment/education location. Furthermore, the instable situation in the country can lead to a decline in private investments and often to a capital flight. This leads to a low capital stock at the end of a conflict. While the low capital stock is devastating during the war and in the direct aftermath, it does allow new opportunities succeeding peace onset. Private investments are for obvious reasons made where the investors expects a positive return, although post-conflict situations inherit a potential for new conflict and thereby the risk of a complete annihilation of an investment, they also bear potential for high returns. First the low capital stock implies a high labor to capital ratio which, if assuming declining returns of capital, bears the potential for unusually high returns. Second, as discussed throughout this thesis post-conflict economies are often expected to have high growth rates during the decades after peace-onset, which also implies possibilities for high returns on investment. Of course the causality between growth and investment could go both ways and investment might very well be a self-fulfilling prophecy in the sense that investment is expected, therefor growth is expected and therefor investments are made. In this paragraph the investment patterns in Sierra Leone (foreign as well as domestic) are investigated in order to understand investment behavior in this war-post-war situation as well as its effect on the above described growth pattern of Sierra Leone.

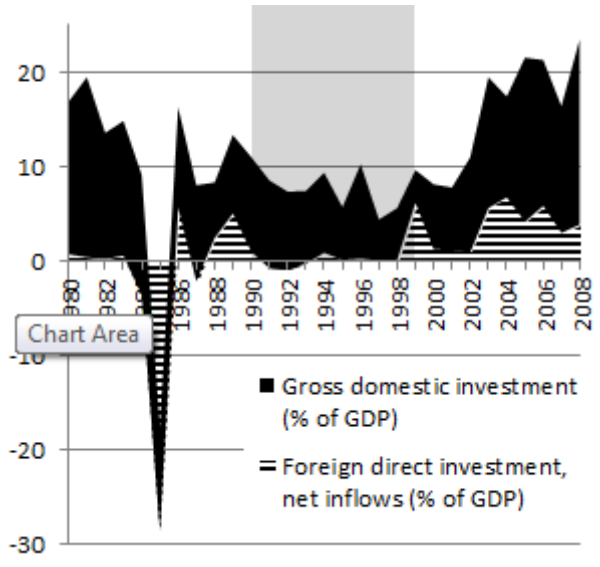

Figure 10: Total Investment (% GDP) = FDI + Gross domestic investment 1980-2008
Based on: World Bank 2011

As foreign direct investment (FDI) makes up over 99% of total private capital flows in the case of Sierra Leone the other two aspects of foreign investment, portfolio and foreign loans, can be neglected for this analysis. Figure 11 shows the

aggregate of FDI and gross domestic investment for the period 1980 to 2008 as percentages of GDP. The figure shows that during the conflict (shaded area) foreign investment declined to zero and that domestic investment, although not much lower than before the conflict started to increase after the war. As these figures are measured in percentages of GDP, the fluctuations seem rather minor, if however the sharp increase in GDP after the war – around 50 % in the first two post-war years – is taken into consideration, these become much more substantial. Ordinary least squares tests reveal that FDI has no significant effect on GDP growth, but gross domestic investment has a significantly positive effect on GDP growth at a 95% confidence level, implying that post conflict growth could have been fertilized by investment, although it cannot completely be explained with the increase in investment as r-squared is rather low at 0.14. Again these number would be higher if the data was not measured in percentages of GDP, unfortunately absolute numbers are not available for the two variables.

Another form of investment of course is that of aid, but as this is often given with different prospects than private investments and as mentioned above (see 3.3) could have special effect in the years proceeding a conflict, aid is dealt with in the next paragraph.

4.6 Aid

Another assumption stated above suggests that post-conflict growth might be enabled through an increased capacity to absorb aid in countries struck by a conflict (Collier and Hoeffler 2004) (see 3.3). Although Rajan and Subramanian (2005) have found in a comprehensive cross-country analysis that aid has little to no effect on GDP growth across nations, this might be different for post-war situations.

Collier and Hoeffler (2004) researched explanations for post-war growth patterns and found evidence that foreign aid might be responsible for large shares of these patterns. They investigated 17 countries during their first decade after peace onset (Sierra Leone is not one of them, but appears in the study as a still peaceful country). Not only did they find that these countries attract increased amounts of aid they also found evidence that this aid is often more effective compared to peaceful countries, especially in between the fourth and sevens year after peace onset, which complies with an often observed inverted U shape of growth in the first decade succeeding a war. In the following paragraph I examine whether this hypothesis can also be applied to the case of Sierra Leone. (Collier and Hoeffler 2004) Although their hypothesis relies on the CPIA sore of a country, this paragraph uses only the aid received as percentages of GDP and GDP growth because the CPIA sore is not available for the case of Sierra Leone.

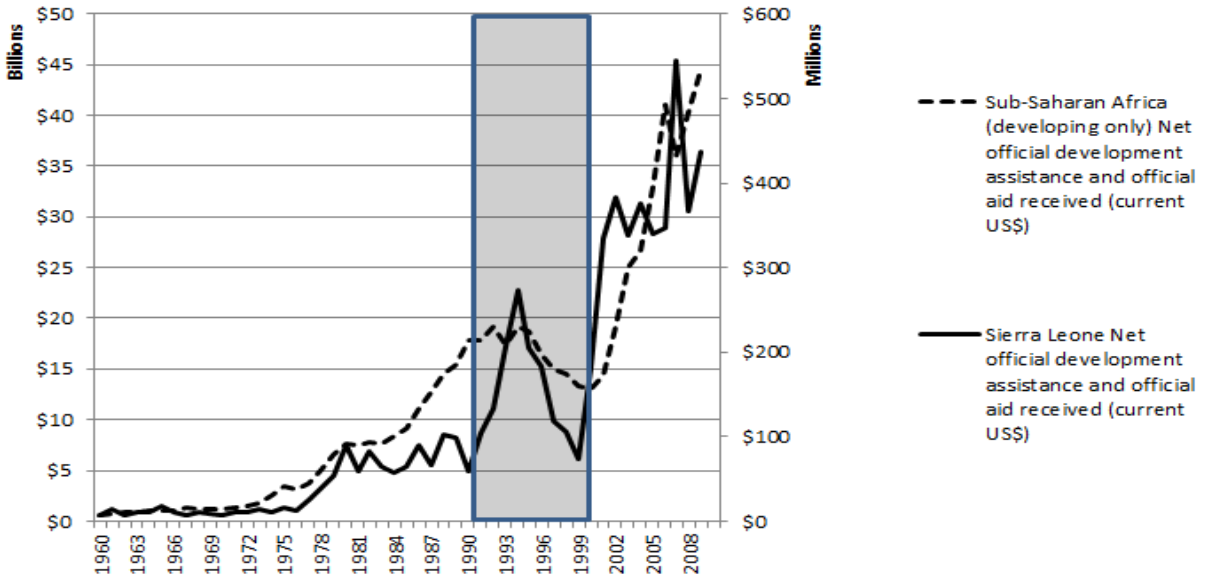

Figure 11: Official aid received by Sierra Leone (left) and Sub-Saharan Africa (right) 1960-2009
Based on: World Bank (2011)

Therefore I first compare the pattern of aid received by Sierra Leone to that of Sub-Saharan Africa (developing only) to test the first hypothesis mentioned above. Afterwards I try to link the received aid to the development of Sierra Leone´s economy in order to test whether an increased capacity to absorb aid could be responsible for the observed economic growth. Figure 12 shows an increase in aid until the year 1994, then a decline in received aid up to 1999 and afterwards a sharp increase, but this seems to be the case not only for Sierra Leone but also the rest of Sub-Saharan Africa. If this is true the pattern does not necessarily imply a correlation to war but rather a general trend, most likely related to the donors not the recipients. In the beginning of the 1990s donors lost trust in the effectiveness of international aid and aid donations declined worldwide, with the establishment of the millennium development goals in 2000 and the accompanying goal to reach 0.7% of GDP spend on aid by the developed countries worldwide aid donations increased sharply again (Radelet 2006). This becomes even more evident when correlating Sierra Leone's and Sub-Saharan Africa's aid inflows using ordinary least squares method which reveals that the two are related to each other with a significance of over 99% and an r-squared of around 0.8. However, even if the pattern of aid cannot be solely explained with the occurrence of conflict in the case of Sierra Leone it can still be stated that aid has been at unprecedented high levels since 2000 and could therefore be relevant for the post-conflict growth pattern observed above.

This could imply that the supra-natural growth observed since the peace onset is (partially) because of an increase in foreign aid which seems to be at least in parts exogenous to the war and the peace onset, even though the time span might indicate otherwise. Irrelevant to why the aid increased is the above mentioned hypothesis by Collier and Hoeffler (2004) that post-conflict countries have a higher capacity to absorb aid which could enable them to spur their economy succeeding a conflict. As observed in paragraph 4.1 Sierra Leone showed a typical inverted U pattern of growth since 2000, which could underline the existence of an extra ordinary capacity to absorb aid in the post-war

decade of Sierra Leone, if this is true however, it appears in in earlier state than Collier and Hoeffler (2004) predict in their study, namely not between the fourth and seventh year after peace onset, but rather between the first and third.

5. Conclusion and Findings

This thesis tries to analyze the macroeconomic consequences of the civil war in Sierra Leone, it thereby not only shows the mere economic development but also tries to incorporate contemporary literature on theoretical post-conflict development and test whether these are applicable to the case of Sierra Leone and strongly related to this, which factors might be responsible for the post-conflict development in the case of Sierra Leone. In the first section, the problem became apparent, namely that the civil war of Sierra Leone has eroded an already struggling economy and that, although post-conflict recovery has an immense importance research and theories on the matter are still inconclusive and often contradicting each other. Therefore, in the following section, three main approaches where introduced and explained, although they all have been claimed to be proven using empirical data, they all predict other typical outcomes from war. Whereas the first one, mainly based on the Benoit hypothesis states that conflict can be good for an economy due to high government expenditures (see e.g. Murdoch et al. 1997), the second hypothesis stated that although this might be true, the negative effects of war are much worse and that economies are eroded through a conflict with the consequences lasting long into a following period of peace (see e.g. Humphreys 2002). The third hypothesis agrees on the point that wars erode economies but states that this bears potential for supra-natural growth in the post-war period (see e.g. Wijeweera and Webb (2010) or Collier and Hoeffler 2004).

The third section describes the development of Sierra Leone starting 1960/1980 until today, in terms of GDP, equality, welfare and indicators that might be responsible for patterns of change in these. This section uses these findings to try and answer the research questions stated above. The main research question is: *How has the Civil war (1991-1999) affected the Sierra Leonean economy during the succeeding decade and what factors are most likely to be responsible for this effect?* To answer this, sub-research questions have been posted and this section will first discuss those, in order to answer the much more complex main question afterwards. The first sub question is*: Is there evidence for supra-natural growth after the civil war in Sierra Leone?* Although this seems to be a straight forward question, the answer is not as simple. Looking at the development of GDP it seems evident that the war retarded Sierra Leone's economy but that the peace onset enabled unusually high rates of growth, thereby confirming what many contemporary researchers of this field assume (see 3.3). If however GDP per capita is used for this analysis it becomes clear that this growth is not purely due to an improved economic performance, but for large parts explainable by an increase in population and therefore an increase in economic actors.

The second question is very closely linked to this matter: Is the economy exceeding pre-war levels? This question is not solely meant to measure the amount of increase in GDP but refers to the hypothesis that post-war economic growth is not really an increase in economic potential but that these enhanced levels of growth are only due to the fact that existing capital can be reutilized very quickly after the war (Collier and Hoeffler 2004). The analysis showed that although per capita GDP did not pass pre-war levels, total GDP did. This suggests that not only capital existing before the war

was reutilized but that new capital has entered the country and spurred the economy since the end of the conflict. It further became evident that other factors than diamonds were the engine of this growth as resource rents have steadily declined since peace onset.

Succeeding this section there are two paragraphs directed at answering whether this growth has increased welfare and equality in the country in order to answer the questions: *Has welfare of the population increased since the end of the war?* and *Has this growth improved equality (financial, regional, gender) in Sierra Leone?* Although the HDI score as well as the GINI index – commonly excepted measurements of welfare and equality respectively – have significantly increased compared to pre-war levels closer examination reveals that welfare granting an increase has not increased in comparison to other countries and still counts to the lowest scoring countries in the world. The analysis of inequality has revealed that national income inequality has decreased, but that gaps in terms of regional divergence are still huge and in terms of water access have even widened between the rural and the urban population (see 4.3).

In succeeding paragraphs this thesis tries to identify factors that could have led to these changes, by examining the possible effects of a peace dividend, the investment climate and international aid received, to verify different approaches made by other authors regarding the subject (see e.g. Wijweera and Webb 2010, Collier and Hoeffler 2004/2004b, Flores and Nooruddin 2006). A peace dividend can result from either a shift in government expenditures, demobilization and/or shifts in private expenditure from military to non-military sectors (Wijweera and Webb 2010). It shows that a peace dividend from a shift in government resources seems implausible for the case of Sierra Leone as the relation between military expenditure seems to have – though not statistically significant – a slight positive relation, thereby pointing away from a peace dividend and towards a confirmation of the Benoit hypothesis, this however does not comply with the overall growth pattern of Sierra Leone. Another factor that could have fertilized the growth in the country is the demobilization which has been more successful than planed with over 160 % of originally planned ex-combatants reintegrated by January 2002, this combined with the analysis of the relation between total workforce and GDP development suggests that a substantial peace dividend might have been earned through an increase in economically active human capital, through demobilization and other previously hindered actors reengaging in their profession.

In the beginning it is also stated that post conflict economies might grow faster than comparable peaceful nations because the investment climate can be very positive, for one because the prospect of growth attracts investors and for the other that the capital stock is often very low at peace onset, thus having a high labor to capital ratio that could enable high returns (Chen et al. 2008). Examining the history of investment for Sierra Leone revealed that investment, especially FDI, decreased during the war and picked up afterwards. This combined with an evident positive effect of investment, especially domestic investment, verifies the assumption that investment could be in part responsible for the observed growth pattern.

The last section of the analytical part concerned aid, researchers have found out that post-conflict countries receive increased amount of international aid and more noticeably have a higher capacity to absorb it (Collier and Hoeffler 2004). Indeed aid has had a positive effect on GDP growth in Sierra Leone and has risen sharply since the end of war. This increase, however, seems to only coincide with

the end of war, because it marked a worldwide increase in aid due to the establishment of the Millennium Development Goals, though also the end of the conflict could have had part in the increase in aid. Whichever reason there is for the increase it seem evident that this increase also could have fertilized the economy in such a way that enabled it to grow unusually fast. It is conversely the assumption that this growth is highest around the fourth to seventh year after peace onset, which in the case of Sierra Leone does not hold because there growth peaked within the first 3 years after peace onset.

Back to the main research question this leaves no straight forward answer. In conclusion it can be stated that the growth pattern of Sierra Leone complies with the contemporary theory that conflicts lead to a retardation of the economy during the conflict but that a conflict if ended leads to an increase in the economy that is well above its normal rate or the rate of comparable nations. It remains however unclear which factors lead to this pattern and unlike most of the above explained approaches claim no single factor can be used to explain larger parts of this pattern. The peace dividend in form of a shift in human capital seems to have had a positive effect, the effect of military expenditure however seems to verify the Benoit hypothesis, investment and aid both had a positive effect on GDP growth, though not large enough to explain the huge spurt observed, only a combination of all those and most likely other factors, exceeding the focus of this thesis have caused this growth. This means my research question can not be answered on the basis of this thesis and the used data. It is therefore crucial that more research is done in this filed, I already stated in the beginning that civil war has been the predominant form of armed conflict since the end of WW II, but at the same time that it is not sufficiently explored. This is especially true in the case of post-conflict economic development. Although there have been cross-country studies drawing evidence from wide samples of countries it is important to verify these studies and their applicability with case studies of specific countries. This thesis showed that most of the existing theories cannot completely be applied to a single case and that the economic development proceeding a civil war and its causes are much more complex than some of the studies suggest. In light of this it also becomes evident that the work with general economic indicators and numbers is interesting to verify theories for a specific case, but that in order to fully understand the post-conflict situation and its causes it is insufficient. Thus it is necessary to combine this sort of data with extensive research in the country itself to understand all facets of these developments. Although this study has predominantly focused on an economic perspective it would also be interesting for research in this direction to include sociological as well as psychological perspectives in order to better understand how the mechanisms of post-conflict economies are rooted in the society and how they are reviewed from the society.

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