

CHILD SOLDIERS AND INTRASTATE ARMED CONFLICTS: AN ANALYSIS OF THE  
RECRUITMENTS OF CHILD SOLDIERS IN CIVIL WARS

BETWEEN 2001 AND 2003

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This thesis examines why some governments and rebel organizations but not others recruit children to be child soldiers. The theory posits that if a country fights in a civil war of long duration, armed groups are more likely to recruit children as soldiers. I find that the probability of child soldier recruitment increases when a country experiences following conditions: a longer duration of civil war, a large proportion of battle deaths, a large number of refugees, a high infant mortality rate, and the presence of alluvial diamonds. An increase in education expenditures and civil liberties would decrease the probability of child soldier recruitments.

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## CHAPTER 1

### INTRODUCTION

Why do some governments and rebel organizations but not others recruit children to be child soldiers? This thesis examines some factors that are associated with the probability of governments and rebels recruiting children to be soldiers. A recent report showed that there were at least 60 countries that had children under-18 in their armed forces (Child Soldiers Global Report 2004, 14). In addition, there were around 28 countries that had child soldiers involved in active armed conflict between April 2001 and March 2004 (Child Soldiers Global Report 2004). While it is difficult to report the exact number of child soldiers, it has been estimated recently that the number of child soldiers was between 200,000 and 500,000 around the world (Druba 2002, 271). Children are recruited, trained, and used in combat and non-combat tasks. Not only do rebel groups use child soldiers, but also government and government supported paramilitary groups recruit child soldiers (Child Soldiers Global Report 2004). Child soldiers have appeared in many on-going armed conflicts around the world (Child Soldiers Global Report 2004). For example, in Angola, both of the government and rebel groups abducted children when the armed conflict erupted in 1996 (Reich and Achvarina 2005, 2-3).

Many children under-18 are forcibly recruited into armed groups and used as front-line combatants and non-combatants. The ages of child soldiers range between 15 and 18 year of age, but children as young as 7 and 8 years old have also been abducted (U.S. Department of State 2005).

What features distinguish those countries that employ child soldiers from those that do not? Singer (2005, 38) proposes three broad underlying factors: (1) “social disruption and failures of development caused by globalization, war, and disease have led not only to greater

global conflict and instability, but also to generation disconnections that create a new pool of potential recruits; (2) technological improvement in small arms now permit these child recruits to be effective participants in warfare; and (3) there has been a rise in a new type of conflict that is far more brutal and criminalized.”

Singer’s (2005) three main arguments can be further clarified. First, the failure of economic development and rise of social disruption are more likely to occur in a country where the government is incapable of improving the economy and resolving armed civil conflicts. The government tries to develop the economy, but they are inefficient in utilizing the human and material resources to enhance the development. Beside this, to be successful in developing the domestic economy, the government of a weak state has to attract the foreign investment into the country. Since the government of a weak state does not show strong credibility and accountability in providing the rule of law to protect the foreign investors and properties, the foreign investors consider the country as insecure and are disinclined to invest their capital in the country. Meanwhile, when the country gets involved in political crisis and war, the government institutions are further weakened, and the citizens are more likely to suffer from dangers, such as infectious disease, transnational terrorist networks and crime (Patrick 2007). Furthermore, because small arms are accessible and easily acquired at low cost from the illicit weapons market, armed groups can easily acquire the small arms. When a country fights in a civil war of long duration, they may recruit, train, and equip children with small arms to fight in combat.

Brett and Specht (2004) point to some domestic conditions that encourage the recruitment of child soldiers. They analyze a series of letters written by child soldiers from several countries in order to find out how they became involved in combat. War, family influence, illiteracy, unemployment, and poverty are the most important factors that encourage children to join armed

forces (Brett and Specht 2004). However, Brett and Specht (2004) do not specify which determining factors are more important than others. Druba (2002) suggests that whereas providing education may prevent child soldier recruitment, providing legal protection for children is a high priority for any government. In some countries, children are more vulnerable than adults when a nation faces on-going warfare because family, society, and law cannot fully provide adequate legal and physical protection for children (The Ministry of Foreign Affairs of Japan 2004, 4).

A literature on child soldiers has emerged in the recent years. Many of these works explain what factors are related to child soldier recruitment, but only a few of them provide empirical analysis of their explanations. None of the existing works on child soldiers asks why state authorities recruit child soldiers (Achvarina et al. 2007; Achvarina and Reich 2006; Blattman 2007; Brett and Specht 2004; Cahn 2005; Druba 2002; Honwana 2006; Lischer 2006; Nevers 2006; Singer 2005). There are some reasons why this research focuses primarily upon the relationship between the recruitment of child soldiers by the government and civil war. First, when the government recruits child soldiers, the authorities violate the respect for children's rights. The issue of child soldiers is also related to child labor. When governments use child soldiers in combat and as laborers, they violate the respect for children's rights. The second reason is that children are affected by the brutality of armed conflict. Because child soldiers appear in some armed conflicts (but not all), there may be a relationship between the characteristics of armed conflicts and the recruitment of child soldiers. What are some aspects of an armed conflict that encourage the government to use child soldiers? This thesis emphasizes the duration and intensity of civil war as a cause of child soldier recruitment. If the duration of a

civil war has a significant positive effect on the likelihood of the use of child soldiers, ending a civil war at its early stage will probably reduce the propensity for child soldier recruitment.

In addition to the emphasis on civil war, the thesis also focuses on the relationship between the recruitment of child soldiers and demographic transition, socioeconomic development, natural resource endowment, and the degree of political liberties. Focusing upon the size of the youth population and infant mortality rate, this thesis tests whether the selected socioeconomic predictors have a significant relationship with the recruitment of child soldiers. In particular, the analysis will confirm whether Achvarina et al. (2007) finding on the robust relationship between infant mortality rate and the pattern of child soldier recruitment is affirmed.

There is some evidence that natural resources fuel civil war. Gilmore et al. (2005) and Lujala, Gleditsch, and Gilmore (2005) examine civil war countries that have diamond production. Child soldiers have appeared in some civil war countries that have diamond production. This thesis will explore whether a civil war country that has diamond production is more likely to use child soldiers than a civil war country that has no significant diamond deposits.

The results of the analysis on the government recruitment of child soldiers will improve our understanding of child soldiers and the existing research on child soldiers. Rather than focusing on a particular country or region, this thesis employs cross-national quantitative research to analyze the patterns across a number of countries. The analysis will provide estimates how the probability of child soldier recruitment varies with each of a series of explanatory variables. The predicted probabilities are useful for interpreting the results because of limited data on child soldier recruitment. The time frame of the analysis covers between 2001 and 2003.

The thesis focuses upon the relationship between the government and rebel recruitment of child soldiers and civil war duration, intensity of civil war, indicators of socioeconomic development, the degree of political openness, and natural resources. The thesis is divided into five chapters. The next chapter explores a review of the literature and a summary of the previous research on child soldiers. The first section emphasizes the literature on child soldiers. The literature on child soldiers was divided into four main categories. Each category of the literature on child soldiers is built around a different main theme. The second half of chapter 2 provides a summary of existing research on child soldiers.

Chapter 3 presents a theory of what conditions make the recruitment of child soldiers more likely and why. The theoretical explanation focuses on the relationship between civil war duration, intensity of civil war, demographic transition, and socioeconomic development on the likelihood of the recruitment of child soldiers. In Chapter 4, I begin by describing the data for the empirical tests. Then, Chapter 4 presents the research design and operationalization of the explanatory variables. Lastly, Chapter 5 presents the results of the analysis and a discussion of the results.

A brief background of the study on child soldiers has been provided. Without knowing the causes that lead armed groups to recruit child soldiers, we may not be able to find the solution to resolve the problem. Clearly, the research on child soldier recruitment is important because by identifying conditions that encourage this practice, we can perhaps identify policy interventions that make governments and rebels less likely (and less able) to force children to serve as soldiers.

## CHAPTER 2

### LITERATURE REVIEW

Existing literature on child soldiers generally provides the background on the pattern of recruitment of child soldiers and identifies solutions to the problems. This literature suggests that such factors as the strategy of non-state actors, the presence of civil war, socioeconomic conditions, and humanitarian protections are related to the recruitment of child soldiers (Achvarina et al. 2007; Blattman 2007; Honwana 2006; Lischer 2006; Reich and Achvarina 2005; Singer 2005). This literature has produced reasonable explanations for why children are voluntarily and forcibly recruited into armed groups. In addition, existing literature on child soldiers has explained a lot about the pattern of rebel group recruitment of child soldiers. However, the literature focusing on government recruitment of child soldiers is rather scarce. The recruitment of child soldiers into government armed forces is an important issue and should not be overlooked because the question relates to humanitarian protections and government policies. Before we can investigate what policies governments can pursue to prevent children from being recruited into armies, we need to identify the important determining factors that encourage a government to recruit child soldiers.

Chapter 2 begins with a general review of the literature on child soldiers. The literature is divided into four main themes: war and child soldiers, failed states and child soldiers, small arms and child soldiers, and voluntary and forced recruitment of child soldiers. In the second section, I summarize some recent empirical research on child soldiers.

#### Definition of Child Soldiers

The international legal standards on the age for military recruitment have been developed through a series of international treaties. In 1977, the Additional Protocol to the Geneva

Conventions of 1949 stipulated that both governmental and non-governmental parties “shall take all feasible measure in order that children who have not attained the age of fifteen years do not take a direct part in hostilities and, in particular, they shall refrain from recruiting them into their armed forces” (Research Guide for the Child Soldiers Global Report 2003, 8). The second important development setting a minimum age for military recruitment is the Convention on the Rights of the Child adopted in 1989. The Convention on the Rights of the Child seeks “...to ensure that person who have not attained the age of fifteen years do not take a direct part in hostilities (para 2). States parties shall refrain from recruiting any person who has not attained the age of fifteen years into their armed forces. In recruiting among those persons who have attained the age of fifteen years but who have not attained the age of eighteen years, States Parties shall endeavor to give priority to those who are oldest. (para 3)” (Research Guide for the Child Soldiers Global Report 2003, 9).

Adopted in 1990, African Charter of the Rights and Welfare of the Child (1990) serves as a regional charter that defines a child as anyone below 18 years of age. It states that ““parties to the present Charter shall take all necessary measure to ensure that no child shall take a direct part in hostilities and refrain in particular from recruiting any child”” (Research Guide for the Child Soldiers Global Report 2003, 8-9). The Optional Protocol to the Convention on the Rights of the Child on the involvement of Children in Armed Conflict (2000) sets the minimum age for military recruitment and direct participation in hostilities at 18 years old but allows the states to have voluntary recruitment under the age of 18 (Research Guide for the Child Soldiers Global Report 2003, 8). A child soldier, therefore, refers to anyone less than eighteen years of age who participates in direct and/or indirect armed conflict and military activities, voluntarily or

involuntarily recruited into armed forces and armed groups of the government or non-government organizations, such as paramilitaries and rebel organizations.

### The Literature on Child Soldiers

#### *War and Child Soldiers*

A number of studies on child soldiers have related war to the recruitment of child soldiers (Honwana 2006; Nevers 2006; Singer 2005). Not only do rebel groups recruit child soldiers, but government and government supported paramilitary groups recruit children to be soldiers as well (Child Soldiers Global Report 2004). “Sixty percent of the non-state actor’s armed forces in the world (77 of 129) use child soldiers” (Singer 2005, 30). In 2001, around seventeen governments were identified as having used child soldiers in armed conflicts (Nevers 2006, 383). Child soldiers have appeared alongside rebel groups in on-going armed conflicts in a number of countries. There were around 28 countries that had child soldiers involved in armed conflict between April 2001 and March 2004 (Child Soldiers Global Report 2004). One of the worst impacts of warfare on children is the loss of lives. It is estimated that more than 2 million children have died as a result of involvement in armed combat between 1985 and 1995 (Hick 2001, 111).

Rosen (2005) argues that the changes in the nature of warfare have influenced the recruitment of child soldiers. Rosen (2005) distinguishes the characteristics of old wars and new wars. The old wars were fought under a set of battle rules with clear political objectives, well defined standards of victory and defeat, boundaries to battlefields, and a distinction between civilians and combatants (Rosen 2005). The new wars are “aimless, formless, and without real political purposes” and have no rules of warfare (Rosen 2005, 10-1). An example is a war between government armed forces and rebel groups. Because a government army’s capability is

far superior to rebel groups' military capability, rebel groups employ non-military tactics (Nevers 2006, 376). According to Singer (2005), rebel groups use children because "children are a relatively low-cost way to build out their forces, whose youth also brings certain distinct advantages in operation" (Singer 2005, 108). Moreover, Honwana (2006) explains that the appearance of child soldiers in some post-Cold War warfare is related to the dramatic changes in fundamental characteristics of conducting battle in the post-Cold War era. As Honwana (2006, 27) describes:

We have witnessed a shift from conventional warfare between states, in which soldiers fight soldiers, to civil wars within states. Civil wars are fought mainly by proxy, use guerrilla and other irregular fighters, and target defenseless civilians. Young civilians are frequently abducted and forced to join the military. In many conflict zones in Africa, Asia, Europe, and Latin America, young soldiers constitute a significant proportion of the armed groups and become instrumental in committing the most horrendous atrocities.

Modern wars are mostly internal rather than between states, although they involve a number of transnational actors. They also involve multiple political and military actors from paramilitary groups organized around a charismatic leader, warlords who control particular areas, organized criminal groups, unit of regular forces or other security services, and mercenaries and private military companies. These wars mobilize military forces that have less formal and institutionalized training than conventional combatants (Honwana 2006, 33).

#### *Failed States and New Warriors*

Children are more vulnerable to forcible recruitment into armed groups when the level of legal protection for children is very low. Failed states "refer to a state in which the power structure has broken down; the physical shell remains, but no central authority capable of providing law or governance exists" (Nevers 2006, 375). In addition, Kasfir (2004) argues that the strength of states deteriorates because the government performs poorly. Nevers (2006, 377) explains that the absence of central authority and law not only exacerbates the use of child soldiers but increases the likelihood of the multi-level intrastate violence, such as "regime against society; rebels against regime; and criminal against all." For example, in Afghanistan, the

fighting among multiple warlords in pursuit of state power has been going on since the mid 1990s (Nevers 2006). The warlords recruit children because they consider children as “low-cost and expendable” (Nevers 2006, 382). For example, the armed conflict between the government and the rebel group in Sudan and the lack of state capacity to regulate the law has precluded other options for the state to maintain its military capacity other than to recruit children as soldiers. According to Singer (2005, 24), because the long-standing of civil war has imposed armed challenges the Sudanese government and rebel groups, both sides have systematically recruited children and have the largest number of child soldiers in the region (Singer 2005, 24). It was estimated that there were around 17,000 children in the government armed forces, and although the Sudan People’s Liberation Army (SPLA) demobilized more than 16,000 children in 2001, the SPLA still continues recruiting more children (Child Soldiers Global Report 2004, 318-9).

In another example, during the armed conflict between Eritrea and Ethiopia that ceased in December 2000, the government of Eritrea was reported to have used forcible recruitment of children to fight in the war. However, there is a lack of border control which has resulted from the rejection of the border delimitation plan. This lack of border control has allowed the government of Eritrea to support Ethiopia’s armed opposition groups, such as the Oromo Liberation Front (OLF), to recruit children (Child Soldiers Global Report 2004, 63-5). This illustrates that increasing border security control may prevent an armed group from recruiting children.

According to the Child Soldiers Global Report (2004, 105-7), in Uganda, both the government and the Lord’s Resistance Army (LRA) have fought in a prolonged armed conflict and have been reported to use child soldiers in armed conflict. When the government increased

its military capacity to end the conflict, the LRA recruited more child soldiers. It was reported that the LRA recruited children as young as five years old. Meanwhile, the government also recruited children into armed forces.

### *Small Arms and Child Soldiers*

Singer (2005) relates the availability, affordability, and mobility of small arms to the recruitment of child soldiers. The “‘small arms,’ or ‘light weapons,’ include rifles, grenades, light machine guns, light mortars, landmines, and other weapons that are ‘men-portable’” (Singer 2005, 45). After the end of the Cold War, there was a dramatic increase in the number of small arms available in the global weapons market (Singer 2005, 47). The estimated annual value of small arms trading is approximately US\$10 billion (Hartung 2001, 82). The large number of small arms in the global weapons market contributes to the increased supply and reduced price of small arms. For example, because the availability of small arms has been increasing in Africa, an AK-47 is sold for only US\$5–12 in this region (Singer 2005, 47-8).

Scholar argues that children can be equipped with small arms because the level of complexity of the operation of small arms has been decreasing (Singer 2005). Because small arms are light in weight and not difficult to operate, children are used as a means to carry weapon supplies, and they can be taught how to operate small arms. According to Singer (2005, 46),

the ubiquitous Russian-designed Kalashnikov AK-47, which weight 10½ pounds, is a prime example. Having only nine moving parts, it is brutally simple. Interviews reveal that it generally takes children around thirty minutes to learn how to use one”...and “it requires little maintenance...

The consequence of having child soldiers using the weapons is devastating. For example, “when an army composed largely of ten-to-fourteen-year-old children armed with automatic

rifles that can fire 600 to 700 rounds per minute is set loose on the civilian population..., the result can be very devastating” (Hartung 2001, 80).

### *Voluntarily and Forcibly Recruitment*

The pattern of recruitment of child soldiers is divided into two main routes; voluntary recruitment and forcible recruitment (Goodwin-Gill and Cohn 1994; Mendelsohn and Straker 1998; Cahn 2005; Singer 2005; Reich and Achvarina 2005). One report shows that children under 18 are legally and forcibly recruited in at least 60 countries (Child Soldiers Global Report 2004, 14). In addition, around 28 countries had child soldiers involved in active conflict between April 2001 and March 2004 (Child Soldiers Global Report 2004). While it is difficult to report the exact number of child soldiers, the estimated number of child soldiers ranges from 200,000 to 500,000 worldwide (Druba 2002, 271). The recruitment of child soldiers is not limited only to non-state actors; state actors are also involved in recruiting children into armies.

What are the casual factors that motivate them to join armed groups? Singer (2005) argues that the socioeconomic conditions, such as poverty, conflict violence, and the displacement of families are associated with the recruitment of child soldiers. According to Singer (2005, 61-2), “as one young boy in the Democratic Republic of the Congo (DRC) explained, ‘I joined [President Laurent] Kabila’s army when I was 13 because my home had been looted and my parents were gone. As I was then on my own, I decided to become a soldier’”. In addition, Goodwin-Gill and Cohn (1994, 23) as cited in Achvarina et al. (2007, 7) provide three ways in which poverty has affected children’s decisions to join armed group: “grievance (‘social and economic injustice motivates adults and children to take up arms, sometimes with a long term vision of affecting change’), greed (‘some young people assume the

risk of voluntary participation to obtain subsistence wage'), and survival ('children and adults join to get food for the day')."

In Kinshasa, Congo, it is estimated that about 100,000 children "live as street children" as a consequence of being forced away from home and "accused of sorcery," in large part because their families broke down (Cahn 2005). Upon being cast out from the family, these children moved to live on the street. Many of them voluntarily joined or were forcibly recruited into the armed forces (Cahn 2005). Honwana (2006, 28) also offers similar explanations.

Young people's vulnerability to recruitment into armed groups in wars and other violent political conflict is exacerbated by a number of social, economic, and political conditions. In many countries, extreme poverty and the breakdown of social structures and services have a tremendous impact on the way young people adjust to problems in their lives... the young are forced to improvise their own survival strategies... joining armed groups, and the military.

According to psychological explanations, children decide to voluntarily join armed forces because they experience "the indirect coercion" (Mendelsohn and Straker 1998, 400). For example, children decide to join the armed forces because they "may feel compelled to participate in a war situation as a means of employment or survival, in order to gain self-esteem, to redress injustices and exact revenge for the death of family members, or as a result of pressure from the peer group or family" (Mendelsohn and Straker 1998, 400). Furthermore, if children have been victimized by warfare, they have a high propensity to join armed groups (Mendelsohn and Straker 1998). These children had experienced various forms of violence, such as "looting, shooting, bombing, massacres, kidnapping, torture, and death of close family members" (Martin-Baro 1994; Mendelsohn and Straker 1998, 404). For example, child soldiers in Liberia, Mozambique, and Angola were encouraged to join armed groups in search of food and shelter as well as to seek revenge against the enemies that destroyed their communities (Honwana 2006, 29 and 37).

Because children do not have a well-developed ability to distinguish right from wrong, they can easily be compelled to join armed groups (Singer 2005, 67). For example, children join armed groups because feelings of excitement compel them to join (Singer 2005). Peer pressure is an important motivation to compel children to join armed groups (Stewart and Boyden 2001 as cited in Achvarina et al. 2007). Beside this, children have a strong sense of belonging to the same ethnic group, sharing the same religions, and having strong allegiance to ethnic identity.

Children are more vulnerable to forcible recruitment than adults because children cannot protect themselves. Cahn (2005) argues that because children are more easily abducted and indoctrinated than adults, they are more vulnerable to being forcibly recruited. By refusing to give up children to armed groups, both children and their parents could face deadly consequences. When children are forcibly recruited, they are directly brutalized and victimized by “direct coercion” (Mendelsohn and Straker 1998, 408). Direct coercion is an effective method to recruit children because children cannot resist and their mentality is vulnerable to violence. As Honwana (2006, 28) states:

Children and youth are in a process of formation and development, and thus, vulnerable and in need of guidance and nurturance from society. Militias turn the mutability of youth to their own purposes, developing them into soldiers instead of facilitating their transition to adulthood.

Alcinda M. Honwana’s *Child Soldiers in Africa* (2006) studies child soldiers in Mozambique and Angola. Both countries experienced complex internal armed conflicts. They were colonized by the Portuguese, and the post-colonial governments fought in civil wars against internal political armed groups supported by foreign governments. Controlled by the nationalist, the post-colonial governments adopted “Marxist orientation and socialist models of development” to rule the countries (Honwana 2006, 7). In addition, governments and rebel

groups abducted children to be soldiers to fight against each other. One of the child soldiers in Angola describes his recruitment:

I was walking...when I was near the railway line, UNITA [The National Union for the Total Independence of Angola] soldiers came and said, "Hey boys, come with us, we want you to do some work for us." It was a lie. They took me to N'gove ... and there I did my training, which lasted only five months due to an attack we suffered from the government troops ... My training should have lasted eight months (Honwana 2006, 55).

### Empirical Research on Child Soldiers

In Reich and Achvarina's (2005) study on refugee camp protection and the recruitment of child soldiers in African countries, they argue that protection of children in refugee camps needs to be improved. In particular, their study emphasizes the ratio of child soldier recruitment rates. Their study focuses on the impact of "poverty, orphans, and an access to refugee camps and IDP [Internally Displaced People] camps" on the rate of child soldier recruitment (Reich and Achvarina 2005, 20-1). They examine African conflicts that occurred in the last three decades. They found that both poverty and the rate of orphaned children were not robust predictors of the child soldier ratios (Reich and Achvarina 2005). If a rebel group can intrude into refugee and IDP camps, they can recruit more children (Reich and Achvarina 2005). Achvarina et al. (2007) examine whether poverty increases the likelihood of child soldier recruitment in 52 African countries. They find that one measure of poverty, infant mortality rate, increases the likelihood of child soldier recruitment. The existence of refugee camps also has a positive effect on the likelihood of child soldier recruitment.

Why are hosted refugee children more vulnerable to be abducted by armed forces? The main reason is that refugee camps are not well-protected. Because hosted refugee children live in large groups, children are more vulnerable to being recruited. In fact, Reich and Achvarina (2005) argue that a lack of security for refugee camps is the main factor that allows armed

groups to raid refugee camps for children. Although host countries are supposed to give full legal protections and safety to refugees, many host countries do not provide sufficient protection for refugee camps (Reich and Achvarina 2005, 14). Recruiting children from a refugee camp can provide armed groups with fresh manpower resources because they can gather more children in one visit than if the children remain in their home villages (Reich and Achvarina 2005, 13). Overall, Reich and Achvarina (2005) suggest that if host states improve refugee camp protection, they can probably prevent children from being recruited (Lischer 2006).

According to Lischer (2006), four important conditions can ameliorate refugee camp insecurity. They are the capability of the receiving state, the porosity of borders, international protection, and camp security measures. The refugee receiving states need to be responsible for providing legal and humanitarian protections to hosted refugees. But some receiving states violate refugee physical integrity rights. “In some instances a capable receiving state may condone refugee militarization or even send government agents to recruit refugees for fighting” (Lischer 2006, 8). Second, the porosity of borders focuses on securing the location of the refugee camps and “the security of international borders” (Lischer 2006, 8). When a weak or failed receiving state hosts refugee camps near the border line, armed groups from sending and neighboring states can intrude across the border to recruit children from refugee camps (Lischer 2006, 9).

What could be a solution to protect refugee camps? According to Lischer (2006), there are three preliminary solutions. First, international protection provided by international organizations, such as the presence of a United Nations (UN) peacekeeping mission and humanitarian NGOs in the refugee camps can improve the situation of insecure refugee camps in weak or failed receiving states (Lischer 2006, 9-10). Second, well-planned security measures for

protecting refugee and IDP camps should “permit maximum supervision and protection of vulnerable groups like unaccompanied minors” (Lischer 2006, 11). Third, providing basic humanitarian needs for refugees and hosting refugee camps in safe locations are absolutely important (Lischer 2006, 11).

Blattman (2007) studies the relationship between recruitment of child soldiers and the age of children. Blattman (2007) incorporates the theoretical explanations of Gates’ (2002) principle-agent games and rebel recruitment into his theory. The principle of Gates’ theoretical explanation is that rebel leaders have incentives to use both pecuniary and non-pecuniary resources, such as money, social and ideological influence not only to motivate participants to join the rebel groups but also to use punishment and reward strategies to control participants living near or far from rebel groups (Gates 2002). Blattman’s analysis shows that if children are abducted at young ages, they are more likely to stay with rebel groups longer than children abducted at older ages. There are three reasons:

(i) children are more easily disoriented than adults, (ii) children are more easily indoctrinated, and (iii) children are more responsive to unattractive outside options (Blattman 2007, 17).

Young abducted children are less likely to escape from rebel groups than older abducted children because they do not know how to escape and always remain obedient (Blattman 2007, 17). In addition, when young abducted children stay with a rebel group, they get used to life with the rebel groups (Blattman 2007, 20). They bond with other comrades. When younger age abducted children stay with rebel groups for a long period of time, they become acquiescent and secure with the rebel group whereas young adults do not (Blattman 2007, 20). Lastly, not all young abducted children are involved in military tasks because they are not trusted by the rebel groups to participate in combat (Blattman 2007, 22).

## General Comments on the Literature on Child Soldiers

A review of the literature on child soldiers suggests to me that existing explanations of child soldier recruitment are useful but need to be improved on a few points. First, there is a need for a theory to explain the phenomena because existing theories on child soldier recruitment are not well specified. Theoretical explanations can focus on explaining why rebel groups and some governments recruit children to be soldiers. Second, there is no study on government recruitment of child soldiers because much literature on child soldiers has focused on child soldier recruitment by non-state actors. There has been no effort to specify the differences between government recruitment of child soldiers and rebel group recruitment of child soldiers. In Angola, both the government and rebel groups abducted children after armed conflict erupted in 1996, and abduction of child soldiers was “a major method of recruitment” (Reich and Achvarina 2005, 2-3).

Are children more inclined to voluntarily join government armed groups than to join rebel groups? Are rebel groups more inclined than governments to use direct coercive measures to recruit children into armed groups? If the answers to these questions are affirmative, when do they recruit children to be soldiers? Do they recruit children before, during, or after armed conflicts breaks out? These questions still remain a puzzle and need to be solved in order to fully explore the recruitment of child soldiers.

## CHAPTER 3

### THEORY AND HYPOTHESES

What are some aspects of civil war that encourage the government to recruit child soldiers? Not all civil wars involve child soldiers, so it is necessary to explain the factors that distinguish between a civil war country that uses child soldiers and a civil war country that does not involve child soldiers. The theory posits that civil war duration and the intensity of civil war are the main factors that may explain the distinction. In addition to the effect of civil war, the theory also focuses on the relationship between the issues of demographic transition, refugee population, and socioeconomic development and the recruitment of child soldiers. These factors are expected to increase the likelihood of child soldier recruitment. A prolonged and high intensity civil war may pressure the government to recruit child soldiers. In addition, when a civil war country experiences poor socioeconomic development and has a large youth population, the youth population will suffer from the poor living conditions, which, in turn, will force them to join armed groups. Chapter 3 begins by providing general facts and figures about child soldiers. Then, Chapter 3 presents the theory and a set of testable hypotheses.

According to the United Nations' figures on child soldiers, there are at least fifty states involved in the recruitment of child soldiers into their military, and child soldiers account for 300,000 combatants (Singer 2005, 30). A recent report shows that there are least 60 countries that had children under 18 years of age in the armed forces (Child Soldiers Global Report 2004, 14). Between 2001 and 2004, there were 21 on-going armed conflicts in nations that involved the use of child soldiers, and 17 governments and government-supported armed groups were using child soldiers as combatants and non-combatants (Child Soldiers Global Report 2004). Beside this, "sixty percent of the non-state armed forces in the world (77 of 129) use child soldiers"

(Singer 2005, 30). The main reason that non-state actors are more open to the recruitment of child soldiers than are states' armed forces is that rebel groups cannot effectively be constrained by law or international pressure. Rowe (2006, 197-8; 202-3) argues that at the international level, while international law, domestic law, and humanitarian and human rights treaties can constrain states from recruiting underage soldiers, these laws do not prevent unlawful violations by rebel organizations. In addition, when armed conflict is already underway, rebel groups do "not have a comparable means of enforcing a standard [disciplinary control over their members] of conduct as to the means of carrying out the conflict," and rebel groups do not consider whether the human rights of individual members are violated (Rowe 2006, 197-8). If rebels are caught by government armed forces, they expect the government to abide by human rights in their treatment of prisoners, but if rebels capture government soldiers, they are unlikely to offer government soldiers the same human rights protections (Rowe 2006, 200).

Some children voluntarily join armed groups while some others are forcibly recruited. The reasons why children are recruited to be soldiers are varied and complicated. Seeking to explain the use of child soldiers, many scholars often point to low levels of socioeconomic development in nations where child soldiers are used. They maintain that extreme poverty is a main driving force that forces children to join armed forces (Brett and Specht 2004; Honwana 2006; Machel 1996; Singer 2005). They also point out the easy availability of small arms and maintain that because small arms are light and easy to use, children can be trained with small arms (Machel 1996; Rowe 2006, 202; Singer 2005). Singer (2005) argues that children are obedient and can easily be trained. Nevers (2006) argues that child soldiers always appear in failed states because there is no central law enforcement authority to prevent armed groups from recruiting children. However, I would propose that the recruitment of child soldiers is associated

not only with violent armed conflicts but also with the national population growth rate, the number of displaced persons and refugees, the size of youth population, and gross domestic product (GDP) per capita. The purpose of this chapter is to explain the recruitment of child soldiers by armed groups. In particular, I identify some factors that predict whether a nation that has a civil war will or will not use child soldiers. While gross domestic product per capita is a robust predictor of civil war, other factors must be involved to distinguish those civil wars where child soldiers are used from those where they are not. The number of displaced persons and refugees, the national population growth rate, and the relative size of the youth population can distinguish civil war nations that have child soldiers from those that do not.

I begin by explaining why the duration of civil war has an impact on the recruitment of child soldiers. Next, I argue that displaced children and refugees play a vital role in increasing the recruitment of child soldiers because displaced children and refugees constitute a supply of human resources from which armed groups can recruit. Third, I explain how national population growth rate and proportion of youth population might increase the likelihood of the recruitment of child soldiers. Then, I provide a set of testable hypotheses derived from the theoretical explanations.

### The Recruitment of Child Soldiers in Civil War

The probability of the recruitment of child soldiers increases if the regime is threatened by armed conflicts. Poe, Tate, and Keith (1999, 293) argue that “threats come in a variety of forms. Threats, which existing theory and research suggest are most important, stem from domestic and international political conflict.” A government faced with an on-going civil war or interstate war may be inclined to use child soldiers against the threats. However, child soldiering does not occur in all countries that experience threats. Why do some governments that are

engaged in warfare use children as soldiers while others do not? I offer three propositions to answer this question: on-going civil war, the duration of civil war, and the battle death rate of civil war all influence the likelihood that a government will employ child soldiers.

In some nations involved in on-going civil war, governments use children as soldiers. Some children are trained to be combatants while others are used as a labor. Honwana (2006, 44) does not believe that children are recruited to be soldiers in warfare because armies do not have enough manpower or because of indoctrination. However, Cahn (2005, 420) argues that “children can be easier to abduct and indoctrinate than adults, thus increasing their chance of involuntary recruitment.” Beside this, Honwana (2006, 44), argues that child soldiers are used because of the shortage of manpower when an enormous number of adults are killed by “war, poverty, and diseases.” In fact, using child soldiers in warfare is the primary reason that children are recruited to be soldiers in conflicts around the globe. Honwana (2006, 44) also asserts that

I believe that armies of children were created neither by chance, nor from a merely shortage of manpower, not because of the ease of indoctrination. In Mozambique and Angola, there seems to have been a concerted and well-thought-out strategy to use and manipulate children into warfare. In my view, the creation of child soldiers does not constitute an isolated, random incident. Child soldiering is part of a warfare strategy that is shared across lines of combat and war zones around the globe.

Moreover, according to Honwana (2006, 27),

We have witnessed a shift from conventional warfare between states, in which soldiers fight soldiers, to civil wars within states. Civil wars are fought mainly by proxy, use guerrilla and other irregular fighters, and target defenseless civilians. Young civilians are frequently abducted and forced to join the military. In many conflict zones in Africa, Asia, Europe, and Latin America, young soldiers constitute a significant proportion of the armed groups and become instrumental in committing the most horrendous atrocities.

Some young children are forcibly recruited into rebel groups and government armed forces. For example, in Ivory Coast, the Ivorian government armed forces and armed opposition groups forcibly recruited young children, including child refugees who had fled from

neighboring countries (Child Soldiers Global Report 2004). In Liberia, as the armed political group called the Liberians United for Reconciliation and Democracy (LURD) went on the offensive in 2002, they forcibly recruited children and adults from refugee camps and used them as combatants and labors (Child Soldiers Global Report 2004). Children as young as seven years old were reported to have been recruited by the armed group. Beside this, Liberia's government armed forces and government allied paramilitary groups also recruited children. In Rwanda, child soldiers were recruited and abducted by Rwandan armed groups and government militias (Child Soldiers Global Report 2004).

Why do armed groups use child soldiers as a part of warfare strategy in armed conflicts? If armed groups continuously keep losing a large number of adults in combat, they will experience a manpower shortage which in turn might result in defeat. Consequently, the armed conflict will end shortly unless the warring party can find a new source of manpower to maintain its fighting ability. Singer (2005) argues that when armed groups are in crisis, they will employ child soldiers in order to prevent a total defeat. Singer (2005, 97) points out that state militaries will use child soldiers when they are on the defensive "in order to delay defeat or create valuable breathing space for their regular army to regroup and rebuild." For example, "in Burma, El Salvador, Mozambique, Ethiopia, and Sri Lanka, the recruitment of children is said to have increased as adults were killed or displaced" (Cohn and Goodwin-Gill 1994; Machel 1996 as cited in Blattman 2007). An armed group may use child soldiers as a backup armed force when they experience a shortage of combatants (Singer 97-8). The successful example of using child soldiers to turn around the situation from losing the war to winning the war is the war between Ethiopia and Eritrea. In 1998, when the Ethiopia's campaign against Eritrea was struggling,

Ethiopia's armed forces halted the fighting, used child soldiers to break up Eritrean armed forces, and won the war a year later (Singer 2005).

Why are children more preferred than adult soldiers? The main reason that children are preferred to adult soldiers is related to the cost-benefit calculations of military leaders and psychological benefits to the armed groups to use against the enemy. For example, according to Singer (2005, 127), the terrorist group, such as the Liberation Tigers of Tamil Eelam (LTTE) use children and train them in order to carry out suicide bombing because children are less easily detected by security forces. First, children can be recruited and abducted, and using child soldiers to build armed groups does not require armed groups to pay a high cost because they consider children cheap and replaceable (Nevers 2006; Singer 2005, 95). Second, not only are children obedient to their commanders' orders, but they are also easily indoctrinated (Singer 2005, 70-1). According to Singer (2005, 71), "indoctrination is the act of imbuing a child with the new worldview of a soldier. Traditionally, this opening step is key in the process for turning any civilian into a soldier."

On the other hand, some children voluntarily choose to join armed groups. What are some explanations that are held accountable for this phenomenon? Cahn (2005); Singer (2005); Honwana (2006); Nevers (2006) all argued that poverty is the main factor that forces children to voluntarily join armed groups. In addition to child soldiers and poverty related arguments, Mason (2004) provides important explanations that could account for explaining why children choose to join armed groups. Mason (2004, 168) argued that young adults are more ambitious than older adults to join armed groups because they do not have the responsibilities of taking care of a family, holding a job or owning farmland. Because young adults have not yet formed a family and taken full-responsibility for the family, they are not constrained by the cost that they

have to pay for leaving their family at risk in order to join armed groups. Second, since young adults do not own land ownership or agriculture farmland, they are not concerned about leaving farmland unattended when they join the armed groups. Third, because their ages are young, they would have longer lifespan to pay the cost they have to pay for getting caught and imprisoned. Thus, these factors contribute to why children choose to join armed groups.

The process of indoctrination is a complex process that involves training child soldiers in the use of weapons and following orders and influencing their psychological behavior. The process involves children in spiritual training, simulated violence, and coercive punishment in order to shape their behaviors and worldview (Blattman 2007; Singer 2005, 72-5). The length of child soldiers' training may vary, lasting from only a few days to several months (Honwana 2006, 34; Singer 2005, 77). After being recruited into armed groups, children will be trained. The commander will punish child soldiers if they resist or disobey the orders, but they will reward them if child soldiers follow the orders (Singer 2005, 71). Armed groups use coercive punishment against children if children attempt to escape or refuse to fight, but they reward children if they are obedient and follow orders.

Despite of the fact that the length of child soldier training lasts for only a short period, child soldiers are utilized to fight even though they are not physically strong and emotionally prepared to fight. Unlike conventional military training, the training of child soldiers involves neither training in military discipline nor in how to cope with their emotions before facing violence (Honwana 2006, 53). Honwana (2006) argues that child soldiers are not psychologically, physically, and emotionally prepared to fight in war, but their mentality has been influenced by experiencing violence and war. The process of indoctrination also involves

child soldiers committing violence, such as looting resources and killing civilians and enemies. Often times, child soldiers are under the influence of drugs.

### *Civil War Duration*

In the rest of this section, I explain why the duration of civil war may increase the probability of child soldier recruitment. I, then, derive two testable hypotheses. Walter (2004, 373) suggests that “the length of a conflict may also provide important information about the government’s relative strength and their own chances of winning a war.” The duration of civil war could have an important impact on the probability that government will use child soldiers. According to Achvarina et al. (2007), the longer duration of civil conflict, the higher the likelihood of recruitment of child soldiers in Africa. The primary reason is that wars of long duration produce a shortage of resources. If the level of youth population is high, armed groups may recruit children. Fighting in civil war, government armed forces and rebel groups will compete against each other to enlist adults from the same pool of resources. Mason (2004, 186) argued that “...both the government and the rebels draw on the same finite pool of resources to sustain their operations, and these resources are depleted over time.” Unlike an interstate war, governments cannot mobilize national resources from the entire nation because rebel groups also compete against the government over extracting resources. When government and rebel armed groups continuously consume resources for fighting in a prolonged civil war, the available number of potential participants is depleted rapidly. Thus, armed groups experience scarcity of national resources. This, in turn, will pose a dangerous threat to the armed groups’ survival because they will soon be incapable of defending themselves.

Armed groups may consider using children as soldiers in armed conflict in order to prolong a total defeat from fighting in a prolonged civil war. Although child soldiers may not

fight as effective as adult soldiers, they potentially can work in various armed group duties, such as labors, cooks, or informants. Armed groups may use younger child soldiers as labors or informants and older child soldiers as combatants. In all, armed groups use them both as combatants and/or child labors. Singer (2005) argues that when armed groups are on verge of being defeated, they will employ child soldiers in order to prevent a total defeated. In a prolonged civil war country, when houses, roads, schools, hospitals, or government agencies have continuously been looted, destroyed, or taken control by armed groups, the government are unlikely able to rebuild these internal infrastructures because the government has been facing the scarcity of resources. Children will become more vulnerable to the violence of armed conflicts armed groups' recruitment because their houses, hospitals, and government policing agencies which provide them some protection have continuously been destroyed. Thus, children are more vulnerable to armed groups' recruitment of child soldiers

Hypothesis 1: The duration of civil war in a country is significantly associated with the higher probability of the recruitment of child soldiers.

### *Battle Deaths*

The intensity of battles in an on-going warfare in a country is another important factor that determines the use of child soldiers by the government. Mason, Weingarten, and Fett (1999) propose that battle death rate is used as a measure of the cost of civil war. They point out that more human and material resources will be consumed as the battle death rate increases. Thus, as the battle death rate increases, the more adult soldiers are killed, which, in turn, will increase the cost of civil war. If there are not enough adult soldiers to replace those lost, armed groups may recruit children to be soldiers. Using children as soldiers to build up armed groups does not require armed groups to pay a high cost since they consider children as cheap and replaceable

(Singer 2005, 95; Nevers 2006). When government armed forces experience a high battle death rate, the government will perceive on-going warfare as a dangerous threat to its survival. Fighting in civil war, the government and rebel groups always compete over enlisting soldiers into their armies. If the government suffers from losing a large number of soldiers and is unable to enlist new soldiers at an equivalent rate or better, the government may choose to enlist children to be soldiers. On the other hand, although the intensity of interstate war is more extreme than civil armed conflicts, the government can always enlist adult soldiers from the entire national population. Fighting in a high intensity civil war, mobilization of adult soldiers is important for government armed forces, and it will be pursued in an urgent and timely manner. Therefore, the government of civil war country perceives a high number of battle deaths as a major threat but considers child soldiers as low cost of civil war.

Hypothesis 2: The higher the battle death rate in civil war, the higher probability of the recruitment of child soldiers.

#### *Socioeconomic Development*

Socioeconomic development is an important predictor of the recruitment of child soldiers. Child soldiers are used more often in poor countries that have on-going armed conflicts. For example, Angola, Burundi, Cote d'Ivoire, the Democratic Republic of Congo (DRC), Somalia, Sudan, and Uganda all use child soldiers in armed conflicts (Child Soldiers Global Report 2004). These countries have low GDP per capita of less than a thousand dollar per year between 2001 and 2003. Some civil war nations have comparable level of GDP per capita but do not use child soldiers. If GDP per capita is used to explain the use of child soldiers in civil war countries, it is imperative that explanations be made to distinguish the level of income in civil war nations that use child soldiers from civil war nations that do not.

Several studies of civil war have placed emphasis on the relationship between a low levels of economic development and the occurrence of civil war (Fearon and Laitin 2003; Collier and Hoeffler 2000; Sambanis 2004). Per capita GDP has often been used as an important predictor of the risk of civil war in two different perspectives (Sambanis 2004). First, according to Sambanis (2004, 168), Fearon and Laitin (2003) use GDP per capita as a measurement of the strength of the state to repress rebellion. Collier and Hoeffler (2000) use GDP per capita as a predictor of the economic opportunity cost for rebellion. Many civil war scholars agree that when a country experiences an increase in GDP per capita, the probability of civil war declines (de Soysa 2002; Fearon and Laitin 2003; Collier and Hoeffler 2004; Sambanis 2004). For example, Fearon and Laitin (2003) find that the level of income has different impacts on the risk of civil war. In particular, a country whose income fell in the 10<sup>th</sup> percentile had about an 18 percent chance of experiencing civil war whereas a country whose income stayed in the 90<sup>th</sup> percentile had less than a 1 percent chance of experiencing civil war (Fearon and Laitin 2003).

According to Collier and Hoeffler (2004), economic growth raises the opportunity cost of participating in rebellious activity. Therefore, children should be disinclined to join armed groups (Collier and Hoeffler 2004). When a country experiences growth in industrialization, foreign investments, and business activity, the nation will experience a sizeable growth in gross domestic product. Because the population will have more opportunities for employment in various sectors, the government can generate tax revenues and use taxes to provide the population with adequate living conditions. Because parents earn stable incomes, and children can attend school, participating in violence is considered an irrational decision because parents and children will pay a high economic cost and risk the family's security. Collier and Hoeffler

(2004, 588) find that “male secondary education enrollment, per capita income, and the growth rate all have statistically significant and substantial effects that reduce the conflict risk.”

### *Internally Displaced Persons and Refugees*

I propose that Collier and Hoeffler’s arguments on the economic opportunity costs are applicable to explaining why children decide to voluntarily join armed groups. According to Singer (2005, 61-2), one of the most important reasons that children decide to join the armed forces is extreme poverty. When children lack basic needs, such as food, housing, clothing, medicine, and protection from armed conflicts, they are more likely to join armed groups for security, food, and subsistence (Singer 2005, 61). Because a decline in economic growth reduces children’s opportunity cost of rebellion and worsens the condition of economic hardship, children are more likely to leave home and join armed groups. For example, in Kinshasa, Congo, it was estimated that about 100,000 children “live as street children” as a consequence of being forced away from home because their family has been torn apart (Cahn 2005). Cast out from their family, these children live on the street. Many of them voluntarily joined or are forcibly recruited into the armed forces (Cahn 2005).

By considering the situation of children in Kinshasa, Congo, I propose that a large number of displaced children may increase the likelihood of the use of child soldiers. Although civil war and child soldiers are likely to occur in a poor country, the recruitment of child soldiers is more likely to take place in civil war nations that have a large number of displaced children and refugees (Lischer 2006). Not only do civil war nations involve massive movements of internally displaced persons and refugees, but they also lack security over refugee camps (Lischer 2006). As a result of the lack of security for refugee camps, armed groups can intrude on refugee camps to recruit children. Furthermore, according to Salehyan and Gleditsch (2006,

343), “population movements allow for an exchange of resources and ideas among rebel groups in neighboring countries, thereby expanding social networks through establishing contact with locals.” Salehyan and Gleditsch (2006) point out that rebel groups intrude on refugee camps for recruiting participants and setting up operational bases. Recruiting children from a refugee camp can provide armed groups with fresh manpower resources because they can gather more children than adults in one visit (Reich and Achvarina 2005, 13). Salehyan and Gleditsch (2006) point out that when countries hosting refugee camps take in a large number of displaced persons, they perceive their security as being threatened. Although civil war occurs in some poor nations, the recruitment of child soldiers is more likely to occur in on-going civil conflict nations that have a large number of displaced children and refugees. I hypothesize that

Hypothesis 3: The number of internally displaced persons and refugees in a civil war nation is positively associated with the probability of the recruitment of child soldiers.

#### *Youth Population*

An increase in a national’s population growth rate may increase the probability of the recruitment of child soldiers. I employ the demographic transition theory to explain why the increase in national population growth could be associated with the recruitment of child soldiers. I then provide a brief description of the way in which children become involved in armed groups. Because some developing nations have high population growth rates but a declining in mortality rate, they have a relatively large youth population in proportion to the total size of national population. In the non-violent period, children do not receive much government social welfare, education, and health care because governments often lack resources to invest in such programs. This lack of resources includes not only economic resources but also human capital resources. In many impoverished nations, children play an important role in earning income for the family.

Many children work in and off the fields. When the fighting begins in some high population growth nations, not only are children more likely to be affected by violence, but also a large number of children will become involved in armed conflicts.

According to the demographic transition theory (Stockwell and Laidlaw 1981), the transformation of society is divided into three stages: primitive or pre-industrial stage, transitional stage, and modern stage. In preindustrial stage, the fertility and mortality rates are relatively high, resulting in a low natural rate of increase and a relatively stable population rate (Stockwell and Laidlaw 1981). In the transitional phase, nations experience dramatic increases in population growth because the birth rate remains high but the death rate decrease, producing a high natural rate of increase. The sharp decrease in death rates and constant high birth rates produce a large youth population, which often produces socioeconomic development problems for developing countries (Stockwell and Laidlaw 1981). For example, when a country has relatively large youth population, the government needs to transfer revenues from production to consumption because young population consumes a large amount of food, healthcare, and education without contributing to production (Stockwell and Laidlaw 1981). In addition, when young population reaches working ages, they will compete for employment which in turn increases unemployment problems (Stockwell and Laidlaw 1981).

A country that has high fertility and low mortality rates is often characterized as a poor nation, often with a labor force concentrated in agriculture and low-skill service sector. Children are an important source of income for the family (Caldwell 1976). For example, in some African countries, children start to work when they are about 5-7 years old (Caldwell 1976, 341). Children are responsible for working in household jobs, low-skill labors, and labor intensive field work (Caldwell 1976). Living in poverty, children often do not have an opportunity to

attend a school, and they are put to work in the fields. More seriously, when a high population growth nation has a large number of children, the government cannot provide adequate social welfare for every child. Therefore, there is a lack of opportunities for children to receive education, social welfare, healthcare, and employment. When these children reach working age, they will more likely become uneducated and unemployed. More seriously, if a high-population growth nation has a large proportion of youth population and faces civil war, children are displaced as the armed conflict becomes widespread. Living conditions become tremendously insecure and dangerous. Supplies of basic needs, such as food, healthcare facilities, housing, and educational resources are overwhelmed by excess demand and become even less accessible for children. Violent armed conflict exacerbates these conditions. A large numbers of children are unsheltered, become displaced persons, and take refuge in refugee camps. Since there are a large number of children available, armed groups take the opportunity to recruit children into armed groups, train, and use them as combatants and labors.

Hypothesis 4: The increase in the size of young population in civil war country is associated with the greater probability of the recruitment of child soldiers.

What effects of population size and growth rate can distinguish civil war nations that use child soldiers from those that do not? I propose that the relative size of the young population to the national population may have an impact on the recruitment of child soldiers. The size of population is often related to the study of civil war. Civil war scholars have found that an increase in the size of national population is associated with an increase in the probability of armed conflicts (Fearon and Laitin 2003; Salehyan and Gleditsch 2006; Sambanis 2004). Possibly, when civil war nations have a large population, armed groups have a larger pool of participants to be recruited. (Achvarina et al. 2007, 22) argue that a large population size can

encourage the recruitment of child soldiers because a large population provides armed groups with “a large pool of potential recruits.” In particular, they found that the size of the population is related to the likelihood of the recruitment of child soldiers in Africa (Achvarina et al. 2007, 22-3). However, if a country has a large population, there should be enough available adults to be recruited into armed groups. Achvarina et al. (2007) did not distinguish what aspect of population size could have encouraged the recruitment of child soldiers in Africa. Therefore, the size of national population is not the most effective predictor of the recruitment of child soldiers.

Instead of using the size of population as the predictor of the recruitment of child soldiers, I propose that the proportion of the young population is a more appropriate predictor of the recruitment of child soldiers. A decline in economic resources for accommodating young population during armed conflicts is the first reason. Prior to the conflict onset, in a country with a large proportion of young adults, the government utilizes economic resources to accommodate the young population. According to Stockwell and Laidlaw (1981, 86), “the younger the population the more capital will have to be diverted from production to consumption purposes, and the more difficult will be the overall development problem.” The overall development problems will worsen during the armed conflicts. The second reason is that a large youth population provides an ample opportunity for armed groups to recruit children into armed groups. If civil war nations are overwhelmingly populated by a large youth population, the government cannot provide protection to every child. Children are more likely to suffer from internal violence and become displaced persons, which in turn will increase armed groups’ opportunity to recruit children. The domestic political turmoil and armed violence increase the government’s concern over security issues. If civil war nations have a significant number of

young children but do not have enough adult soldiers, armed groups may recruit children to be soldiers. Thus, I hypothesize that:

Hypothesis 5: The increase in the ratio of young population to the total size of national population in a civil war country is associated with the greater probability of the recruitment of child soldiers.

### *Poverty*

According to Sambanis (2004, 168), Fearon and Laitin use GDP per capita as a measurement of the strength of the state to repress rebellion; whereas, Collier and Hoeffler use GDP per capita to measure economic opportunity cost for rebellion. When a country experiences an increase in GDP per capita, the government has low propensity for civil war (de Soysa 2002; Fearon and Laitin 2003; Collier and Hoeffler 2004; Sambanis 2004). Instead of using GDP per capita to control for the propensity of civil war, I used infant mortality rate because the previous research on child soldiers shows that infant mortality rate is a robust predictor of child soldier recruitment (Achvarina et al. 2007). In addition, since infant mortality is highly correlated with GDP per capita, I decided to drop GDP per capita as oppose to the infant mortality rate.

Singer (2005) argues that poverty, inadequate basic needs, and the break down of family ties have casual connections to child soldier recruitment. Achvarina et al. (2007) findings show that infant mortality rate is associated with an increase in the likelihood of the recruitment of child soldiers, but they did not find poverty to have a strong effect on child soldier recruitment. Furthermore, the infant mortality rate also reflects the degree of social and economic well-being for citizens. The country that has a high infant mortality rate does not have adequate living conditions. By using infant mortality rate, I can test whether Achvarina et al. (2007) finding about the effect of infant mortality rate on the recruitment of child soldiers is affirmative.

### *Opportunity Cost*

A higher expenditure on education may increase children's opportunity cost to join a non-state armed groups. Collier and Hoeffler (1998, 565) argue that "a high income population has more to lose than a low income population during rebellion." In addition, they find that an increase in income per capita is associated with a decrease in the civil war's duration and the likelihood of its occurrence (Collier and Hoeffler 1998). Moreover, Collier and Hoeffler (2004) used male secondary school enrollment rate to test whether education has a significant impact on the decision of young males to join armed groups. Their analysis shows that male secondary schooling is significantly associated with the opportunity cost to rebel (Collier and Hoeffler 2004). If a government spends more on education expenditure, children will have an opportunity to receive a formal education. As Collier and Hoeffler (2004) point out, since children become more educated, their attitude on joining a rebel group may change because their opportunity cost of joining a rebel group is high. Moreover, when student's expenditure on education is high, they may expect themselves to be successful in their education career. This, in turn, will raise the children's opportunity cost to join a rebel group.

### *Resource Finance Civil War*

Many child soldiers are involved in a civil war country whose government's income is dependent on export revenues from selling natural resources. In particular, "many observers of Africa's recent civil wars have suggested that combatants are 'fighting for control' of a resource" (Ross 2004a, 46). For example, "alluvial diamonds in particular, regarded as the ultimate loot, have served to finance civil wars in Sierra Leone, Angola, Liberia, and the Democratic Republic of Congo. Timber and drugs, too, have financed many rebel groups. Timber has played a big role in financing the conflicts in Myanmar, Cambodia, Liberia, and the Philippines, while drugs have financed conflicts in Afghanistan, the Caucasus, Colombia, Kurdistan, and Tajikistan (Le Billon,

2001, 573 as cited in Buhaug and Gates 2002, 420). In comparison, diamonds are small, but they have more value than some other types of natural resources in term of their sizes (Gilmore et al. 2005).

According to the report published by the United Nations Department of Public Information in March 2001, child soldiers appear in some civil war countries that have diamond reserves and production (Conflict Diamonds: Sanctions and War 2001). Some rebel groups fought against the state to gain access to natural resources (Ross 2004b). If armed conflicts take place in proximity to the diamond mining sites, the fighting will slowdown diamond production. In some countries, child soldiers are sent to a war zones near a diamond mining sites (Conflict Diamonds: Sanctions and War 2001).

Gilmore et al. (2005) categorize diamond resources into two main types. First, primary diamonds refer to diamonds that “occurred in rock formations in sub-soil deposits,” and because they are deposited below the surface of the land, they require mining machinery, technologies, and capital investments for discovery and extraction (Gilmore et al. 2005, 261). Second, secondary diamonds refer to alluvial diamonds that are submerged along riverbeds and beaches, and they do not require technological intensive extraction (Gilmore et al. 2005).

The production of primary diamonds is an important source of national income because the government can authorize, oversee, and tax the authorized diamond mining project actively underway. If the diamonds mining project is conducted by a private corporation or shared with the government, the government can directly generate revenues from licensing the extraction and sale of diamonds. Second, secondary diamonds also provide an opportunity for a diamond cartel and the locals to operate alluvial diamond extractions. If the alluvial diamonds extraction is not solely nationalized by the government, the government can offer a diamond cartel exclusive right

to trade diamonds in the market. In return, the government can earn revenue from the authorized diamond cartels by gaining various forms of taxation and license agreements. In civil war, the government will prevent rebel groups from taking control of diamond reservoirs and production sites because if the diamond reservoirs and production sites are controlled by rebel groups, the government will lose substantial national revenue. Thus, I will test whether a country having diamond deposits is more likely to use child soldiers when they involve in civil war.

### *Civil Liberties*

Followed Fearon and Laitin (2003), the greater the level of democracy is associated with a decrease in civil war probability. When democratic government fully adheres to political democracy, citizens will have greater propensity to enjoy civil liberties and rights and are protected from repression which in turn decreases grievances and the incentive for civil war (Fearon and Laitin 2003). Similarly, when political democracy prevails, government repression is diminished. In a country with a high degree of the political openness, citizens are protected by law, to some certain extent, to protest against the government use of child soldiers. In addition, the government provides an affirmative set of military recruitment laws. Not only does the government implement and strictly enforce the military recruitment law, but they are also consistent with the respect to children's rights.

In contrast, the government of a civil war country is more likely to violate the respect for children's rights. Although a civil war country has a clear set of laws on the minimum age of military recruitment, the government may violate the human rights law that protects children from being abused. When the duration of civil war is prolonged, the government will become more abusive. The distinction of political openness between a civil war country that has child soldiers and a civil war country that does not use child soldiers is that the latter has a relatively

higher degree of political openness than the former. If the citizens of a civil war country that has child soldiers can mobilize to protest against the government's violation of children rights, the government may refrain from recruiting children into the armed forces. Citizens will refrain more from paying the high cost of rebellion as the duration of civil war increases. But if a civil war country can maintain the degree of political openness, as the duration of civil war increases, the probability of child soldier recruitment may decrease. Thus, if a civil war country can maintain the degree of political openness, as the civil war duration increases, the use of child soldiers should be lower. Thus, a country maintaining higher level of civil liberties are less inclined to recruit children into armed groups.

I have presented theoretical explanations and derived a set of testable hypotheses. In this concluding remark, I summarized the main points of the theoretical arguments. I have argued that the longer duration of civil war may significantly increase the probability of child soldier recruitment because wars of long durations increase manpower shortages. When the armed groups fight in civil war for a long period of time, they will lose a number of soldiers. Thus, if they cannot recruit enough adult soldiers, they may recruit children to fight in the war. Turning to the intensity of battle deaths, I hypothesized that the greater intensity of battle deaths would also increase the probability of armed groups' child soldier recruitment. Because armed groups have lost a large number of soldiers, they will perceive a threat to their survival. Thus, when the armed groups have continuously lost a large number of soldiers in wars of long duration, they are more likely to use child soldiers. Furthermore, if a country holds a large number of refugees, the more likely armed groups will recruit children from refugee camps. Moreover, I also hypothesized that the increase in the proportion of youth population to the total national

population will increase the probability of the recruitment of child soldiers. If a country has a relatively large number of youth population, armed groups can recruit children more easily.

Previous research shows that infant mortality rate has a strong effect on child soldier recruitment in Africa (Achvarina et al. 2007). Thus, I test whether Achvarina et al. (2007) finding is affirmative. Moreover, Ross (2004a) argues that armed groups fighting civil wars in Africa have fought to control natural resources. Since alluvial diamonds can easily be looted and sold to finance the war, armed groups may use child soldiers as labor to extract alluvial diamonds and to guard the alluvial diamond deposit sites. Interested in testing whether armed groups in a civil war country that has diamond deposits are more likely to use child soldiers, I employed Gilmore et al. (2005) information on primary and secondary diamond deposits to test whether these two different types of diamond deposits have a significant relationship with the probability of the recruitment of child soldiers. Lastly, if the government provides legal protection for children to prevent them from being recruited into armed groups, it is less likely that children will be used in the armed groups. In the next chapter, I will construct a research design and explain about the variables used in the analysis as well as its operationalization.

## CHAPTER 4

### RESEARCH DESIGN

Building upon the previous chapter, Chapter 4 presents a research design for analyzing the probability of the recruitment of child soldiers between 2001 and 2003. To accomplish this task, I begin by identifying the dependent variable and independent variables. Then, the operationalization of each variable is specified.

The population of this analysis includes all countries that were using and not using child soldiers between 2001 and 2003. The unit of analysis of this study is country-year which includes all states between 2001 and 2003. Because the Child Soldiers Global Report 2004 covers the information between April 2001 and March 2004, the timeframe of the analysis covers between 2001 and 2003.

#### Dependent Variables

Child soldiers are defined as any people under 18 years of age participating in armed conflict or serving in armed groups, whether the armed forces of the government or of non-state armed groups, such as rebel movements. Child soldiers can be used as combatants or as laborers by the armed groups. Although it is difficult to report an exact number of child soldiers in a country that uses child soldiers, the non-governmental organization (NGO) called the Coalition to Stop the Use of Child Soldiers provides country-profile reports which summarize the evidence on child soldier recruitment in each country. The organization obtained the information from various UN agencies, international inter-governmental organizations (IGOs), NGOs, news media, its own members and partners, and interested individuals and organizations (Child Soldiers Global Report 2004).

### *Government and/or Non-State Armed Groups*

This study employs three dummy dependent variables. The first dependent variable is an aggregated dummy variable which is coded as “1” if the government and/or non-state armed groups had child soldiers. Otherwise, the variable was coded as “0.” In addition, if child soldiers are used by the government armed forces and by non-state armed groups, this variable is coded as “1.” Out of 193 countries, there are 26 countries that both government armed groups and non-state armed groups used child soldiers, and 11 countries had child soldiers in non-state armed groups but not in government armed groups. Furthermore, if the country was coded as missing data for child soldiers in government armed groups and did not have child soldiers in non-state armed groups, “0” is assigned for that country. Out of 193 countries, 53 countries were coded as having the presence of child soldiers in government armed groups and/or non-state armed groups.

### *Government Recruitment of Child Soldiers*

Turning to the second dummy dependent variable, because the dependent variable, the presence of child soldiers in government or government related armed forces, is a dichotomous variable, the conceptual framework of the analysis uses the estimates of the probability of child soldier recruitment. This variable is coded as “1” where the report indicates the government armed forces used coercive conscription of under 18 years old. In addition, the dependent variable is also coded as “1” if the report indicates that under 18 years old soldiers are used in a combat. Also, the dependent variable is coded as “1” if the report indicates that the government supports or links with a paramilitary group that recruits under 18 years old. If the report indicates that the under 18 years old, who voluntarily joined the armed forces are deployed in a full military combat, the variable is coded as “1.”

There are certain instances where the variable is coded as “0.” If the report shows no indication of government recruitment of under 18 year olds or no report of under 18 year olds serving in armed forces, the variable is coded as “0.” In addition, if the report shows an indication of voluntary recruitment of under 18 years old; an indication of military training programs for under 18 years old volunteers; and an indication of under 18 years old studying in a military academy program, the variable is coded as “0.”

There are a few instances where the variable is coded as missing data. The variable is coded as missing if the report indicates “it was unknown whether child soldiers were served” in the armed forces and/or information is not available. In general, there are 40 countries that had child soldiers in the government armed groups. In addition, there are 18 countries reported by the Global Report (2004) as missing confirmed information to prove the recruitment of child soldiers by government armed groups. Thus, this variable has a less complete number of observations than the other two dependent variables.

#### *Non-State Armed Groups Recruitment of Child Soldiers*

The last dependent variable is the recruitment of child soldiers by non-state armed groups. It is coded as “1” if non-state armed groups recruit child soldiers. This variable is coded as “0” if the Child Soldiers Global Report (2004) indicates no indication of non-state armed groups and/ or the recruitment of child soldiers in non-state armed groups. 39 countries were coded as having non-state armed groups that recruited child soldiers.

#### Independent Variables

##### *Duration of Civil War*

Following the Uppsala Conflict Data Program (UCDP)/ International Peace Research Institute, Oslo (PRIO) definition of armed conflict, civil war is defined as “a contested

incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths” (Gleditsch et al. 2002b, 4).<sup>1</sup> The unit of the civil war duration is measured in months.

A civil war which was included in this analysis was the civil war that was on-going between January 1, 2001 and December 31, 2003. In coding the duration of civil war, I employed the Centre for the Study of Civil War (CSCW): Armed Conflict version 4-2007 (Gleditsch et al. (2002a). The first step is to specify a civil war that occurred in accordance to the analysis time frame. First, I identified all civil wars that were on-going between January 2001 and December 2003. After having identified the on-going civil wars, I obtained the beginning date of each civil war that was active between 2001 and 2003 from *Startdate2*, a variable that indicates the date of fatality threshold. *Startdate2* fulfills all Uppsala criteria of the 25 battle-related deaths. I also obtained the end date of a civil war that ended anytime between 2001 and 2003 from *EpEndDate*, a variable that shows the date when conflict activity ended. *EpEndDate* also indicates the instant where “if a conflict year is followed by at least one year of conflict inactivity, the *EpEndDate* variable lists, as precise as possible, the date that violence stopped” (Gleditsch et al. 2002b, 11).

The second step is to calculate the number of months for a civil war. In coding the civil war duration for each year, I assigned January 1<sup>st</sup> of the following year as the cutoff date for the purpose of calculating the duration of a civil war. In computing the elapse time between the two dates of the different calendar year, I used December 31<sup>st</sup> as the last date of a calendar year so that the duration of a civil war has a whole period of that calendar year. So, I used January 1st of

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<sup>1</sup> In identifying an armed conflict as a civil war, Uppsala’s 25 battle-related deaths criteria was used as opposed to the Correlate of War’s (COW) 1,000 battle-related deaths. The reason is that the 25 battle-related death criteria enable a researcher to examine number of armed conflicts.

the following year as the cutoff date for the current year. To illustrate, in Macedonia, the first date of the fighting between Macedonia and Ushtria Clirimtare Kombetare (UCK) that satisfied Uppsala criteria was May 1, 2001. Subtracting January 1, 2002 from May 1, 2001, I obtained the number of days.<sup>2</sup> Then, the number of dates is divided by 30 in order to obtain the duration of civil war in months. Thus, the duration of civil war between Macedonia and UCK was 8.167 months.

The average of civil war duration is approximately 24 months, and the highest civil war duration is 668 months from the starting date until 2003. Finally, the value of civil war duration in months is assigned for a country in each year. A “0” is assigned for a non-civil war country in any given year. In addition, a civil war dichotomous variable is coded as a “1” if a country had a civil war that resulted in at least 25 battle-related deaths. It is coded as a “0” otherwise. There were 27, 22, and 21 countries were coded as having civil war between 2001 and 2003, respectively. Furthermore, an interstate war dichotomous variable is coded as a “1” if a country had an interstate armed conflict that resulted in at least 25 battle-related deaths.<sup>3</sup> There were 6 countries were coded as having an interstate war between 2001 and 2003.

### *Battle Deaths Ratio*

Having previously discussed in Chapter 3, the higher rate of battle deaths, the greater will be the pressure on armed groups to recruit child soldiers. In a country with a large population, although armed groups have suffered a large number of battle deaths, they could still recruit

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<sup>2</sup> In Microsoft Excel spreadsheet, I entered the cutoff date (01/01/2002) for the year 2001 in the column located next to the *Startdate2*, the conflict start date so that I could obtain the number of days by subtracting the cutoff date from the conflict start date. Next, I divided the number of days by 30 so that I could obtain the number of months. I repeated these steps and changed the cutoff date for a civil war that elapsed the cutoff date in subsequent years. Then, I entered the civil war duration in correspond to a belong country.

<sup>3</sup> According to Gleditsch et al. (2002b, 9), four types of conflict were defined. I used “Interstate Armed Conflict occurs between two or more states” that had at least 25 battle-related deaths.

more adult soldiers. On the other hand, in a small population country, the higher number of battle deaths would increase pressure on the government because armed groups are less able to recruit adult soldiers when they need them. Therefore, the total battle death per year as a ratio of the size of national population was used to measure the costliness of the conflict as the drain on the national pool of human resources. This measure allows us to test whether the intensity of the conflict is associated with the probability of the recruitment of child soldiers.

I employed CSCW: Battle Deaths Dataset 1946-2005 version 2.0 and Poe, Rost, and Carey's (2006) dataset to compute the total battle death ratio (Lacina and Gleditsch 2005a, 2005b; Poe, Rost, and Carey 2006). In coding the battle death ratio of the total population per month, the first step is to identify a civil war country between 2001 and 2003. Second, I identified the first start date of the on-going armed conflict that met Uppsala's 25 battle-related deaths criteria (Lacina and Gleditsch 2005b, 4).<sup>4</sup> *Startdate2* was used to identify the start date of a civil war, and I also used *bdeadb主*, a variable that designates "the best estimate of annual battle fatalities" (Lacina and Gleditsch 2005b, 5).<sup>5</sup>

I followed the first few steps of coding civil war duration before computing the battle deaths ratio. Then, in each civil war country, I combined the total number of battle-related deaths between the conflict start date and the cutoff date. Next, I divided the total number of battle related-deaths by civil war duration in months. If a civil war country had multiple civil wars, battle deaths were combined. After having computed the number of the total battle deaths per months, I divided the number of total battle deaths per months by the size of national population. In the last step, I multiplied the battle death ratio by 1,000 to correct the ratio. Lastly, the value

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<sup>4</sup> Since all conflicts listed in the dataset, met Uppsala 25 battle-related deaths criteria, it is always not necessary to check if the battle death rate in a given year reaches the minimum threshold.

<sup>5</sup> Because *bdeadb主* is the estimate battle death rate between low and high battle death rate, it is more suitable for the analysis than other two variables listed on the dataset.

of the total battle deaths per month in ratio to the size of national population is assigned to that civil war country. A non-civil war country is assigned with “0” in a given year.

### *Number of Refugees*

The recruitment of child soldiers is likely to take place in civil war nations and civil war nations’ neighboring countries that have a large number of refugees (Lischer 2006). In some countries where the government maintains a large number of refugee camps, there is a high possibility that they are unable to provide refugee camp security. Armed groups may intrude into a refugee camp to recruit child refugees. A larger number of refugees may increase the likelihood of the recruitment of child soldiers.

I employed refugee data from United Nations High Commissioner for Refugees (UNHCR): Statistical Yearbook 2003: Statistical Annex I table A.6 (UNHCR 2003). I employed the number of refugees from this UNHCR’s report. It is suitable data because it provides the number of refugees that originated from a refugee-producing country. I lagged refugee population by origin by one year, and the total number of refugee population is reported in thousands.

Not every refugee country is listed on the report because it only reports countries where “the number of refugees was 5,000 or more in at least 1 year” (UNHCR 2003, 1). A country must have shown that there is a minimum of a 5,000 refugees originating from within the country so that the country will be listed on the report. If the number of refugees in a country passed the 5,000 threshold in any single year between 1994 and 2003, the report indicates a country’s name and all available figures for refugee populations for that country. Since it is not known which country had had less than 5,000 refugees prior to 2003, I treated a non-listed country equally the same. I coded as “0” for all countries that are not listed on the report.

### *Youth Population*

The demographic transition theory posits that higher proportions of young adults in the population decrease the amount of social welfare provided by the government. In order to measure the size of youth population, I used a one-year lag of the total size of under 18 years old population and reported the variable in thousand. The data were obtained from the United Nations Children's Fund (UNICEF) annual reports, the State of the World's Children 2001, 2003, 2004, and 2005 (UNICEF 2001, 2003, 2004, 2005). The report shows the entry in the past two years. For example, the entry of 2001 data is available in the State of the World's Children in 2003. However, there was an issue of unavailable data. In 2002, the UNICEF published a summary report, so-called the State of the World's Children 2002 Leadership. The report contains a summary of progress of the lives of children and families during the past decade. However, the report did not provide the annual data for the year of 2000. In order to resolve the problem of missing data, I estimated the average number of under 18 population for the year 2000 by using the data from 1999 and 2001.

### *Infant Mortality Rate*

In order to test whether Achvarina et al. (2007) finding is affirmative, I obtained under 5 infant mortality rate data from Central Intelligence Agency (CIA): The World Factbook (Central Intelligence Agency 2000, 2001, 2002). The variable is reported in infant mortality rate per 1000 births. The infant mortality rate is lagged by one year.

### *Primary and Secondary Education Expenditures*

To test the effect of children's opportunity cost to join an armed group, I employ the primary and secondary expenditure per student indicators from the World Bank: World Development Indicators (WDI) (World Bank 2008). This variable is measured in a percentage of

GDP per capita and lagged by one year. An increase in the amount of primary and secondary students' expenditure would raise children's opportunity cost of joining an armed group, which, in turn, decreases the probability of child soldier recruitment.

#### *The Presence of Primary and Secondary Diamonds*

Lujala, Gleditsch, and Gilmore (2005) use the diamond data to analyze the relationship between diamonds and the occurrence of civil war between 1945 and 1999. They find that primary and secondary diamonds have an impact on the occurrence of civil war. In particular, the presence of secondary diamonds is associated with an increase in the possibility of ethnic civil war while the presence of primary diamonds is associated with a decreased risk of ethnic civil war (Lujala, Gleditsch, and Gilmore 2005). In their analyses, they employed two dummy variables, primary and secondary diamonds to differentiate the impact of each type of diamonds on civil war, and they found mixed results. Following Lujala, Gleditsch, and Gilmore (2005), I employed two dummy variables to test whether the two types of diamond deposits show the different relationship for the recruitment of child soldiers. In particular, because alluvial diamonds are easier for rebels to exploit, I expect that alluvial diamonds would have a significant and positive relationship with the probability of the recruitment of child soldiers.

#### *Civil Liberties*

In order to test if a government provides a higher level of civil liberties protection for the citizens, the less likely children will be recruited into armed groups. I employed the political openness indicator, developed by Freedom House. Known as the Gastil Democracy Index, this variable was employed to measure the level of civil liberties. The one-year lagged political openness variable was reversed for interpretation. This reversed-ordinal variable is measured by a rating scale that ranges from 1 for being undemocratic to 7 for being democratic. The political

openness was excerpted from Poe, Rost, and Carey's (2006) dataset. Table 1 shows the list of variables and its operationalization.

Table 1: List of Dependent and Independent Variables

Variables	Source	Definition/Operationalization
<b>Dependent Variables</b>		
Child Soldiers in government armed groups and Non-state armed groups	The Child Soldiers Global Report 2004	Coded 1 if government armed groups and/ or non-state armed groups use child soldiers; otherwise coded 0.
Child Soldiers in government armed groups	The Child Soldiers Global Report 2004	Coded 1 if the government armed Groups use child soldiers; otherwise coded 0.
Child Soldiers in non-state armed groups	The Child Soldiers Global Report 2004	Coded 1 if non-state armed groups use child soldiers; otherwise coded 0.
<b>Independent Variables</b>		
Civil War Duration	CSCW: Armed Conflict version 4-2007, (Gleditsch et al. 2002)	Civil war duration is measured in months for all armed conflicts that were on-going between Jan 01, 2001 and Dec 31, 2003. Civil war is defined in accordance to Uppsala criteria of 25 related battle deaths per year.
Total Battle Death Ratio	CSCW: Battle Deaths Dataset version 2.0 (Lacina and Gleditsch, 2005a, 2005b) (Poe, Rost, and Carey 2006)	The battle death ratio is calculated by adding the number of battle deaths that had occurred from the starting year for each conflict that was active between Jan 1, 2001 until Dec 31, 2003. Then, the total number of battle deaths is divided by civil war months. The battle deaths per month is divided by the total national population size and multiplied by 1,000 to correct ratio.

Variables	Source	Definition/Operationalization
Civil War Dummy	CSCW: Battle Deaths Dataset version2.0 (Lacina and Gleditsch, 2005a, 2005b)	Coded as “1” if a civil armed conflict resulted in at least 25 battle-related deaths.
Interstate War Dummy	CSCW: Battle Deaths Dataset version2.0 (Lacina and Gleditsch, 2005a, 2005b)	Coded as “1” if an interstate armed conflict (Type 2) resulted in a least 25 battle-related deaths.
Number of refugees	UNHCR’s Statistical Yearbook 2003 Table A.6 Refugee Population by Origin 1994-2003	Total size of refugees, by origin and is reported in thousand. One-year lagged.
Under 18 Population	UNICEF: The State of the World’s Children 1999, 2001, 2003, and 2004	The number of under18s population. The variable is reported in thousands. One-year lagged.
Under 18 Population ratio	UNICEF: The State of the World’s Children and (Poe, Rost, and Carey 2006)	U18 Population/Total Population* 100,000
Under-Five Infant Mortality Rate	Central Intelligent Agency: World Factbook 2000, 2001, and 2002	Annual rate of children mortality. The infant mortality rate is reported in 1,000 per live births. One-year lagged.
Expenditure on Education (primary and secondary)	World Development Indicators (Word Bank 2008)	The amount of expenditure on primary and secondary per student, reported in a percentage of gross domestic product per capita. One-year lagged.
Diamond Deposits	CSCW: Diamonds Data (Gilmore et al. 2005)	Two Dummy variables, coded 1 if a country has primary or major diamond deposits; 1 for a country has alluvial diamond deposits. Consulted

Variables	Source	Definition/Operationalization
Political Openness	The Freedom House, known as the Gastil Index. Excerpted from Poe, Rost, and Carey (2006)	<p data-bbox="1430 277 1906 375">Gilmore's (2005, 272) Appendix: Countries with Primary and Secondary Diamonds.</p> <p data-bbox="1430 415 1906 516">A reversed ordinal score, measured from 1 being lowest and 7 being highest. One-year lagged.</p>

## CHAPTER 5

### ANALYSIS

Having previously described the selection of dependent and independent variables in the last chapter, Chapter 5 will provide the results of analysis. The chapter begins by introducing the research methodology, providing the results of the analysis, and discussing the results. Chapter 5 ends by discussing the implications of the analysis and suggestions for future research.

#### Methodology

I explain the chosen statistical method and the discussion of converting coefficients of explanatory variables into predicted probabilities. Because the dependent variables are dichotomous, logistic regression was employed to estimate the maximum likelihood of the effect of each explanatory variable on the dependent variable. Furthermore, because the logistic coefficient of the independent variables cannot be interpreted directly for the effect of the independent variable on the probability of the dependent variable taking a value of “1,” the predicted probabilities were calculated by using the *Estout*, estimation output program (Jann 2005, 2007). Furthermore, logistic regression with cluster adjusted for each country was employed to analyze in all models. The sample is all countries that existed between 2001 and 2003. This analysis has 579 observations and accounts for 193 observations per year. Table 2 shows the summary of descriptive statistics.

#### *Explaining the Models and Issues of Outliers*

I tested three main models. The first model tests the probability of child soldier recruitment in government and/or non-state armed groups in all countries. In addition, I test the two main types of armed groups separately in the second and third model. The second model

tests the probability of government armed groups' child soldier recruitment. The third model tests non-state armed groups' child soldier recruitment.

Table 2: Summary of Descriptive Statistics

Dependent Variables	N	Mean	Std.Dev	Min	Max
Government and/or Non-State Armed Groups	579	0.275	0.447	0	1
Government Armed Groups	525	0.229	0.420	0	1
Rebel Groups	579	0.202	0.401	0	1
Independent Variables	N	Mean	Std.Dev	Min	Max
Civil War Duration	574	24.221	86.571	0	668
Battle Deaths ratio	573	0.001	0.006	0	0.070
Refugee Population	579	52.619	259.593	0	3809.800
Under 18 Population in 100,000	569	113.762	414.110	.04	4136.23
Under 18 Population ratio	563	378.750	131.183	145.621	1244.565
Infant Mortality Rate per 1,000 live births	575	43.899	38.352	3.44	195.780
Secondary Diamond	579	0.207	0.406	0	1
Primary Diamonds	579	0.161	0.368	0	1
Primary and Secondary Expenditure per Student	278	35.097	18.063	3	116
Political Openness	576	4.602	2.195	1	7
Civil War	573	0.122	0.328	0	1
Interstate War	579	0.031	0.174	0	1

Furthermore, there are six sub-tests in each of the three models. The first column is the result of the base model. In the second column, I substitute the presence of primary diamond and test whether it has a significant impact on the probability of child soldier recruitment. Then, in the third column, interested in testing whether the proportion of young adults population is associated with the probability of child soldier recruitment, I remove the total size of young adult population and use this variable to test for the result. In the fourth column, instead of using the infant mortality rate, I use the expenditure on primary and secondary school per student to test the probability of child soldier recruitment. Lastly, I tested the effect of civil war and interstate war on the probability of child soldier recruitment in the fifth and sixth column, respectively.

There is an issue of the effect of outlier cases on the result of the analysis. I checked for the battle deaths ratio and the total size of under18 population outlier cases and decided to drop some observations for Model 2. The standard errors of battle deaths ratio in the government armed group model indicate a possibility of outlier's effect when they are compared with the result of Model 3's battle deaths ratio. Table 3 and 4 reports the previous result of Model 2 and 3, respectively.

Table 3: Logit Models of the Recruitment of Child Soldiers in Government Armed Groups (Prior Result)

	(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	0.010*** (0.003)	0.010*** (0.003)	0.009*** (0.003)	0.009 (0.006)	0.007** (0.003)	0.010*** (0.003)
Battle Deaths ratio	168.167 (133.168)	208.512 (143.695)	199.194 (142.753)	949.179 (943.003)	80.136 (126.962)	167.767 (133.101)
Refugee Population	0.005** (0.002)	0.004** (0.002)	0.004** (0.002)	0.004 (0.005)	0.004** (0.002)	0.005** (0.002)
Under18 Population	-0.001* (0.000)	-0.000 (0.000)		-0.001 (0.001)	-0.001* (0.000)	-0.001 (0.000)
Infant Mortality rate	0.016** (0.008)	0.019*** (0.008)	0.018* (0.010)		0.015* (0.008)	0.016** (0.008)
Secondary Diamond	1.210** (0.616)		0.939* (0.552)	2.457*** (0.830)	1.198* (0.612)	1.208* (0.620)
Political Openness	-0.283** (0.142)	-0.240* (0.135)	-0.259* (0.140)	-0.446** (0.198)	-0.289** (0.143)	-0.283** (0.143)
Primary Diamond		0.528 (0.635)				
Under18 population ratio			-0.000 (0.002)			
Education Expenses				-0.022 (0.028)		
Civil War					1.242 (1.140)	
Interstate War						-0.149 (0.905)
Constant	-1.984** (0.854)	-2.093** (0.829)	-2.116* (1.109)	-0.161 (0.655)	-1.930** (0.857)	-1.985** (0.854)
<i>N</i>	508	508	502	253	508	508
<i>Wald X<sup>2</sup></i>	50.739	46.754	49.610	23.507	52.910	52.670
<i>Pseudo R<sup>2</sup></i>	0.415	0.396	0.402	0.500	0.420	0.415
<i>P&gt;chi</i>	0.000	0.000	0.000	0.001	0.000	0.000

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  Two-tailed tests. Robust clustered standard errors on countries in parentheses

Table 4: Logit Models of the Recruitment of Child Soldiers in Non-State Armed Groups  
(Prior Result)

	(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	0.017*** (0.004)	0.016*** (0.005)	0.018*** (0.004)	0.015*** (0.004)	0.010*** (0.003)	0.018*** (0.004)
Battle Deaths rate	5.379 (73.256)	48.277 (97.067)	-6.473 (59.388)	-100.933 (101.740)	-44.311 (38.942)	8.116 (76.601)
Refugee Population	0.004** (0.002)	0.004** (0.002)	0.004** (0.002)	0.004 (0.003)	0.004** (0.002)	0.003** (0.002)
Under18 Population	0.000 (0.001)	0.001 (0.001)		0.004*** (0.001)	0.000 (0.000)	0.000 (0.000)
Infant Mortality rate	0.028*** (0.007)	0.031*** (0.007)	0.029*** (0.008)		0.027*** (0.007)	0.029*** (0.007)
Secondary Diamond	1.123** (0.559)		1.265** (0.535)	1.766** (0.858)	0.983* (0.572)	1.194** (0.546)
Political Openness	-0.335** (0.145)	-0.270* (0.144)	-0.361** (0.142)	-0.513** (0.209)	-0.340** (0.149)	-0.360** (0.154)
Primary Diamond		0.144 (0.659)				
Under18 Population ratio			-0.001 (0.002)			
Education Expenses				-0.041** (0.020)		
Civil War					1.991** (0.876)	
Interstate War						2.345*** (0.769)
Constant	-2.945*** (0.857)	-3.074*** (0.812)	-2.515** (1.048)	0.141 (0.984)	-2.907*** (0.854)	-2.992*** (0.914)
<i>N</i>	562	562	556	277	562	562
<i>Wald X<sup>2</sup></i>	70.362	58.342	70.054	35.464	70.189	67.803
<i>Pseudo R<sup>2</sup></i>	0.496	0.479	0.492	0.507	0.510	0.511
<i>P&gt;chi</i>	0.000	0.000	0.000	0.000	0.000	0.000

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  Two-tailed tests. Robust clustered standard errors on countries in parentheses

Thus, I checked for a country that the government did not use child soldiers but had the size of battle deaths ratio much larger than any of other cases.<sup>6</sup> In addition, I also checked for a country that did not use child soldiers but had a much larger size of youth population than any of other cases.<sup>7</sup> Similarly, I also checked for a possible battle deaths ratio outliers in Model 3 and decided to drop three observations.<sup>8</sup> After I excluded the outliers and tested the models, I obtained the new results that are consistent with the expectation. The discussion of the results that follows in the next section will refer to the improved analysis.

### The Results

Why do some governments recruit children to be soldiers in some countries but not in others? The overall results show that civil war duration, battle death ratio, refugee population, youth population ratio, infant mortality rate, secondary diamond deposits, expenditures on primary and secondary education, and political openness all have significant relationship to the recruitment of child soldiers and mostly in the expected direction. Table 5, 7, and 9 report the results of a logistic model of the recruitment of child soldiers tested with three separate dummy dependent variables in three different sets of tests. The model tests each dependent variable with a set of determinants to analyze how the likelihood of the recruitment of child soldiers was affected by the selected determinants. The results are described in three different sets.

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<sup>6</sup> I dropped Sri Lanka out from the government model because Sri Lanka had a much higher battle deaths ratio but the government did not use child soldiers. In particular, Sri Lanka had the average of battle deaths ratio of 0.008 while the average of battle deaths ratio of all non-child soldiers in government countries is 0.0001.

<sup>7</sup> I dropped China and India out from the government model because China and India had a much larger size of youth population, but the government did not use child soldiers. In particular, the average size of youth population, reported in 100,000 in China and India is approximately 3,760 and 4,502, respectively while the average size of youth population of all non-child soldiers in government armed group is around 123.

<sup>8</sup> I dropped Algeria out from the non-state armed group model because Algeria had a much larger size of battle deaths ratio but had no indication of child soldiers in non-state armed groups. In particular, the average of battle deaths ratio for Algeria is 0.022 while the average of all other non-child soldiers in rebel groups is 0.0002.

## Child Soldiers in Government and/or Non-State Armed Groups

Table 5 reports the result of the first model. The result shows that all determinants are in the expected direction. Civil war duration, battle deaths ratio, infant mortality rate, secondary diamond deposits, political openness, and interstate war all have statistically significant relationship with the recruitment of child soldiers.

First, civil war duration is highly and significantly associated with the recruitment of child soldiers by both government armed group and/or a non-state armed group. The  $p$ -value of 0.007 with a positive coefficient of the civil war duration indicates that civil war duration is a strong predictor of the recruitment of child soldiers. It also has positive effect on the probability of child soldier recruitment. When armed groups fight in civil war, they will compete against each other to gain resources from the same pool of resources. Importantly, when they have continuously fought in a long duration civil war, it is more likely that they would experience a scarcity of resources because both the government and rebel groups have consumed a huge amount of human and financial resources. Meanwhile, since children have continuously suffered from armed conflict violence and not been provided physical protection, they would become more vulnerable to armed groups' recruitment.

Turning to the battle deaths ratio, the higher battle deaths ratio would impose the threat of being defeated to the armed groups. The result shows that the proportion of the total size of battle deaths to the size of national population in a country has a highly significant impact on the probability of child soldier recruitment. The result supports the theory. If a civil war nation has a small size of population but has suffered a high number of battle deaths, the number of available human resources would be relatively limited. In particular, because there is a limitation of human resources, armed groups may not be able to recruit new adult participants to replace those losses

in armed conflicts. This, in turn, increases armed groups' perception of threat because they do not have enough adult participants to fight in armed conflict. As a consequence, armed groups recruit children to be soldiers. They may use children as combatants and laborers.

In all, as predicted, as the level of civil war duration and battle deaths ratio increase, the more likely armed groups would recruit child soldiers. When armed groups experience a civil war of long duration and the high battle death rate, armed groups are more concerned about their survival. Unable to recruit new adult soldiers, armed groups recruited children as soldiers.

However, the number of total refugees and the total size of youth population did not achieve the acceptable level of statistical significance. Yet, these two indicators do have significant relationships to the probability of child soldier recruitment when they are tested in subsequent main models. The result will be described in the sections that follow.

Turning to the socioeconomic development indicators, the results show that the lower the level of development of a country, the more likely armed groups would use child soldiers. First, the infant mortality rate is highly and significantly associated with an increase in the probability of child soldier recruitment. This finding confirms Achvarina et al. (2007) finding in that the higher infant mortality rate is associated with an increase in the probability of child soldier recruitment. In a poor country, if the government cannot provide enough financial resources to improve healthcare and other necessary social welfares, children will live in poor conditions. In particular, in poor country, many children will suffer from a scarcity of food and running water. Thus, they may decide to voluntarily join armed groups in search of food and shelter while some others may be recruited by armed groups.

Table 5: Logit Models of the Recruitment of Child Soldiers in Government and Non-State Armed Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	0.011*** (0.004)	0.011** (0.004)	0.012*** (0.004)	0.005 (0.005)	0.008*** (0.003)	0.012*** (0.004)
Battle Death ratio	295.306*** (108.462)	345.375*** (125.173)	278.123*** (102.044)	1109.747 (881.180)	192.131 (122.127)	305.012*** (110.631)
Refugee Population	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.000 (0.004)	0.003 (0.002)	0.002 (0.002)
Under18 Population	0.000 (0.001)	0.001 (0.001)		0.003* (0.002)	0.000 (0.001)	0.000 (0.001)
Infant Mortality rate	0.021*** (0.007)	0.024*** (0.007)	0.020** (0.009)		0.020*** (0.007)	0.021*** (0.007)
Secondary Diamond	0.954* (0.554)		1.044** (0.521)	2.559*** (0.864)	0.950* (0.556)	0.969* (0.550)
Political Openness	-0.309*** (0.119)	-0.254** (0.118)	-0.317*** (0.119)	-0.586*** (0.190)	-0.316*** (0.119)	-0.323*** (0.122)
Primary Diamond		-0.141 (0.661)				
Under18 Population ratio			-0.000 (0.003)			
Education Expenses				-0.031 (0.026)		
Civil War					1.001 (0.976)	
Interstate War						1.415* (0.739)
Constant	-1.642** (0.735)	-1.834** (0.738)	-1.548 (1.105)	0.867 (0.820)	-1.595** (0.736)	-1.623** (0.743)
<i>N</i>	562	562	556	277	562	562
<i>Wald X<sup>2</sup></i>	70.161	60.611	69.434	37.077	74.681	72.390
<i>Pseudo R<sup>2</sup></i>	0.415	0.402	0.411	0.530	0.417	0.421
<i>P&gt;chi</i>	0.000	0.000	0.000	0.000	0.000	0.000

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Two-tailed tests. Robust clustered standard errors on countries in parentheses

Alluvial diamond deposits and primary diamond deposits have different impact on the recruitment of child soldiers by armed groups. The result shows that alluvial diamond deposits are significantly associated with the probability of child soldier recruitment whereas primary diamond deposits (tested in all sub-models except for the second sub-model where the primary diamond is tested) do not show a significant relationship with the recruitment of child soldiers. Unlike extracting primary diamond resources, alluvial diamonds do not require mining machines to extract the diamonds. Armed groups could use child soldiers as labors to extract alluvial diamonds and guard the alluvial diamond sites. In many instants, armed conflicts occur in proximity to alluvial diamond sites. After armed groups sell the alluvial diamonds, the income from selling extracted diamonds can be used to finance the war.

The higher the degree of political openness decreases the probability of the use of child soldiers. If the government can maintain the high level of political openness, the less likely armed groups will use child soldiers. In particular, the government would be accountable for providing legal protection to prevent children from being forcibly recruited into armed groups and involved them in armed combats.

Interested in testing whether the proportion of youth population to the total size of national population would have an impact on the recruitment of child soldiers, I tested this youth population ratio variable in the third column of all three main tests. However, the result shows that it does not have any significant relationship to the recruitment of child soldiers by any type of armed groups in all three models. In column 5 and 6, I tested the effect of civil war and interstate war, respectively. The result indicates that when a country is involved in a civil war, it does not necessarily mean that armed groups would recruit child soldiers. In fact, when a civil war country fights in a prolonged civil war, the more likely armed group would recruit child

soldiers. Nonetheless, when a country is involved in an interstate war, armed groups are more likely to recruit child soldiers. Possibly, because an interstate war is fought at the higher intensity scale than a civil war, armed groups' perception of threat increases as the hostility level of interstate war increases, which, in turn, influences armed groups' decision to recruit children.

Table 6 shows predicted probabilities of the recruitment of child soldier by government and/or non-state armed groups. Table 6 provides the marginal effect (MargEfct) and the change in the value of significant determinants from minimum to maximum (Min-Max) while all other explanatory variables are held at their mean.<sup>9</sup> For instance, an increase of one month of civil war duration would induce an increase in the probability of child soldier recruitment of 0.002. In addition, an increase in the duration of civil war from 0 to 668 months would increase the probability of child soldier recruitment by 0.809. Furthermore, an increase in one unit of infant mortality rate, per 1,000 live births would increase the probability of child soldier recruitment by approximately .004. When a country has the presence of secondary diamonds, it would induce an increase in the probability of child soldier recruitment by 0.171. Meanwhile, an increase in one level of the degree of political openness would induce a decrease the probability of child soldiers of -0.056. Lastly, when country is involved in an interstate war, it would increase the probability of child soldier recruitment by 0.253.

#### Child Soldiers in Government Armed Groups

The second model tests the probability of child soldier recruitment in only the government armed groups. Table 7 shows the result of the second model after correcting for the outlier effects. In the second model, I start with a brief explanation for comparing the results of this second model with the first model.

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<sup>9</sup> After running logit model, I input the following command, `estadd prchange, add(margefct)`. `Estadd` is developed by Jann (2005; 2007)

Table 6: Predicted Probabilities of the Recruitment of Child Soldiers in Government and/or Non State Armed Groups

		(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	MargEfct	0.0021	0.0020	0.0022	0.0007	0.0015	0.0021
	Min-Max	0.8091	0.8197	0.8085	0.6606	0.7989	0.8120
Battle Death ratio	MargEfct	53.171	64.649	50.864			54.471
	Min-Max	0.8220	0.7721	0.8151			0.8259
Refugee Population	MargEfct						
	Min-Max						
Under18 Population	MargEfct				0.0005		
	Min-Max				0.8759		
Infant Mortality rate	MargEfct	0.0037	0.0046	0.0037		0.0034	0.0037
	Min-Max	0.7571	0.8220	0.7473		0.7436	0.7604
Secondary Diamond	MargEfct	0.1717		0.1910	0.3673	0.1627	0.1730
	0 to 1	0.1940		0.2165	0.5155	0.1859	0.1962
Political Openness	MargEfct	-0.0556	-0.0476	-0.0580	-0.0842	-0.0541	-0.0577
	Min-Max	-0.3562	-0.3006	-0.3686	-0.6446	-0.3513	-0.3706
Interstate War	MargEfct						0.2527
	0 to 1						0.3193

The results of the two models are consistent with one another. For example, civil war duration, battle deaths ratio, infant mortality rate, the presence of secondary diamonds, and political openness all remain strong predictors of the use of child soldiers by government armed groups, and the effects are in the expected direction. When the government of a civil war nation fights in a long duration armed conflict, they are more likely to recruit child soldiers. Because when they have continuously fought in a long duration civil war, they could not mobilize enough national resources and recruit enough adult soldiers. In addition, the government armed groups also experience the scarcity of national resources when they have competed against the rebel groups. Instead of providing social welfare and protection for children from armed conflict, the government armed groups choose to recruit children to be soldiers.

Table 7: Logit Models of the Recruitment of Child Soldiers in Government Armed Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	0.009*** (0.003)	0.008*** (0.003)	0.009*** (0.003)	0.008 (0.005)	0.009*** (0.003)	0.009*** (0.003)
Battle Deaths ratio	426.322** (175.802)	454.429*** (176.157)	412.799** (171.017)	996.900 (923.974)	415.813 (257.502)	427.320** (177.029)
Refugee Population	0.005** (0.002)	0.004** (0.002)	0.005** (0.002)	0.004 (0.005)	0.005** (0.002)	0.005** (0.002)
Under18Population	0.001 (0.002)	0.001 (0.002)		0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Infant Mortality rate	0.016* (0.009)	0.019** (0.008)	0.017 (0.010)		0.016* (0.009)	0.016* (0.009)
Secondary Diamond	1.027 (0.655)		1.073* (0.598)	2.309** (0.919)	1.029 (0.658)	1.014 (0.668)
Political Openness	-0.258* (0.149)	-0.223 (0.144)	-0.262* (0.150)	-0.457** (0.205)	-0.259* (0.150)	-0.258* (0.148)
Primary Diamond		0.549 (0.656)				
Under18 Population ratio			-0.000 (0.002)			
Education Expenses				-0.017 (0.029)		
Civil War					0.080 (1.414)	
Interstate War						-0.403 (1.145)
Constant	-2.170** (0.964)	-2.309** (0.944)	-2.033* (1.173)	-0.381 (0.646)	-2.165** (0.975)	-2.171** (0.963)
<i>N</i>	500	500	494	251	500	500
<i>Pseudo R</i> <sup>2</sup>	0.438	0.426	0.435	0.506	0.438	0.439
<i>Wald X</i> <sup>2</sup>	51.370	47.022	52.176	26.288	53.770	51.343
<i>P</i> > <i>chi</i>	0.000	0.000	0.000	0.000	0.000	0.000

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  Two-tailed tests. Robust clustered standard errors on countries in parentheses

Similarly, when the government of a small population nation suffers a large loss of adult soldiers, they are more likely to recruit children. An increase in one month of civil war would increase the probability of child soldier recruitment by the government by 0.0014. Table 8 reports the predicted probabilities of all significant determinants.

While refugee population did not achieve the acceptable level of statistical significance in the first model, it has achieved statistical significance in the government armed groups' recruitment of child soldiers. Thus, when a government hosts a large number of internally displaced persons and refugees, it is more likely that government armed groups would recruit child soldiers. Possibly, because there are a large number of young refugees, government armed groups intrude into refugee camps to recruit child refugees into armed groups. This finding suggests that it is imperative that the protection of refugee camps in a large refugee population country be improved. An increase in the refugee population of around 1,000 refugees would increase the probability of child soldier recruitment by 0.0008.

While the size of youth population does not have a significant relationship with the recruitment of child soldiers by government armed groups, the positive coefficients are in the expected direction. In particular, the under18 population ratio has a negative but insignificant relationship with the probability of child soldier recruitment. Possibly, because a country has a large proportion of adults in the population, government armed groups have more adults to recruit.

As expected, the infant mortality rate, secondary diamond deposits, and political openness are all significantly associated with the recruitment of child soldiers in the expected direction. When the government cannot provide economic and social welfare for children, children will live in poor living conditions. Many children would suffer from poverty and live

without housing and healthcares. Some of these children may join armed groups in order to obtain food and protection while some others may be forcibly recruited into armed groups.

Table 8: Predicted Probabilities of the Recruitment of Child Soldiers in Government Armed Groups

		(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	MargEfct	0.0014	0.0014	0.0015		0.0014	0.0014
	Min-Max	0.8137	0.8027	0.8144		0.8124	0.8115
Battle Deaths Ratio	MargEfct	69.812	76.888	69.124			69.983
	Min-Max	0.8697	0.8674	0.8640			0.8698
Refugee Population	MargEfct	0.0008	0.0007	0.0008		0.0008	0.0008
	Min-Max	0.8286	0.8185	0.8236		0.8299	0.8297
Infant Mortality rate	MargEfct	0.0027	0.0032			0.0027	0.0027
	Min-Max	0.6398	0.7085			0.6367	0.6386
Secondary Diamond	MargEfct			0.1796	0.2796		
	0 to 1			0.2080	0.4211		
Political Openness	MargEfct	-0.0423	-0.0037	-0.0438	-0.0554	-0.0422	-0.0423
	Min-Max	-0.2734	-0.2402	-0.2812	-0.4583	-0.2726	-0.2733

When the government fights in an armed conflict, they are more likely to involve children in civil war but not in an interstate war. However, civil war and interstate war do not have a significant relationship with the probability of child soldier recruitments. Because an interstate war is a high intensity armed conflict, the government of an interstate war country is less likely to involve child soldiers in an interstate armed conflict because children are not as effective as adult combatants in fighting in high intensity interstate combats.

#### Child Soldiers in Rebel Groups

Turning to the testing of child soldiers in rebel groups in the third model, the overall results are consistent with the two previous models' results. The important difference between the third model and the previous two models is that while the amount of expenditure on primary

and secondary education per student does not achieve the acceptable level of statistical significance in the previous two models, it shows a significant impact on the probability of non-state armed groups' child soldier recruitment. Table 9 reports the result of the analysis of the third model while Table 8 shows the previous result prior to dropping the outlier case.

In this last set of tests, the result shows that civil war duration and battle deaths ratio are statistically significant in most of the sub-models. Importantly, the consistency of the results provides a strong support for the theory. In a long duration civil war nation, because armed groups have continuously fought in armed conflict and competed with each other over pulling national resources from the same pool of resources, they are more likely to experience the scarcity of human and financial resources. In a long duration civil war nation, much of the internal infrastructure, such as roads, houses, schools, hospital, or government agencies, have been damaged or taken over by rebel groups. The government is, thus, unable to provide financial and human resources for initiating reconstruction projects. In fact, a large amount of financial and human resources are drawn to fight in civil war. Children are internally displaced, living in poor living-conditions, and not protected. Some of them may seek to join armed groups for food and protection while others may have grievance incentives to join armed groups. Meanwhile, since both the government and rebel groups seek to recruit new participants, they may be competing to recruit both adults and children to fight in civil war.

As predicted, if a country has a small national population but suffers from a large battle deaths, the number of available adults would be relatively limited. Many adults refrain from joining rebel groups because they have to take care of their responsibilities. Because they have family and employment, they are disinclined to take up arms to rebel against the government. Children, on the other hand, do not have many responsibilities. So, rebel groups can convince

them to join armed groups. In fact, rebel groups could forcibly recruit children if they do not have enough rebel participants.

Infant mortality rate and the presence of secondary diamonds have a significant impact on the recruitment of child soldiers by rebels. As expected, rebel groups are more inclined to use children to extract alluvial diamonds and possibly to use child soldiers to guard the alluvial diamond sites. After selling alluvial diamonds, rebel groups can use the financial resources to continue the fighting. Importantly, this finding suggests that if a civil war nation has the presence of alluvial diamonds, it is probable that child soldiers are more likely to be present in a combat zone that is proximate to the alluvial diamond sites because both types of armed groups are very likely to use children in extracting alluvial diamonds and guarding the alluvial diamond sites.

For the first time, the expenditure on primary and secondary school per student shows a significant impact on the rebel groups' probability of child soldier recruitment. The result is shown in the column 4 on the table 9. In particular, higher amounts of expenditure per student in primary and secondary school would decrease the probability of rebel groups' child soldier recruitment. The result suggests that when children face a high opportunity cost, they are less inclined to join armed groups. When they pay the cost for schooling, they are less inclined to join a rebel group. This would be the case because their attitude towards joining a rebellion would change when they become more educated. The result shows that an increase of one percentage in expenditures per student as a share of the GDP per capita would induce a decrease in the probability of non-state armed group recruitment of child soldiers by  $-0.0019$ . Furthermore, rebel groups are more likely to recruit child soldiers in an interstate war nation. The result suggests that when the government of an interstate war fights in interstate armed conflict, the government would recruit a large number of adults to be soldiers. The government would compete against the

rebel groups over extracting national resources. Meanwhile, because the government is dealing with the interstate war, they cannot provide enough protection for children. As a consequence, when the pool of resources is shrinking, rebel groups seek to take an opportunity to recruit children to be soldiers. The result shows that when a country engages in fighting an interstate war, the probability of child soldier recruitment is increased by 0.221.

In all, the analysis offers some suggestions about the recruitment of child soldiers. First, when armed groups fight in a protracted civil war, they are more likely to recruit child soldiers. Moreover, the result shows that the larger the refugee population, the more likely the government and non-state armed groups would recruit child soldiers. Turning to the infant mortality rate indicator, the higher the infant mortality rate, the more likely armed groups would recruit child soldiers. In addition, while the total expenditure on primary and secondary education per student does not achieve the acceptable level of significance, this variable shows a significant impact on the non-state armed groups' recruitment of child soldiers. The presence of secondary diamonds is significantly associated with an increase in the probability of rebel group's recruitment of child soldiers. In the next chapter, I provide the conclusion of this thesis.

Table 9: Logit Models of the Recruitment of Child Soldiers in Non-State Armed Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	0.014*** (0.004)	0.013*** (0.005)	0.016*** (0.005)	0.006 (0.005)	0.011*** (0.004)	0.015*** (0.004)
Battle Deaths ratio	396.412*** (119.210)	454.686*** (132.818)	359.812*** (113.214)	1276.999 (901.144)	270.694* (142.578)	420.443*** (123.009)
Refugee Population	0.003 (0.002)	0.003 (0.002)	0.003* (0.002)	-0.005 (0.008)	0.003 (0.002)	0.002 (0.002)
Under18 Population	0.000 (0.001)	0.001 (0.001)		0.005*** (0.002)	0.000 (0.001)	0.000 (0.000)
Infant Mortality rate	0.027*** (0.007)	0.032*** (0.007)	0.026*** (0.008)		0.027*** (0.007)	0.028*** (0.008)
Secondary Diamond	1.132** (0.569)		1.334** (0.546)	1.998** (0.852)	1.138** (0.564)	1.230** (0.552)
Political Openness	-0.367** (0.147)	-0.285* (0.148)	-0.392*** (0.145)	-0.655** (0.292)	-0.380** (0.150)	-0.402** (0.158)
Primary Diamond		-0.144 (0.661)				
Under18 Population ratio			-0.000 (0.002)			
Education Expenses				-0.041* (0.023)		
Civil War					1.126 (1.182)	
Interstate War						2.532*** (0.782)
Constant	-2.831*** (0.837)	-3.072*** (0.784)	-2.534** (1.087)	0.443 (1.139)	-2.760*** (0.834)	-2.876*** (0.899)
<i>N</i>	559	559	553	274	559	559
<i>Pseudo R</i> <sup>2</sup>	0.533	0.517	0.527	0.605	0.536	0.552
<i>Wald X</i> <sup>2</sup>	70.519	52.008	71.249	36.604	73.869	65.291
<i>P&gt;chi</i>	0.000	0.000	0.000	0.000	0.000	0.000

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Two-tailed tests. Robust clustered standard errors on countries in parentheses

Table 10: Predicted Probabilities of the Recruitment of Child Soldiers in Non-State Armed Groups

		(1)	(2)	(3)	(4)	(5)	(6)
Civil War Duration	MargEfct	0.0014	0.0014	0.0015	0.0003	0.0009	0.0013
	Min-Max	0.9219	0.9088	0.9219	0.6920	0.9170	0.9297
Battle Deaths ratio	MargEfct	37.472	47.890	35.221		23.3566	36.780
	Min-Max	0.9286	0.9234	0.9231		0.9217	0.9363
Refugee Population	MargEfct			0.0003			
	Min-Max			0.9034			
Under18 Population	MargEfct				0.0002		
	Min-Max				0.9710		
Infant Mortality rate	MargEfct	0.0026	0.0033	0.0026		0.0023	0.0025
	Min-Max	0.8459	0.9079	0.8292		0.8234	0.8573
Secondary Diamond	MargEfct	0.1070		0.1306	0.0924	0.0982	0.1076
	0 to 1	0.1393		0.1763	0.1770	0.1294	0.1447
Political Openness	MargEfct	-0.0347	-0.0152	-0.0384	-0.0303	-0.0328	-0.0352
	Min-Max	-0.2617	-0.2121	-0.2903	-0.4369	-0.2534	-0.2757
Education Expenses	MargEfct				-0.0019		
	Min-Max				-0.1603		
Interstate War	MargEfct						0.2215
	0 to 1						0.4644

## CHAPTER 6

### CONCLUSION

Why do some governments and rebel organizations but not others recruit children to be child soldiers? Although the literature on child soldiers has not yet provided answers to the question, the findings of this thesis offer some suggestions. In the previous chapters, I have detailed the research question, provided a summary of the previous findings on child soldiers, built the theoretical framework and hypotheses on the intensity of civil war and socioeconomic developments, conducted the statistical analysis to test the theory and hypotheses, and presented the results. The overall results show support to the theoretical framework.

The first finding shows that if a country fights in a civil war of long duration, the probability of child soldier recruitment by armed groups increases. When armed groups fight in a civil war of long duration, they continuously lose resources. They cannot mobilize more adult soldiers to replace those killed. They also become more concerned about their survival in a protracted civil war. The result of this thesis shows that when the government and/ or non-state armed groups fight in civil war of long duration, they are more likely to recruit children as soldiers. In order to stop or limit the possibility of child soldier recruitment, the international community needs to take steps to stop armed conflicts in their early stage.

Turning to the battle deaths ratio, battle deaths ratio does have a significant impact on the recruitment of child soldiers by either government and/or non-state armed groups. If a country has a small national population and large number of battle deaths, they would have a relatively limited number of available adults to be used in armed conflict. Then, when armed groups fight in high intensity civil war, they continuously lose adult soldiers. If they have lost a large number

of soldiers and cannot mobilize new adult soldiers, they would choose to recruit children to be soldiers.

The larger size of refugee population is significantly associated with the recruitment of child soldiers by either the government or non-state armed groups. When a country hosts a refugee population, the government or rebel armed groups are more likely to recruit child soldiers. Thus, this finding is consistent with Lischer's (2006) suggestion in that the international community needs to increase refugee camp and international border security.

Another important finding is that Achvarina et al. (2007) finding on the positive relationship between the infant mortality rate and the recruitment of child soldiers is affirmed. The result is consistent in all sets of testing. Infant mortality rate has a strong significant impact on the recruitment of child soldiers. In particular, an increase in the infant mortality rate increases the probability of child soldier recruitment by all types of armed groups. Improving the conditions of socioeconomic development requires the government to invest financial resources to stimulate growth and prosperity. However, in poor nations, the improvement of economic conditions is constrained by the lack of financial and human resources at the disposal of the government. Thus, the international community may contribute financial and human resources in order to help underdeveloped countries improve the living conditions.

Turning to natural resources as fuel for civil war, if a country has secondary diamond deposits, it is necessary for the government to take a control of the alluvial diamond sites and prevent the area from becoming a new battleground. If the armed conflict is fought in the proximity to the alluvial diamond deposits, it is important that the government limit and isolate the area of armed conflict from expanding into the alluvial diamond sites. If the armed groups penetrate the alluvial diamond deposit sites, they could use children to extract and guard the

sites. Thus, it is necessary that the government control the natural resources mining and the flow of natural resource trading in the market. For example, international diamond traders may sanction diamond trading nations that use child soldiers in armed conflicts.

Improving the level of political openness would safeguard children from being recruited into armed groups. If a civil war country has a high level of civil liberties, the more likely children would be protected from recruitment. In particular, the government would take responsibility to prevent any types of armed groups from recruiting children. However, improving the level of civil liberties may take time and is difficult to achieve during civil war. In contrast to the expectations about the effect of demographic change on the recruitment of child soldier argument, the higher ratio of youth population to the size of national population does not have any significant impact on the recruitment of child soldiers by armed groups.

In conclusion, the future study may emphasize the study of child soldiers from several perspectives. First, the study could focus on expanding the number of years of this cross-national analysis when the information on child soldiers becomes available. Second, the future study could emphasize how the presence of child soldiers affects the intensity of civil war. For example, the study could focus on how the presence of child soldiers affects civil wars of long duration. In addition, the future study could focus the presence of child soldiers in ethnic armed conflicts has an impact on civil war duration. Another important aspect on the study of child soldiers could focus on how socioeconomic development could prevent the recruitment of child soldiers. The future research could conduct an in-depth case study on how the infant mortality effects the recruitment of child soldiers.

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